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MONGOLIA FOOD SECTOR STUDY

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The Mission concluded with the thorough effort of Aimee Schilling in checking facts and references and editing, and with Sheila Davis putting the final manuscript together.

EXECUTIVE SUMMARY

A. APPROACH TO THE MISSION

The Assessment Mission's terms of reference required not only detailed analysis and recommendations with respect to the need for emergency food aid in fiscal years 1992 and 1993, but also recommended actions for longer-term food aid and agricultural or policy support activities that should be pursued to promote food security. The Mongolian economy is different from the bulk of developing countries, particularly those of South and Southeast Asia, and its current adjustment problems are sufficiently radical that a broad approach is necessary. The terms of reference, therefore, request a long-run analysis of evolving food systems, and the role and effects of a wide range of policies, particularly the complex processes of privatization, as they relate to the food sector specifically and economic growth generally.

Part I of this report, "Food Security and Development", recognizes the key role of agricultural growth in providing food security. Current growth potentials are embedded in the history that generated the present policies and problems that must be dealt with in a larger context. Thus, Part I proceeds from a brief historical, geographic, structural, and strategic background to discuss five macro policy issues of particular importance to the food sector. With that background, the agricultural sector is described in the context of the food security needs of the nation and the appropriate development needs are indicated. Priority is established for immediate, productive intensification of the dairy sector, a particularly important element of the food system in Mongolia and a source of current urban food insecurity. That sets the stage for explicit discussion of the food delivery system and its various components, with particular emphasis on access by vulnerable and potentially vulnerable groups. Finally, specific policy recommendations for aid are given which place food security in the broader context of economic development and which lead to the specific recommendations for food aid and the utilization of counterpart funds delineated in Part II.

Part II, "A Proposal for Food Aid To Mongolia", provides two specific recommendations for food aid. The first meets a key development need essential to the self-reliant food security of Mongolia. The second meets specific short-term food needs in the context of a foreign exchange constraint on the food sector, relief of which is essential to short-term and intermediate-term food security.

B. STRUCTURE OF THE MONGOLIAN ECONOMY

Understanding the structure of the economy is directly important to understanding food systems, as it indirectly influences the optimal development strategy and, hence, the role of food production and distribution in growth. Examining the economic structure and its underlying determinants is also critical to understanding trade potentials and the exchange rate issues which weigh heavily in macro policy.

Although data for Mongolia are rich in quantity and quality, they are difficult to interpret, partly because of the use of socialist accounting principles, partly because of the immense recent dislocations of the economy, and largely because of the change in the initial sources of much data (from central command organizations to individual families and enterprises). The different systems needed to collect and manage data from the new sources are only beginning to be established.

Mongolia has experienced radical structural change since 1940, when it was clearly one of the least developed countries, with 60 percent of its population in agriculture, and virtually no modern physical or institutional infrastructure. As one would expect in a Leninist economy, development was strongly

dualistic, with the extensive rural areas relatively less included in growth and the structure of non-agriculture skewed towards heavy industry and large-scale firms even in the light industry sub-sector, and consequently very little small-scale and medium-scale production. The most important aspect of the current reforms is their capacity to facilitate rapid generation of a normal structure with a heavy weight to small-scale and medium-scale firms. It is these firms which must generate the bulk of the employment so essential to food security of lower-income people.

Currently, about 20 percent of the country's net material product is generated in agriculture. Two thirds of agriculture is represented by livestock and one third by arable agriculture.

The state farm arable sector comprises only 4 percent of the economy, about the same as mining, one quarter as much as heavy industry, half as much as light industry and a little more than half as much as the food processing sector. Much of the livestock sector has been in the hands of relatively small-scale herdsmen, albeit organized into the cooperative farm sector.

The employment breakdown is quite different from the output breakdown. Forty-two percent of the labor force producing net material output is in the agricultural sector and only 26 percent is in industry. Perhaps the proportion of employment comes closer to representing the weight of agriculture in material output since there is probably no more underemployment in agriculture than in other sectors, and the pricing system particularly underweights agriculture and specifically livestock production.

C. THE ROLE OF FOREIGN ASSISTANCE

With the advent of foreign assistance to Eastern Bloc countries, the process of foreign assistance has come full circle: from Marshal Plan assistance to developed countries whose physical plant was largely destroyed and whose institutional structures and policies were ill suited to modern economic growth; to the long period of assistance to very poor "underdeveloped" countries that never had the base of physical infrastructure, education, policies, and institutions suitable to modern growth; and now back to circumstance in former Soviet Bloc countries with grossly depreciated and obsolete capital, stocks, high levels of education and ill-adapted institutional structures. The difference is that rebuilding physical plant and remolding institutions is very different to developing each from the beginning. The former can be done relatively quickly while the latter is a time consuming process.

The set of Eastern Bloc countries, including Mongolia, is more similar to the postwar set of Marshal Plan countries than to contemporary low-income developing countries in its development characteristics. In Mongolia, there is a specific problem of a substantial capital plant which is run-down and obsolete. Much of it needs replacement. That is as true of agriculture as of industry. Policies need to be radically changed, as is happening. Old institutional structures need reform and new ones need to be built. All is to be done in a country with a well-educated labor force and complex institutional structures characterized by broad participation.

As in the case of the Marshal Plan, well-conceived foreign assistance can greatly speed the transitional processes. Also as in the case of the Marshal Plan, food aid can represent a substantial portion of the effective total, partly reducing the privations and, hence, the instability incident to urban people experiencing sharp decline in their incomes, and partly to save foreign exchange for other essential imports.

Thus, for Mongolia, food systems, food needs and provision of development assistance in general, need to be viewed in terms of the temporary stress of structural adjustment programs rather than in the long-

term development context of the poor countries of South Asia. The need is not as stark, but is of shorter duration. However, short duration does not mean an overnight response to policy change alone, but rather three to five years of thoughtful, effective institution building and reinvestment in the context of constructive macro policy.

D. THE MACRO ECONOMIC ENVIRONMENT

An economy shifting rapidly from a centrally planned, command economy to a private market-oriented system has immense transition problems that may not only delay the benefits from the change, but may set the economy back in the short run, increasing the magnitude of food inadequacy and uncertainty for vulnerable groups. The latter occurs if budget stringency removes old safety nets at just the time when they may be most useful.

Sustained major change in macro policy is central to the success of the new direction of the Mongolian economy — specifically, to production increase in the food sector, employment growth necessary for long-term food security, and continued capacity to provide safety nets to ensure food security for vulnerable groups. In the context of sustained macro policy change, attention must be given to protection of vulnerable groups from food insecurity and to building institutional and physical infrastructure for near-term growth.

From the range of macro policy issues that face Mongolia, the Mission gave particular attention to four which seem most relevant to the food system in both its short-term and long-term manifestations.

First, successful privatization is essential to future rapid growth. In the medium and long run, the small-scale and medium-scale sectors will be the primary sources of the greatly needed expansion in productive employment. However, in the short run, privatization may bring increased unemployment as redundant labor is released from the labor force. It is essential that privatization policy focus on removing barriers to growth of the small-scale sector and to providing institutional support.

Second, with the specialized resource base of Mongolia, international trade and the foreign exchange rate are critical to the determination of price relationships. They in turn influence output composition, the supply of critical inputs for keeping the economic system operating, and the extent to which comparative advantage can exercise its potential for increased growth, employment, and incomes. Each of these trade-related economic variables is important to the food system and food security. At present, foreign exchange shortage is a particularly serious restraint to economic recovery and growth. The constraints will continue as long as the public sector garners all the foreign exchange and directs it to highly inefficient energy and large-scale sectors. Private trade needs to be brought into earning foreign exchange, and both the use of foreign exchange and the efficiency of the energy and transport sectors need to be greatly increased.

Third, price policy and the resultant set of price relationships are important. They are in part a product of trade and exchange rate policy and in part a function of domestic policy as well as underlying supply-demand relations. Relative prices also indicate how well markets are operating and how related food security stress affects vulnerable groups. Current price relationships also indicate forms of commodity aid that may help reduce price distortions or at least avoid introducing additional ones. The main price distortion stems from the dual exchange rates and, hence, between domestic and imported goods. That distortion needs to be removed in part because of its disincentive to agricultural production, and particularly the extensive livestock sector.

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Finally, the Government's budget balance and the underlying fiscal policy are critical to price policy, the operation of various safety nets for vulnerable groups, and the form that foreign assistance takes, with respect to both utilization of funds and impact on reform processes.

Of these four policy areas, international trade and the exchange rates are particularly complex and important to economic growth, agricultural growth and food security. This issue interacts critically with the other three, and receives the most protracted treatment in the report.

E. A STRATEGIC PERSPECTIVE OF MONGOLIAN AGRICULTURE

Mongolia is a country for which a high growth rate, certainly one with broad participation requires rapid growth in the agricultural sector. Over 40 percent of the population is rural and agriculture directly provides employment for about 30 percent of the total labor force. The bulk of industrial employment is in industries based on agricultural raw materials. Despite the importance of the mining sector, agriculture still generates, both directly and through raw materials, close to half of all export earnings and has potential to generate much more. Indeed, outside of the important (and potentially even more important) mining sector, there is little in government, manufacturing, or other services that is not dependent on agriculture for support, either from direct employment, provision of raw materials, or provision of tax revenues.

The health and growth of the private sector in previously centrally planned economies depends primarily on the initiation, efficient management and growth of small-scale and medium-scale firms. In Mongolia, those will initially be in agricultural processing and marketing or in providing consumer goods to the rural sector.

The food security problem in Mongolia arises from inadequate production of some foods, inadequate marketing of others, inadequate foreign exchange, and inadequate employment. Each finds its long-term solution in increased efficiency and productivity of the agricultural sector and the small-scale and medium-scale sectors it stimulates.

Much of the agricultural sector, and particularly the relatively more intensive agriculture of the north central region, which encompasses over half of the population, is operating inefficiently and at low levels of productivity. Thus, the potential for large aggregate increases in efficiency are particularly great in the intensive agriculture of the north central region. That is an important theme in the proposed action program.

Agriculture in Mongolia is quite different from that in most countries. This circumstance calls for different approaches to development, a considerable sense of priority as to what and how to develop agriculturally, and sensitivity to the different nature of the interactions and support structures needed for ancillary development of other sectors.

Mongolia is fortunate in having a minerals sector which already generates substantial foreign exchange and has potential to generate much more. A high proportion of agriculture is also already earning foreign exchange. With modest time and appropriate macro policy, Mongolia should not find foreign exchange availability constraining to the growth rate. However, because of past policies, it is now the most important constraint to growth.

An important development issue is the extent to which mining revenue is to be utilized to finance the physical and institutional infrastructure for effective rural development or is to be dissipated in capital

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intensive types of industry and the low productivity parts of the public sector, including much of the system of subsidies. At present, low resource productivity and inefficiency in many government services, in much of the large-scale sector, and in central infrastructure, such as power and transport, diverts the bulk of mining returns from high rate-of-return development activities.

In examining agriculture, the highly specialized nature of Mongolia's resource base must be clearly understood. Relative to the population density and distribution, the agricultural resource base is productive, but highly specialized in its potentials. A tiny proportion of the country is suited to intensive agriculture, under irrigated conditions, during a short growing season. Because of its scarcity relative to other resources, the irrigation potentials must be developed to their fullest economic potential. But they will never comprise an important proportion of agricultural output. A larger, though still small, portion of the country is suited to arable agriculture, with favorable topography but a rainfall and growing season regime that enforces a narrow range of crops and at best modest yield levels.

The bulk of the country is suited to extensive grazing, with pockets of high productivity grass land. The grazing is only possible during a relatively short summer growing season. The extent to which the grazing can be utilized is constrained by the supply of fodder for the long winter period, as well as by the supply of supplementary concentrate feeds necessary to intensive final output. Thus, the first claim on arable land is to complement the grazing land so it can be more fully utilized. Only after that need has been met can economic utilization turn to other commodities. Even then, complementary concentrate livestock feeds should be imported if optimal use is to be made of the grazing land. That is why such imports, and the technical assistance to adjust production systems to their use, are a central recommendation in this report.

The isolation of Mongolia, not only far from cheap water transport, but surrounded by large areas of relatively low population density neighboring countries with thin infrastructure, increases the costs of any industrial activity based on imported raw materials. *At the same time, Mongolia's agriculture favors output, which offers opportunity for large value added in processing.* Thus, non-agricultural development, other than minerals, will for a long time be most economically based on agricultural raw materials. In the very long run, Mongolia should expect to build an industrial sector based on high-technology, low-raw-materials types of industry. Developing the educational system with that in mind would be good policy, but it certainly cannot become a significant factor in GNP or total employment for several decades. In the meantime development must proceed with what is already available in Mongolia.

Given the low productivity per unit area of land, the grazing areas support only a sparse population and, hence, low overall income. As a result, they cannot pay for an expensive system of physical and institutional infrastructure. Careful priority must be given to these investments. Fortunately, the products produced — wool, hair, skins, meat, and dairy products — are all high-value products that require only a small portion of their value to be expended on transport, even with poor infrastructure conditions. The political regimes of the past several decades have placed great weight on development of human capital through education and public health measures, so this resource is well developed, even in very sparsely populated areas. Indeed, one of the most important issues at present is how to maintain that investment, which is so essential to long-term development.

Another fortunate feature of Mongolia is a concentration of the best arable land in a small proportion of the country, which is also where a major portion of the mining occurs. Consequently, this area contains over half the total population and the bulk of the physical infrastructure. Thus, it is logical to give priority in the sequencing of development to that central region with the most responsive agricultural resources, both crop and livestock, the bulk of the national market, the most easily accessible market,

and the bulk of cost-reducing, development-oriented infrastructure. This is also where most, although not all, of the food security problem lies. Within this region, intensive dairy production has a comparative advantage, with production units eventually appropriate to a family-size labor force. The dairy industry is now very inefficient, offering opportunity for rapid development, over the next three to five years.

F. MONGOLIAN DIETARY PROFILE

Mongolian people have a highly unusual dietary pattern, due directly to their traditional semi-nomadic lifestyle, which was prevalent throughout their history and remains central to the economy and culture today.

With only an extremely small part of the country suited to the production of crops, early Mongolians depended on wildlife for food. Later, they domesticated animals, taking advantage of the extensive natural pastures to graze sheep, goats, cattle, horses, camels and other animals. Mongolians became proficient in caring for their animals, protecting them from the extreme cold and wind of the Mongolian winter, and using them to produce clothing, shelter and food.

The traditional houses of Mongolian herders, called "ghers" ("yurts", in nomadic areas of neighboring countries), can be disassembled in less than an hour and transported on horses or camels, allowing the household to move as the herd seeks better grazing. Families typically spend the winter near an administrative center where they can buy and sell goods and obtain education, health and other social services. In the spring, they move their ghers and their animals to grazing areas some distance away. During the course of the summer, they may move a dozen or more times to obtain good natural grasses, returning in winter close to the administrative center.

About one fourth of the population continues to live in this traditional semi-nomadic manner. These families continue to provide most of the nation's food supply and a large share of exports and inputs to industry. Households with other economic pursuits remain closely linked to the semi-nomadic lifestyle through history, culture, economics and family. Almost all urban households have family members in rural areas with whom they maintain regular contact.

The Mongolian diet that evolved from this lifestyle was almost totally dependent on animal products, including meat, milk and milk products. The lack of arable land and the mobile lifestyle herding required meant that almost no food crops were grown. In addition, because of the great distances and lack of infrastructure, access to non-animal foods from other countries through trade was minimal, limited to spices, tea, sugar and a few other commodities.

Thus, meat and milk are key elements in food security. The food security situation is innately favorable in the rural areas of arable and intensive livestock farming. Incomes average high in the first place, production is more stable, and large livestock reserves are available. Food security in urban areas depends significantly on the mobility of meat from the extensive livestock sector, which is in turn a product of the relative prices of meat to consumer goods, milk from the inefficient intensive dairies, and imported flour, which is a critical complement to the domestically-produced wheat.

G. FOOD AID

The Assessment Mission recommends two complementary food aid programs. Each contributes directly to food security, long-term development, and structural adjustment.

One of the food aid recommendations can be simplistically described as an effort to ensure increased food security through a major intensification and expansion of the intensive dairy sector of the north central region of Mongolia, where the bulk of the urban population is concentrated, and to do so through a comprehensive program in which food aid in the form of soybean meal would play a central role. The potential for large production increase is great, using known technology; the dairy sub-sector is large, with strong linkages to other sectors; and the output is of great importance to urban food security.

The second food aid recommendation concerns flour, with the explicit objective of ensuring an important element of food security for the urban population of Mongolia and concurrently reducing the foreign exchange constraint that is not only holding back development generally, but also having negative effects on the food security of the country.

These two food aid recommendations are made in the context of an apparently good crop year and large farm livestock numbers in 1992. Thus, it is unlikely that there will be a food emergency in the winter of 1992-93. Such an emergency, however, could still occur if heavy, untimely rains fall just before harvest, more than undoing the favorable effects of the good rains during the growing season. A further tightening of the foreign exchange situation could also nullify the effect of generally favorable livestock prices by inhibiting the supply of imported consumer goods on which rural people spend the marginal proceeds from livestock sales.

It is far too early to predict the crop and livestock situation for 1993-94. The favorable 1992 crop prospects are due to good weather, which masks underlying retardants arising from the effect of foreign exchange shortage on imports of fuel, machinery spare parts, and fertilizer. These problems will reinforce the effect of bad weather if it were to occur in 1993. Similarly, at this stage one cannot predict whether or not a severe winter will sharply deplete livestock numbers, again in the context of reduced fodder production and shipment. However, the prospects are sufficiently favorable to recommend a development-oriented rather than an emergency approach to food aid.

H. POLICY NEEDS

Although the Government of Mongolia (GOM) has been making rapid progress in privatization, the freeing of prices, and the development of market processes, the Assessment Mission notes four specific areas currently needing further policy emphasis. Each is specifically important to food security. They are as follows:

1. The immense gap between the official exchange rate and the free market exchange rate is clearly creating substantial problems in development. The real exchange rate, in terms of relative prices, probably lies somewhat nearer the official exchange rate than the free market rate. However, as long as the public sector is a massive and inefficient user of foreign exchange, there is little way out of this problem.

   The Assessment Mission therefore recommends that steps be taken to open petty international trade to the private sector. That is, traders should be permitted to purchase goods, including meat and dairy products, on the local market, exporting them and bringing back goods from neighboring

countries. The Assessment Mission believes that this would bring the two exchange rates much closer together and break an important consumer goods bottleneck impeding the effective operation of the price system for encouraging marketing in the extensive livestock sector.

Without opening such small trade, the Government will continue, and at least on the surface rightfully so, to garner all possible exports and utilize them for crucial imports for the large-scale sector. Although lack of such imports is clearly constraining the infrastructure sectors at the present time, there needs to continue to be heavy pressure to increase the productivity of those sectors and there needs to be some release of foreign exchange for a broader range of development purposes. These policy changes of opening foreign trade must be reciprocated in the neighboring countries if they are to be fully effective.

2. Practically all processing of agriculture commodities in Mongolia lends itself to small-scale operation. This includes small-scale marketing of milk and meat and somewhat larger-scale operation of flour and feed mills. In response to the underlying economies, the small-scale and medium-scale private sector is moving quickly into these areas. It is important, however, that policy facilitate that movement by ensuring some access to foreign exchange, particularly for transport, to the small-scale and medium-scale sector. There should be careful monitoring to be sure that there are no government-imposed bureaucratic inhibitions to the rapid growth of the small-scale and medium-scale agricultural marketing sector.

3. The Assessment Mission is, on the one hand, impressed by the ability of the GOM to provide safety nets to the disadvantaged urban population through the rationing system and complementary programs. On the other hand, it is concerned that the cost of the system, with its 100 percent eligibility of rural and urban people, irrespective of income, will soon constrain the system under the necessity of reducing budget expenditures. A logical way to handle this problem is to reduce eligibility for the ration system to no more than the 30 percent of the urban population that is most at risk in terms of poverty and food security.

   The Government still demonstrates a capacity to obtain deliveries of key livestock products from the rural sector. It could relieve the budget constraint to a food safety net by using that capacity to obtain the necessary modest deliveries, as compared to the present size of the ration system, from the rural sector at below-market prices in order to finance low-cost sales through the ration system.

   Having stated a concern, and two elements of solution, the Assessment Mission realizes that it is nevertheless important that the GOM be free to find its own solution. It has a highly decentralized system at the aimak (provincial) and the suom (township) levels, and all the knowledge of individuals in poverty that goes with such a system.

4. While most prices have been freed, milk prices seem de facto to be artificially constrained and flour prices are regulated. These distortions will prove increasingly inefficient and need to be removed.

I. TECHNICAL ASSISTANCE

The Assessment Mission fully recognizes the scarcity of administrative personnel within A.I.D. generally and in the Mongolia Mission specifically. Thus, with respect to the flour food aid programs, the Mission suggests the possibility of not programming the counterpart funds. However, since the dairy food aid program is intended to bring about an increase in milk output, which is important to urban food security, by a substantial multiple of the actual food aid received, it is important that it be accompanied by

technical assistance. The Mission has delineated a lean technical assistance program, divided into five parts and presented in the order of importance to the progress of the program.

Soybean meal is critical to increased dairy production in Mongolia. There is a favorable environment for absorbing it rapidly, arising both from the relatively large-scale of dairy operations and from the high educational level of the major operatives in the dairy business. Nevertheless, there needs to be an intensive animal nutrition educational program commencing some months prior to the arrival of soybean meal shipments. That is the first element of the technical assistance program. The Asian Development Bank (ADB) has a large team in the field and will likely make a large livestock sector loan. The proposal made here is complementary to the large ADB effort.

The necessity for a major program to monitor the activities is very much allied to the soybean meal effort. Technical assistance for such monitoring is the second recommendation. This second effort not only would facilitate appropriate adjustment of the educational programs and measurement of the success of the program, but would also help build a capacity for such analytical work within Mongolian institutions.

The third element of technical assistance is with respect to farm management. Assistance is needed in further division of the still large private companies that have been born from the old State Farms. Help is also needed to do what Mongolians are least experienced at in the Mongolian context — understanding an enterprise system in terms of its implications to the strategic and day-to-day management of farm and agribusiness operations. An impact could be gained that is far larger than the specific dairy program proposed. The technical assistance needs to be pursued by building a capacity within Mongolian institutions for providing such training.

The fourth element of the technical assistance program is business management assistance, preferably provided in conjunction with the business management efforts of the Peace Corps in order to improve the management of the small-scale and medium-scale processing industry.

The fifth element of technical assistance would be to help the budding Agricultural Commodity Exchange to develop their capacity for larger operations. Initiating the commodity exchange into handling of imports and relating to the agribusiness sector would be a valuable effect of the soybean meal food aid.

J. CLOSING REMARKS

The Assessment Mission proposes a food security program designed to relieve a foreign exchange constraint with respect to import of a key food security commodity (flour) for the urban market in Mongolia. The program would concurrently use food aid in another form (soybean meal) to accelerate growth and increase efficiency in the intensive dairy sector so as to contribute to long-term food security. The Assessment Mission then proposes policy changes, within the context of the current direction of policy change in Mongolia, and a judiciously chosen technical assistance component. The effect is an immediate improvement in food security through the flour imports, and a long-term improvement in food security through the increased milk production. The program should be initiated with the expectation that the economy of Mongolia can move rapidly over the next three to five years to the levels of growth experienced in the 1980s. It will do so, however, on a self-reliant basis with rapidly increasing efficiency and removal of structural imbalances, rather than with decreasing efficiency and the development of structural imbalances, as occurred in the 80s. Thus, the foreign assistance should be phased out within a five-year period. The program presented, while oriented specifically to immediate and near-term food security, provides the basis for phasing out those needs as well as foreign assistance in general.

PREFACE

A. APPROACH TO THE MISSION

The Assessment Mission's terms of reference required not only detailed analysis and recommendations with respect to the need for emergency food aid in fiscal years 1992 and 1993, but also recommended actions for longer-term food aid and agricultural or policy support activities that should be pursued to promote food security. The Mongolian economy is different from the bulk of developing countries, particularly those of South and Southeast Asia, and its current adjustment problems are sufficiently radical that a broad approach is necessary. The terms of reference, therefore, request a long-run analysis of evolving food systems, and the role and effects of a wide range of policies, particularly the complex processes of privatization, as they relate to the food sector specifically and economic growth generally.

Part I of this report, "Food Security and Development", recognizes the key role of agricultural growth in providing food security. Current growth potentials are embedded in the history that generated the present policies and problems that must be dealt with in the larger overall economic context. Only then will food security be achieved.

Thus, Part I proceeds from a brief historical, geographic, structural and strategic background to discuss five macro policy issues of particular importance to the food sector. With that background, the agricultural sector is described in the context of the food security needs of the nation and the appropriate development needs are indicated. Priority is established for immediate, productive intensification of the dairy sector, a particularly important element of the food system in Mongolia and a source of current urban food insecurity. That sets the stage for explicit discussion about the food delivery system and its various component parts, with particular emphasis on access by vulnerable and potentially vulnerable groups. Finally, specific policy recommendations for aid are given which place food security in the broader context of economic development and which lead to the specific recommendations for food aid and the utilization of counterpart funds delineated in Part II.

Part II, "A Proposal for Food Aid To Mongolia", provides two specific proposals for food aid. The first meets a key development need essential to the self-reliant food security of Mongolia. The other meets specific short-term food needs in the context of a foreign exchange constraint on the food sector, relief of which is essential to short-term and intermediate-term food security.

B. MISSION COMPOSITION

In keeping with the wide ranging terms of reference and the highly specific food aid charge, the three-person mission included three people with substantial experience in the field. One person brought long, practical experience with development and administration of US food aid programs. A second person shared additional expertise in food aid programming in a wide range of countries and in providing management and control of local currency generated through monetization of food aid. A third person added an extensive knowledge of economic development and the role of agriculture in food systems. All three members are experienced analysts of food systems. Overall, they brought broad experience with the full range of macro policy issues relevant to food security as well as recent, extensive experience with the transitions in the Russian Federation which have direct relevance to Mongolia.

C. MISSION PROCEDURES

Substantial analysis of the Mongolian economy is underway by various agencies in Washington including USAID, the World Bank and the International Monetary Fund. Prior to moving to the field, the Mission fully explored those sources through reading and interviews, and explored other sources in the United States by phone.

Because of the close economic connection between Mongolia and The People's Republic of China, the Mission took advantage of the necessity for stops in Beijing to explore potentials for trilateral food aid arrangements, various alternatives for handling the logistics of movement of food through China, and substantive aspects of the food aid proposal. These meetings were unusually productive.

In Mongolia the Mission met with a large number of officials at all levels of government — from the capital city, to aimaks, to suoms, — heads of private farming companies, workers in those companies, private merchants, and small-scale livestock herders. The interviews took place in Ulaanbaatar and on an extensive 1,000 km field trip by car to a wide variety of ecological regions. A list of persons contacted is provided after References.

PART I

FOOD SECURITY AND DEVELOPMENT

CHAPTER 1
INTRODUCTION

A. HISTORICAL CONTEXT

The 830th anniversary of the birth of Genghis Khan, coincident with the 71st anniversary of the 1921 Revolution, which established modern Mongolian independence from China and laid the initial groundwork for a centrally planned economic system, was an auspicious time for initiating the Mission's work. Massive display of the three national sports — horse racing, wrestling, and archery — provided an appropriate set of metaphors for viewing the extraordinary changes underway in the political and economic system of Mongolia.

Mongolia's history can be painted with a broad brush: archeological finding of a distinct people in Mongolia in the 2nd century B.C.; a unified, massive, feudal nation under Genghis Khan in the 13th century; a subsequent sustained period of feudal fractionization of the country; various periods of expanding and contracting Chinese control; re-incorporation into China in 1919; independence, with a constitutional monarchy coterminous with the Buddhist religious leadership, in 1921, following the revolution; and then, establishment of the People's Republic in 1924. Such a brief political rundown does little justice to the highly developed cultural attainments of the past centuries, which also condition political and economic processes, as well as external relations.

B. GEOGRAPHIC FEATURES

The political and economic evolution of Mongolia, as well as the current major restructuring, are conditioned by striking features of the country's geography. It has a surface area three times that of France, with only 2 million people spread over that area. Half the population, though, is in the four north central provinces, which comprises less than one fifth of the surface area. Much of the country, as with Montana or Wyoming in the United States, is suitable for extensive grazing, with a high proportion of the people occupied in first nomadic and now semi-nomadic herding. The abundance of seasonal pasture conditions all other agricultural resources to play a complementary role resulting in specialization in ruminant livestock production and trade for other agricultural needs. In fact, Mongolia has probably carried such specialization short of the optimal level of trade. As discussed in Chapter 4, Mongolian diets do reflect the extreme specialization enforced by the resource base.

The country does have rich mineral resources, with copper and coal substantially exploited and oil only marginally so. These resources have potential for generating substantial income. However, they are specialized opportunities, which cause Mongolia to be even more benefitted by trade than most other countries, which have a more diverse natural resource base.

The potential for specialization and trade is enhanced by the generally well-educated labor force, particularly relative to income, and lends special urgency to completion of the reforms that are under way, particularly those relative to the exchange rate. It will become apparent as this report proceeds that in a country as specialized in its resource base as Mongolia, one cannot comprehend the food sector except in the historical and geographic perspective of its evolution, in the context of the rest of the economy and, most important, as a highly specialized system whose development is trade dependent.

C. BACKGROUND TO REFORM

The decades following the establishment of the People's Republic were characterized by alternate shifts to the left and right, and considerable civil unrest and loss of life, particularly amongst feudal rulers and Buddhist monks. Abortive efforts in the 1930s to institute collective farming resulted in massive livestock depletion, much as in the USSR where the efforts were not abortive. It was only in 1952 that a command economy was effectively instituted along with increasingly close relations with the USSR and only limited international recognition of Mongolia's independence.

By 1960, a series of gradual steps — first monetization of taxes, then institution of forced deliveries — began to make major inroads into private ownership of livestock, which at that time still represented 60 percent of total numbers. By the mid 1960s the proportion of livestock outside the state and collective system had declined to 25 percent. The 1960 Constitution formally restricted private ownership of livestock, reserved all production for the state, and set 150 work days for the state cooperatives for men and 100 for women. Thus, the livestock system that is now being unravelled has been in place for only 30 years.

This is somewhat true of other sectors as well. Prior to 1961 there was little large-scale industry, with previous industrial growth coming largely from smaller-scale consumer goods production. The decades ahead brought many changes: the trans-Mongolian railway was completed in 1955; in the 1960s, large-scale agricultural processing was established, and, coincident with the Soviet Union's own efforts, a new lands program was initiated which introduced Mongolia for the first time to substantial arable agriculture; large joint ventures in mining were established in the 1970s, with numerous Soviet advisors, and prices began to be regulated by the state. In addition to all of these changes, the major structural imbalances that are now being rectified were beginning to develop.

In response to major distortions, reform was recognized as necessary by 1985, again coincident with the first hesitant reforms in the Soviet economy. Political openness began in 1987 and extensive restructuring took place in 1988-89. The process of political change moved rapidly, culminating in the election of July 1992. The current radical restructuring of the political, legal and economic framework of the economy is discussed in the next chapter.

D. REAL INCOME AND SOCIAL INDICATORS

Prior to the current major disruptions, Mongolia had a per capita GNP of about U.S.$761 in 1992 US dollars. During the 1980s the growth rate of GDP averaged a very respectable 6.2 percent (Appendix III, Table 1). The recent disruptions have reduced per capita national product by roughly 30 percent to the present World Bank estimate of U.S.$533, which just qualifies it as an IDA country. However, even though adjustment has been made for major departure from international prices, particularly for prices in barter with the USSR (thereby reducing the estimated size of the Eastern Bloc countries' subsidies of Mongolia), the value of domestic livestock output is undoubtedly severely understated in terms of international prices and, hence, in representation of the level of living. Further, the urban population would appear to have maintained a level of living higher than that implied by these numbers.

The social indicators are generally more representative of a middle income country (Appendix III, Table 4). The urban population would rank considerably higher in income than the rural population, although the rural population has benefitted enormously from social programs. That is impressive given the low population densities in much of the country.

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The crude death rate is 8.3, while the birth rate, 35.1, is more like that of a low-income country (Appendix III, Table 4). Roughly 100 percent of children of primary school age are enrolled in primary education (with a large public cost for boarding children from extensive herding areas). Even more meaningful, 96 percent of females and 92 percent of all children of the relevant age group are enrolled in secondary school and 36 percent are enrolled in tertiary science/engineering education. Student participation ratios are comparable to relatively high-income countries. Newspaper circulation is equal to roughly 10 percent of the total population which is about 50 percent of the number of families.

E. STRUCTURE OF THE MONGOLIAN ECONOMY

1. ECONOMIC STRUCTURE

Understanding the structure of the economy is directly important to understanding food systems, as it indirectly influences the optimal development strategy and, hence, the role of food production and distribution in growth. Examining the economic structure and its underlying determinants is also critical to understanding trade potentials and the exchange rate issues which weigh heavily in macro policy.

Although data for Mongolia are rich in quantity and quality, they are difficult to interpret, partly because of the use of socialist accounting principles, partly because of the immense recent dislocations of the economy, and largely because of the change in the initial sources of much data (from central command organizations to individual families and enterprises). Thus, the data in this section in particular are only broadly indicative. The data presented conform largely to socialist accounting of dividing output into material and non-material forms, which overstates the relative size of the various sub-sectors as a percent of the total economy. That accounting is followed here to minimize interpolation and subsequent scope for misunderstanding.

Mongolia has experienced radical structural change since 1940, when it was clearly one of the least developed countries, with 60 percent of its population in agriculture, and virtually no modern physical or institutional infrastructure. As one would expect in a Leninist economy, development was strongly dualistic, with the extensive rural areas relatively less included in growth and the structure of non-agriculture skewed towards heavy industry and large-scale firms even in the light industry sub-sector, resulting in very little small-scale and medium-scale production. The most important aspect of the current reforms is their capacity to facilitate rapid generation of a normal structure with a heavy weight to small-scale and medium-scale firms.

Currently, about 20 percent of the net material product is generated in agriculture, comprising 42 percent of the employment in the net material production. Two thirds of agriculture is in livestock and one third in arable agriculture.

The state farm, arable sector comprises only 4 percent of the economy, about the same as mining, one quarter as much as heavy industry, half as much as light industry and a little more than half as much as the food processing sector. Much of the livestock sector has been in the hands of relatively small-scale herdsmen, albeit organized into the cooperative farm sector.

The employment breakdown is quite different from the output breakdown, with 42 percent (of material output) of the labor force in the agricultural sector and only 26 percent in industry (Table 1). Perhaps the proportion of employment comes closer to representing the weight of agriculture in material output since there is probably no more underemployment in agriculture than in other sectors, and the pricing system particularly underweights agriculture and specifically livestock production.

Table 1: Structure of the Mongolian Economy, 1990

SECTOR	PERCENT OF MATERIAL PRODUCT	PERCENT OF EMPLOYMENT
Agriculture 2	20	42
Livestock	(14)	
Arable	(6)	
State farm	(4.2)	
Industry	34	26
Mining	(4)	
Heavy	(16)	
Light	(8)	
Food	(7)	
Construction	7	9
Transportation & Communication	11	12
Distribution	27	11
Other	2	
TOTAL (differs from 100 due to rounding)	101	100
Non-Material	15	29
Health/Education		(12)
Depreciation	25	(7)

Source: Derived from Milne, 1991, and Appendix III, Tables 1 and 5.

It is difficult to gauge the size of government, excluding nationalized industry. If all non-material product is government then it is comparable in size to some 15 percent of net material production and 29 percent of net material employment. By those calculations, two thirds of government employment is in education and health. Thus, demand for a major scaling back of government inevitably calls for a major scaling back of education and health.

2. TRADE

Agriculture bulks large in trade and hence as a source of foreign exchange earnings, providing close to one third of exports, while mining provides somewhat more than half of exports (Table 2). Manufactured consumer goods represent less than 15 percent of exports but they are largely based on agricultural raw materials. Thus, the pricing and operation of the food system must take into account the important role of agriculture to exports.

Table 2: Indicative Composition of Exports, Mongolia, 1991-1993

(In U.S.$ million)			
	1991	1992 (Proj.)	1993 (Proj.)
Copper \a and other minerals	192	195	205
Wool and fur	31	32	38
Meat, livestock, horses	34	35	45
Leather, carpets, skins	37	40	47
Other merchandise \b	53	55	63
Total Merchandise Exports	347	357	398

Source: Government of Mongolia, 1992a.

\a Net of processing costs.
\b Mainly private sector barter trade.

3. DEMOGRAPHICS

The three north central cities of Ulaanbaatar, Darhan and Erdenet account for 34 percent of the population of Mongolia (Table 3, and Figure 1). In total, half the population of Mongolia is said to be urban. However, of those, one third are in the aimak centers, averaging about 20,000 per town. These populations, as well as the 5 percent of the population living in even smaller towns, are readily serviced for their food needs by the surrounding rural areas. It is the one third of the population in the three major cities that poses the bulk of the food security problem for Mongolia, as will be spelled out more fully in Chapter 4.

Today, the urban population is over six times as big as it was 35 years ago (Table 4). From 1956 to 1969 urban growth absorbed essentially all the population growth, leaving the rural population static. Given that agriculture was substantially intensified in that period, the rural population decreased relative to the resource base. Subsequent to 1969, however, the rural population has grown by nearly one third. That is not surprising in a Leninist economy which emphasized central planning and, hence, the larger-scale, less labor-using elements of non-agricultural growth. A market-oriented economy would have experienced rapid growth of the labor intensive small-scale and medium-scale non-agricultural sector, resulting in the ability to continue to absorb population growth. These numbers are very important to understanding the future economic growth needs and food system needs of Mongolia.

Figure 1: Major Cities of Mongolia

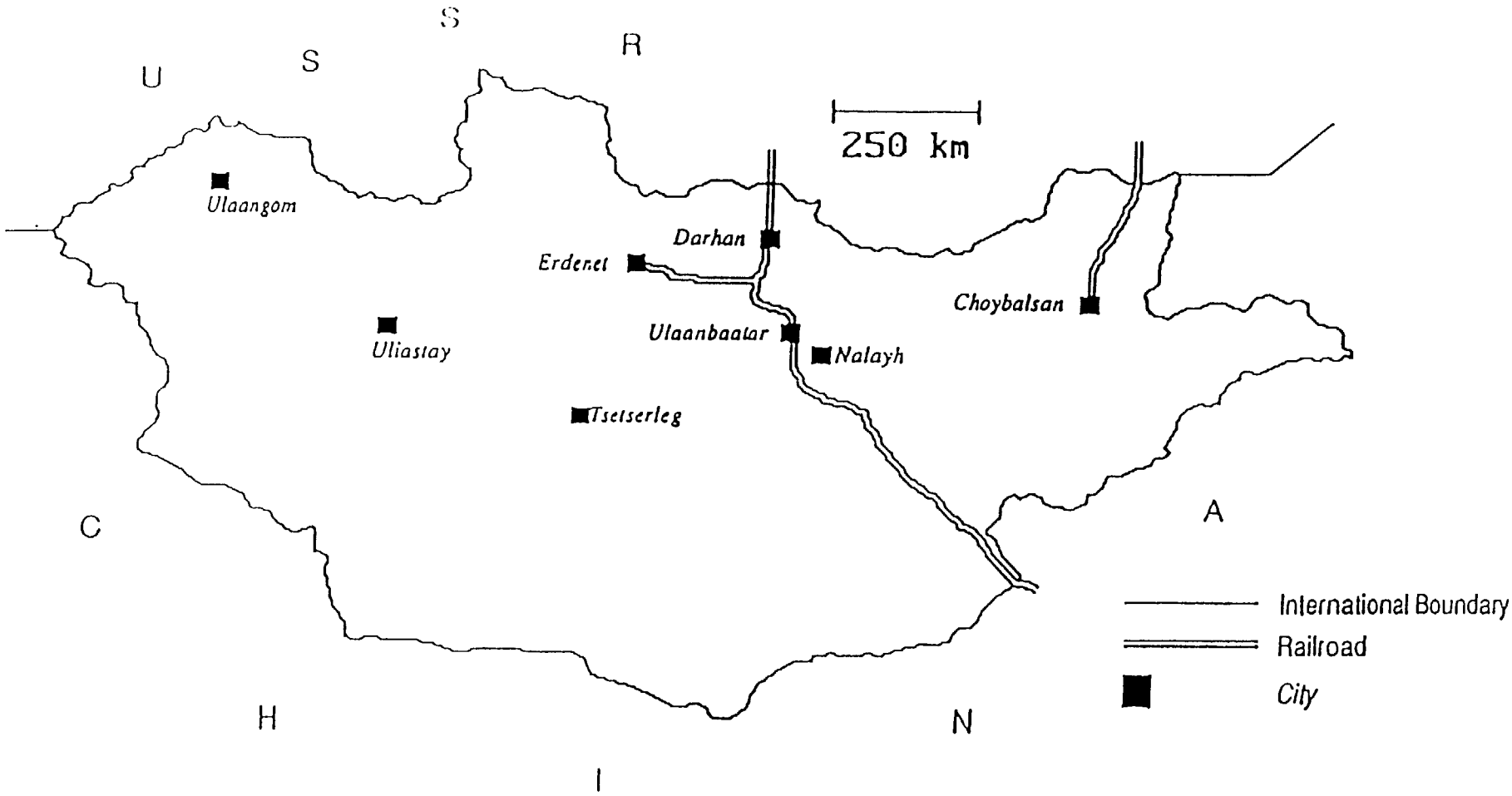

Figure 2: Map of Mongolia, Aimak Boundaries

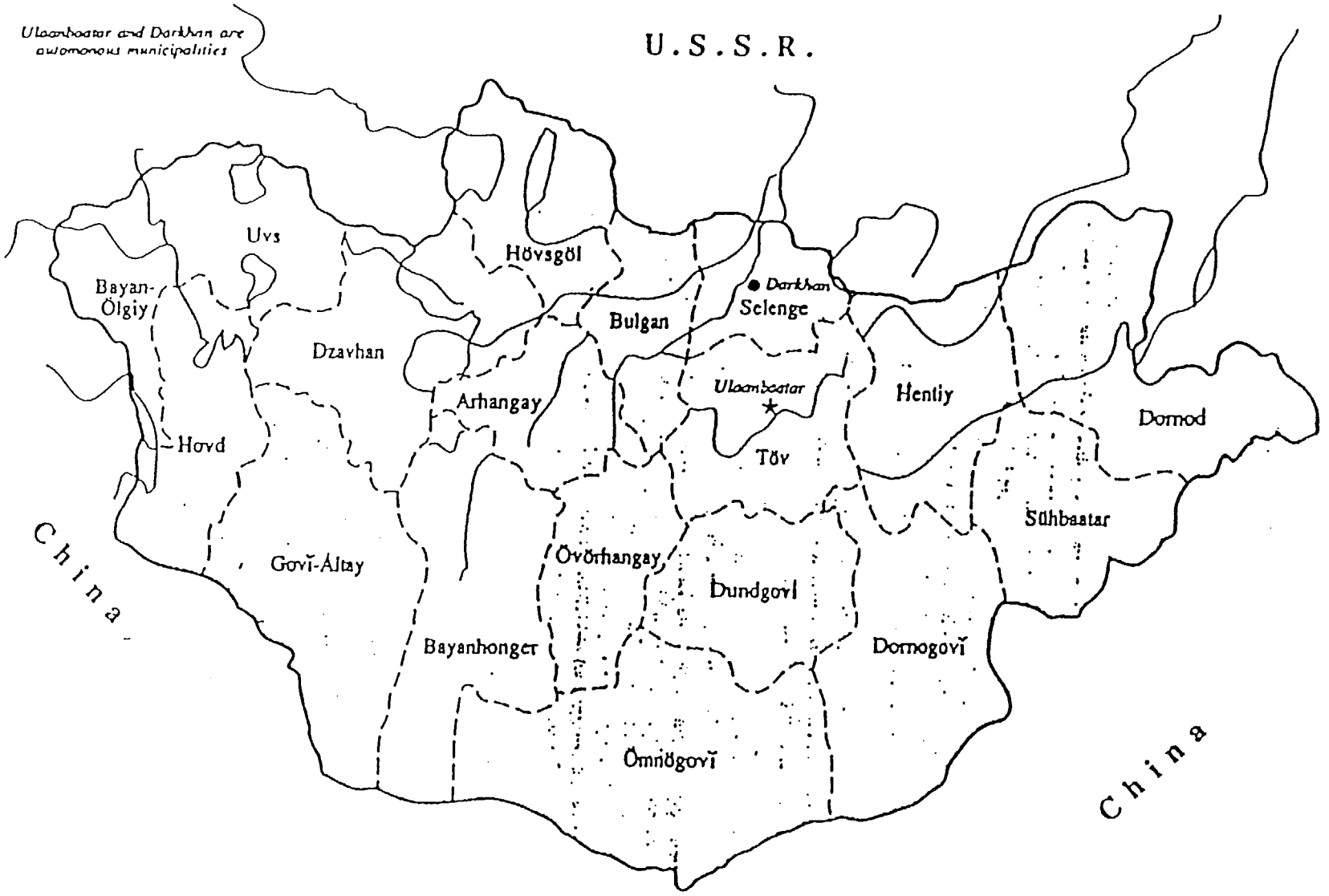

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Table 3: Population Distribution, 1990

	Number (000)	Percent (000)
Ulaanbaatar	575	27
Darhan	89	04
Erdenet	58	03
Sub-Total	(722)	(34)
Aimak Headquarters	370	17
Small Towns	106	05
Sub-Total	(476)	(22)
Rural	951	44
GRAND TOTAL	**2,149**	**100**

Source: Constructed from Central Statistical Board, National Economy of the Mongolian People's Republic for 70 years, Table 27, pp. 16-17, 1991.

Table 4: Distribution of Rural and Urban Population, 1956-1989

Item		Unit	1956	1963	1969	1979	1989
Population:	- Urban	'000	183.0	408.8	527.4	817.0	1166.1
	- Rural	'000	662.5	608.3	670.2	778.0	877.9
Total		'000	845.5	1017.1	1197.6	1595.0	2044.0
Percentage Rural		%	78.4	59.8	56.0	48.8	42.9

Source: National Economy of the Mongolian People's Republic for 70 Years, Table 2.4, p. 15, Central Statistical Board 1991.

4. GEOGRAPHIC CONCENTRATION

It is notable that the three major cities are in the north central aimaks. Indeed, the four aimaks of Bulgan, Selenge, Tov and Henti contain roughly 50 percent of the country's population, including the 34 percent in the three major cities and about one quarter of the remaining small-town and rural population. This region also encompasses the bulk of physical infrastructure and a well-developed institutional infrastructure of research stations and universities. It has the majority of the arable land in the country and some of the best grazing land. In addition, the bulk of the food security problem lies in this area with its concentration of the urban population.

5. LABOR FORCE ABSORPTION

The rapid rate of population growth, particularly of the rural population, has exacerbated the problem of labor force absorption. If it is assumed that there is a 3 percent population growth rate off the 1970 population base and that all males and half the females are to be absorbed in the labor force, then roughly 30,000 jobs must be created each year.

If it is assumed that 20 percent of the labor force is redundant in the non-education and health portion of government, in industry, and in the state farm sector (a number that seems low for a Leninist economy, and is also low for the size of the GNP decline attributable to the cutoff of Eastern Bloc foreign assistance), then an additional 38,000 jobs need to be created. It would be reasonable to think in terms of twice that number, which would be equivalent to two and a half years of population-induced increase in the labor force. That number makes no allowances for reduction in the labor force in extensive herding.

Thus, the labor absorption problem of Mongolia will be immense over the next several years. Insofar as the population is not absorbed, there will be a backing up into rural areas with pressure on land resources and potential environmental damage. There will also be a growing urban population with low incomes and food insecurity that will grow over the next few years. The implications to development strategy are that agriculture, as a currently major employer with potentials for intensification, needs to grow, as does the small-scale and medium-scale labor intensive non-agricultural sector. That sector normally derives its effective demand from agricultural growth.

It is consistently reported, in the context of farm and herding privatization, that young people are being absorbed into agriculture to a far greater extent than they were a few years ago. That is partly due to poor employment prospects in urban areas, but enhanced employment prospects in rural areas are also playing a role. Such increased labor absorption in agriculture cannot continue indefinitely without depressing rural incomes, but it is a helpful short-term phenomenon that gives breathing room while basic reforms are being instituted.

F. THE ROLE OF FOREIGN ASSISTANCE

With the recent surge of foreign assistance to Eastern Bloc countries, the process of foreign assistance has come full circle: from Marshal Plan assistance to developed countries whose physical plants were largely destroyed and whose institutional structures and policies were ill-suited to modern economic growth; to the long period of assistance to very poor "underdeveloped" countries that never had the base of physical infrastructure, education, policies, and institutions suitable to modern growth; and now back to the current circumstance in the former Soviet Bloc countries, with grossly depreciated and obsolete capital stock, high levels of education, and ill-adapted institutional structures. The difference is that rebuilding physical plants and remolding institutions can be done relatively quickly, while developing each from the beginning is a time consuming process.

The set of Eastern Bloc countries, including Mongolia, is more similar to the postwar set of Marshal Plan countries than to contemporary low-income developing countries in its development characteristics. In Mongolia, there is a specific problem of a substantial capital plant which is run down and obsolete. Much of it needs replacement. That is as true of agriculture as of industry. Policies need to be radically changed, as is happening. Old institutional structures need reform and new ones needs to be built. All is to be done in a country with a well-educated labor force and complex institutional structures characterized by broad participation.

As in the case of the Marshal Plan, well conceived foreign assistance can greatly speed the transitional processes. Also as in the case of the Marshal Plan, food aid can represent a substantial portion of the effective total, partly reducing the privations and, hence, the instability incident to urban people experiencing sharp decline in their incomes, and partly to save foreign exchange for other essential imports.

Thus, for Mongolia, food systems, food needs and provision of development assistance in general need to be viewed in terms of the temporary stress of structural adjustment programs, rather than in the long-term development context of the poor countries of South Asia. The need is not as stark, but is shorter in duration. However, short duration does not mean an overnight response to policy change alone, but rather three to five years of thoughtful, effective institution building and reinvestment in the context of constructive macro policy.

CHAPTER 2
THE MACRO ECONOMIC ENVIRONMENT

A. INTRODUCTION

Shifting rapidly from a centrally-planned, command economy to a private, market-oriented system has immense transition problems which may not only delay the benefits from the change, but may set the economy back in the short run, increasing the magnitude of food inadequacy and uncertainty for vulnerable groups. The latter occurs if budget stringency removes old safety nets at just the time when they may be most useful.

Sustained major change in macro policy is central to the success of the new direction of the Mongolian economy. It is specifically essential to production increase in the food sector, the employment growth necessary for long-term food security, and continued capacity to provide safety nets to ensure food security for vulnerable groups. In the context of sustained macro policy change, attention must be given to protection of vulnerable groups from food insecurity and to building institutional and physical infrastructure for near-term growth.

From the range of macro policy issues that face Mongolia, the Mission gave particular attention to four which seem most relevant to the food system in both its short-term and long-term manifestations.

First, privatization is critical to future overall growth. In the medium and long run rapid growth of the small-scale and medium-scale private sectors will be the primary source of greatly needed expansion in productive employment. However, in the short run privatization may bring increased unemployment as redundant labor is released from the labor force.

Second, with the specialized resource base of Mongolia, international trade and the foreign exchange rate are critical to the determination of price relationships. They in turn influence output composition, the supply of critical inputs for keeping the economic system operating, and the extent to which comparative advantage can exercise its potential for increased growth, employment, and incomes. Each of these trade-related economic variables is important to the food system and food security.

Third, price policy and the resultant set of price relationships are in part a product of trade and exchange rate policy and in part a function of domestic policy, as well as underlying supply-demand relations. Relative prices also indicate how well markets are operating and how related food security stress affects vulnerable groups. Current price relationships also indicate forms of commodity aid that may help reduce price distortions or at least avoid introducing additional ones.

Finally, the Government's budget balance and the underlying fiscal policy are critical to price policy, the operation of various safety nets for vulnerable groups, and the form that foreign assistance takes, with respect to both utilization of funds and impact on reform processes.

Of these four policy areas, international trade and the exchange rate are particularly complex and important to economic growth, agricultural growth, and food security. This issue interacts critically with the other three, and will receive the most protracted treatment.

B. PRIVATIZATION

Having followed the Soviet economic model for the past few decades, Mongolian economic activity, until recently, was overwhelmingly under central government control. Virtually all enterprises, land and buildings (other than the traditional housing units), and most livestock were government property.

The GOM's ambitious privatization program, launched in the last few years, is the heart of its effort to move from a centrally planned to a market economy. Because few Mongolians had savings with which to purchase enterprises, the Government developed a scheme through which it hopes to give away an equal amount of its productive assets to each citizen while preserving (or creating) efficient enterprises. The program works through vouchers that the Government has issued to every Mongolian citizen. Vouchers can be used to purchase an entire business or shares in larger businesses. With the exception of the very large state farms, businesses are not being broken up as a result of privatization. Citizens receive blue vouchers that can be exchanged for shares in large enterprises and pink vouchers that can be exchanged for small enterprises or assets such as livestock.

Privatization of production in the agriculture sector, although far from complete, has progressed at a reasonable rate on both the state farms and the government collectives. As a preliminary step to privatizing Mongolia's 41 large state farms, each farm was divided into four or five more specialized companies. The farms' managers and workers participated in the decisions about how many companies would be created and which assets would be assigned to each. State farm managers and workers became employees of the enterprises.

By exercising their vouchers, employees also were able to become partial owners (stockholders) in that company. The system provided a mechanism through which employees of a company received preference over other potential shareholders. On average, these companies are now largely owned by their employees and other private investors. Policy is to continue the privatization until the Government has little or no participation.

The small sample of managers of new agricultural production companies that the Assessment Mission interviewed were mostly former managers of the State Farms from which their companies emerged. These managers benefitted from their prior experience, albeit in a different economic environment, and they exhibited a reasonably good understanding of the new environment and challenges they face. Although the markets for agricultural labor, inputs and food commodities remain heavily influenced by government policies and participation, managers reported that the partial privatization has given them more latitude to shift resources within the firm (including hiring and firing workers) and to respond to market opportunities. Some managers also reported that lower level employees, many of whom now own shares in the company, are working more responsibly (e.g., taking better care of company property).

Although privatized, the companies appear to be acting in some ways like state enterprises. In several cases, companies reported that they were supplying food to processors or municipalities at less than free market prices. This was probably to help the Government supply the ration system and to maintain low consumer prices, although uncertainty as to the permanence of other alternatives may have been a factor. Government delay in deregulating prices was sometimes cited as a problem by agricultural production managers and government officials. The impact of this problem on firms was difficult to assess since managers and government officials are not always familiar with Western concepts of profit and loss.

Training new managers is an obvious need. None of the new managers of agricultural production companies has experience operating in a market economy, and many did not work as managers under the old system. Privatization has created an acute need for training in business management — a type of

education in which Mongolia also has little experience. Providing help in this area should be a high priority for external technical assistance.

Company managers, and others with whom the Assessment Mission spoke, consistently identified the lack of imported inputs as the most critical constraint to the success of new private agriculture businesses. The lack of foreign exchange has already caused cutbacks in petroleum, spare parts, seeds and chemical imports needed for the production process. The effect of these shortages in the current production year seems to be modest, but many of the methods used for overcoming shortages in one year make it more difficult to sustain production levels in the next. In one case that the Assessment Mission observed, a dairy farm had failed to interplant beans this year because it could not import seed. Feed for the company's dairy herd this winter will have even less protein than normal, and the company will produce and sell less milk to Ulaanbataar as a result. (The problems that the foreign exchange constraint creates for current and future production are discussed below.)

In the extensive livestock sector, privatization of the government-run collectives (negdels) has also proceeded. The Government reports that more than 60 percent of livestock are now in the hands of individual herders. The remainder are owned by cooperatives or share-holding companies. (The risks to herders are discussed in Chapters 3 and 4.)

Currently the Government owns 51 percent of the milk plant which is operating in the flush season at only 50 percent capacity, and clearly requires large subsidies under the present mode of operation. The same is probably true of the large-scale slaughter house as well.

Privatization of agricultural processing seems not to have progressed as rapidly as production. Ulaanbataar municipal officials indicated that the city effectively controls (and perhaps owns) the milk processing plant and abattoir serving the city.

Privatization of agricultural marketing has progressed at both the wholesale and retail level. At the wholesale level, the Government has introduced an agricultural marketing exchange at which commodities are traded. However, government-owned or controlled food processing and distribution organizations seem to control the offtake and thus the market. Also, food moves from production centers to urban stores with considerable public sector involvement, particularly from the municipal governments. This continued involvement of government in the food trade appears to reflect the Government's need to supply the ration system. An important indicator of the Government's seriousness about privatization will be the extent to which it exits agricultural marketing when the ration system is eliminated.

At the retail level, Mongolians purchase food through very small retail outlets, many of which have been privatized. Most of the food handled seems to be for sale through the ration system. Each of the 15-20 retail outlets visited by the Assessment Mission had only a few food products and extremely small stocks. Until food pricing and distribution are further liberalized, it may be that private retailers are using food sales largely to attract customers into their stores to purchase other items.

C. TRADE AND THE EXCHANGE RATE

A large differential between the official and free market exchange rates, extreme scarcity of imported goods, low productivity of imported production goods, and the political problems in sharing real income decline are interacting trade-related problems that combine to reduce resource productivity, production and income. These problems are likely in the short run to exacerbate food insecurity for low-income

people. Food aid can ease the transition to policies that will restore healthy growth and eventually obviate the need for such aid.

1. THE EXCHANGE RATE

The Government has made a number of devaluations in the official exchange rate: from a ratio of tugriks per U.S. dollar of less than 3 to 1 in 1987, to 3 to 1 in 1988, to 5.63, to 1 in mid 1990, to 40 to 1 by July 1992. In July 1992 the free market rate was 240 to 1, making the difference between the free market and the official rate six to one. However, it should be noted that important trade takes place with Russia and the implicit cross rate with the free market ruble provides a much more expensive ruble than the direct dollar to ruble free market rate. The exchange rate issue is indeed complex. The discussion below points not directly at that problem but at the trade restrictions with respect to the small-scale trading sector, its implications concerning development and equalizing the two exchange rates, and the barriers to opening such trade.

As would be expected, major exchange rate related price distortions impede agricultural marketing and production growth, even while offering protection of food supplies to the population, including vulnerable groups. The associated scarcity or complete absence of a wide range of capital goods, intermediate products and consumer goods is at once part of the cause of current price distortions, one of the effects of those distortions, and a major cause of reduced current production in agriculture and other sectors.

Table 5 presents data for selected consumer prices at various exchange rates and compares them with comparable items in the United States. The relationships among prices of domestically produced consumer goods seem roughly in line with relationships in the United States. Butter is relatively expensive, reflecting an import parity price. Vegetables are expensive at this period of initiation of summer marketing. Milk is cheap, reflecting the effects of government regulation and past control of production.

For the domestically produced goods the prices seem roughly in line or perhaps priced somewhat low in international terms at the official exchange rate of 40 tugriks to the U.S. dollar, high relative to salary levels, and extraordinarily low at the free market rate of 240 tugriks to the U.S. dollar prevailing in 1992.

Imported consumer goods seem to be priced somewhat low at the unofficial rate and very expensive at the official rate. Indeed, there is a distinct tendency for use of two currencies — tugriks for domestically produced commodities largely consumed within the country, and U.S. dollars for imported items or domestically produced commodities largely exported. The result is a large price disparity between these two sets of commodities.

Table 5: Comparative Prices on Selected Consumer Goods in Mongolia (Free Market) and the United States for Various Exchange Rates, August 1992

	MONGOLIA			UNITED STATES
ITEM	**TUGRIK**	**U.S.$**	**U.S.$**	**U.S.**
		(240 TO 1)	(40 TO 1)	
		240	40	
TYPICAL MONTHLY URBAN FAMILY INCOME	4000	$16.67	$100.00	
FOOD				
Meat, kg				
Ulaanbaatar	90	$0.38	$2.25	$1.74
Sukhbaatar	70	$0.29	$1.75	
Butter, kg	250	$1.04	$6.25	$3.92
Milk, liter	8	$0.03	$0.20	$0.83
Squash, kg	80	$0.33	$2.00	$1.10
Cabbage, kg	88	$0.37	$2.20	$0.86
Tomatoes, kg	66	$0.28	$1.65	$2.18
Cake	220	$0.92	$5.50	$12.99
Juice, liter	11	$0.05	$0.28	$0.88
Instant noodles	24	$0.10	$0.60	$0.79
SIMPLE AVERAGE	91	$0.38	$2.27	2.81

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Table 5 (Continued)

	MONGOLIA			UNITED STATES
ITEM	TUGRIK	U.S.$	U.S.$	U.S.
CLOTHING				
Dress	1200	$5.00	$30.00	$20.00
Dress	2800	$11.67	$70.00	$59.00
Underwear	112	$0.47	$2.80	$0.94
T-shirt	270	$1.13	$6.75	$4.50
Heavy coat	2800	$11.67	$70.00	$49.99
Girl's suit	450	$1.88	$11.25	$15.99
Light jacket	350	$1.46	$8.75	$15.99
Blouse	650	$2.71	$16.25	$13.99
SIMPLE AVERAGE	1079	$4.50	$26.98	$22.55
SHOES				
Baby's shoes	250	$1.04	$6.25	$8.99
Work shoes	574	$2.39	$14.35	$39.99
Felt boots	335	$1.40	$8.38	$29.99
Riding boots	740	$3.08	$18.50	$29.99
Sandals	800	$3.33	$20.00	$15.99
SIMPLE AVERAGE	540	$2.25	$13.50	$24.99
MISCELLANEOUS				
Shoe polish	9	$0.04	$0.23	$1.19
Plastic comb	5	$0.02	$0.13	$0.54
Alarm clock	38	$0.16	$0.95	$7.97
Pen	12	$0.05	$0.30	$0.12
Teddy bear	125	$0.52	$3.13	$10.00
Stainless fork	6	$0.03	$0.15	$0.66

Table 5 (Continued)

	MONGOLIA			UNITED STATES
ITEM	**TUGRIK**	**U.S.$**	**U.S.$**	**U.S.**
Knife	21	$0.09	$0.53	$8.49
Trash can	20	$0.08	$0.50	$15.58
Screwdriver	20	$0.08	$0.50	$1.54
SIMPLE AVERAGE	28	$0.12	$0.71	$5.12
CAPITAL GOODS				
Bed & mattress	4500	$18.75	$112.50	$273.00
Wood table	2300	$9.58	$57.50	$59.00
Wood chair	5300	$22.08	$132.50	$98.00
SIMPLE AVERAGE	4033	$16.80	$100.83	$143.33
IMPORTED				
Jeans	1700	$7.08	$42.50	$14.77
Man's suit	5500	$22.92	$137.50	$79.98
Woman's shoes	2530	$10.54	$63.25	$7.99
Dress shoes	4680	$19.50	$117.00	$21.99
Wool sweater	1800	$7.50	$45.00	$19.99
Jacket	10000	$41.67	$250.00	$25.99
Detergent	500	$2.08	$12.50	$2.65
Plastic bowl	2520	$10.50	$63.00	$2.29
SIMPLE AVERAGE	3654	$15.22	$91.34	$21.96

Source: Comparison shopping by author, U.S. prices are generally for lowest quality obtainable.

The disparity in exchange rates is caused by the effort of the Government to restrain internal prices, particularly of food commodities. Their purpose is on the one hand to protect consumers' purchasing power and food security, and on the other hand to contain salary increases and consequent pressure on public expenditure, the budget balance, and inflation. Given the several-fold increase in food prices and the much smaller increase in salaries, great pressure is already on consumer budgets and public expenditure. Further comment on steps to remove the disparity in prices will be offered later.

2. SCARCITY OF IMPORTS

Whatever the cause of the exchange rate differential, there is constant evidence of a scarcity of imported commodities sufficient to greatly decrease the efficiency of the economy. That scarcity effectively reduces the output of power and transport, the supply of raw materials to industry and agriculture and the supply of consumer goods incentives, with particular impact on food deliveries.

Table 6 shows the exports and imports for 1988 - 1991. Mongolia's trade accounts were apparently switched from rubles to dollars in 1991. The table reports directly from data of the Ministry of Trade and Industry, and thus reports in rubles prior to 1991 and dollars in 1991. From the preceding discussion, transformation from one to the other requires application of assumptions that are difficult to defend. If one uses the IMF calculated cross rate of official rates for July 1990 of 0.79 rubles to the dollar, then trade fell by little in 1991; if one uses the 1989 cross rate of 1.48, trade dropped by half. The IMF (Appendix III, Table 2) estimates that exports fell 22 percent from 1990 to 1991, while imports fell by 44 percent. This logically follows with the Assessment Mission's observation of the economy. Imports as a percent of exports dropped from 150 percent to 113 percent from 1990 to 1991.

State Statistical Office figures for the first five months of 1992 show declines of 0.9 percent in exports and 27.3 percent in imports compared to the same period in 1991 (Table 7). Fuel imports fell by 65 percent, but a large contract for fuel imports was signed in June 1992. The IMF projected that imports and exports would both rise gradually through 1993, with the current account deficit changing only modestly (Appendix III, Table 8).

Table 6: Commodity, Composition, Trade 1988-1991

Foreign Trade Volume	1988 mins.	1989 transferable	1990 rubles	1991 min.U.S.$
Foreign Trade turnover	1,241.3	1,129.8	1,061.7	738.0
Exports	495.2	483.4	442.7	346.5
Imports	746.1	645.4	619.0	391.5
break down:				
- consumer goods	125.2	141.2	136.7	85.1
- petroleum products	199.2	128.3	255.3	134.0
- machinery and spare parts	421.7	375.9	227.0	172.4
trade balance	-250.9	-162.0	-176.3	-45.0

Source: Government of Mongolia, 1992

Table 7: Foreign Trade for the First Five Months of 1991, 1992

(millions U.S.$)

	1991	1992	% Change
TOTAL TRADE	283.9	235.9	- 16.9%
TOTAL EXPORTS	116.3	114.1	- 0.9%
Foreign Trade		87.4	
Barter		17.2	
TOTAL IMPORTS	167.6	121.8	- 27.3%
Foreign Trade		48.6	
Barter		14.6	
Credits and Aid		54.3	
Fuel	57.6	20.1	- 65.1%

Source: State Statistical Office

Table 6 allows a comparison of the relative importance of various categories of imports and exports. From 1988 to 1991 consumer goods imports rose from 17 to 22 percent of total imports, petroleum products rose from 27 to 34 percent, and machinery and spare parts declined from 57 to 43 percent. The greatest effort has been made to maintain the power and transport infrastructure. As will be seen below, food imports, representing about 30 percent of consumer goods imports in 1991, have been roughly maintained. The largest proportionate cuts have been in machinery and spare parts and in non-food consumer goods. The importance of food imports to urban stability explains the increasing share, but declining absolute level of consumer goods imports. An important agricultural production effect of the unavailability of consumer goods will be noted below.

3. IMPACT OF THE TRADE REGIME ON PRODUCTION

The import regime has had a major effect on production and therefore on exports. Table 8 shows the drastic decline in industrial output from the first five months of 1991 to the same period in 1992, when the lack of imports at the end of 1991 would be expected to have their impact. Appendix II, Table 9 shows work stoppages and their causes in 1991. These industries produce 70 percent of Mongolian export products. Note the impact of work stoppages, at the Erdenet copper concentrate factory that produces half of Mongolia's exports. These data illustrate that the foreign exchange scarcity problem is extreme and that the Government faces a dilemma as to how to cope. The continuation of the present trade regime will become even more serious as present policy postpones some of the problem by cutting severely on spare parts and replacement machinery.

Table 8: Gross Industrial Output for the First Five Months of 1991, 1992

(million tugriks)

	1991	1992	% Change
TOTAL INDUSTRY	2886.6	2395.9	- 17%
Electric and thermal energy	449.7	400.2	- 11%
Fuel	123.8	103.4	- 16.5%
Non-Ferrous metals	316.8	293.4	- 7.4%
Chemicals	103.9	100.6	- 3.2%
Building materials	203.6	110.2	- 45.9%
Wood processing	169.6	159.4	- 5.8%
Textiles	340.2	241.1	- 29.3%
Leather, fur and shoes	299.7	203.5	- 32.1%
Food	512.5	419.2	- 18.2%

Source: State Statistical Office

Agriculture has been given special access to fuel and to some extent fertilizers and spares. Extensive observation and interviews confirm that this years crop production will most likely be a bumper crop, due to favorable weather conditions. In general, the crop seems to have been planted with a marginal decrease of 5 to 10 percent in acreage of some crops and a somewhat less than compensating increase in others. But as in industry, part of the problem has only been postponed.

The condition of machinery grows worse each month (although capacity is being developed to make a surprising array of parts locally, in the context of Mongolia's long tradition of local metal working). Fallow land is not being cultivated as regularly, with consequent higher transpiration rates and therefore less holding of moisture for next year's crop. Fertilizer application levels are down, which means at the least phosphate reserves in the soil are being depleted for this year's crop at the expense of future crops. Thus, gradual decline is underway which will be dramatized by the first poor weather year, just as it will probably be hidden by this year's good weather (keeping in mind that there is on the order of a 30 percent chance of heavy harvest period rains which could cause substantial lodging and, hence, loss of crop even this year.)

The livestock sector is more complex to analyze. The intensive livestock sector is less import dependent than the crop sector. The extensive livestock sector is only slightly import dependent. There is some claim that reproduction rates are depressed by lack of veterinary supplies. Clearer evidence indicates that the simple choice of holding animals and increasing stocks, which appreciate with time rather than deteriorate as crops do, is being pursued more vigorously in part because of the absence of imported consumer goods. This tendency is reinforced by the privatization of herds. There is a large base production which is sold for locally produced goods, but the marginal production is probably dependent on availability and pricing of imported consumer goods. Thus, there is the apparent anomaly that livestock marketings seem to be significantly depressed at the same time that herd numbers seem to be at record

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levels. (Interviews brought conflicting judgments on this issue, but those closest to the statistical process seem to agree on the larger estimates of herd size.)

4. TRADE MANAGEMENT

The Government, facing an extreme scarcity of imported goods, the lack of which clearly depresses domestic production, does its best to marshal domestic resources for export. It apparently does so substantially on a barter basis, using international prices as a base line in the bartering process.

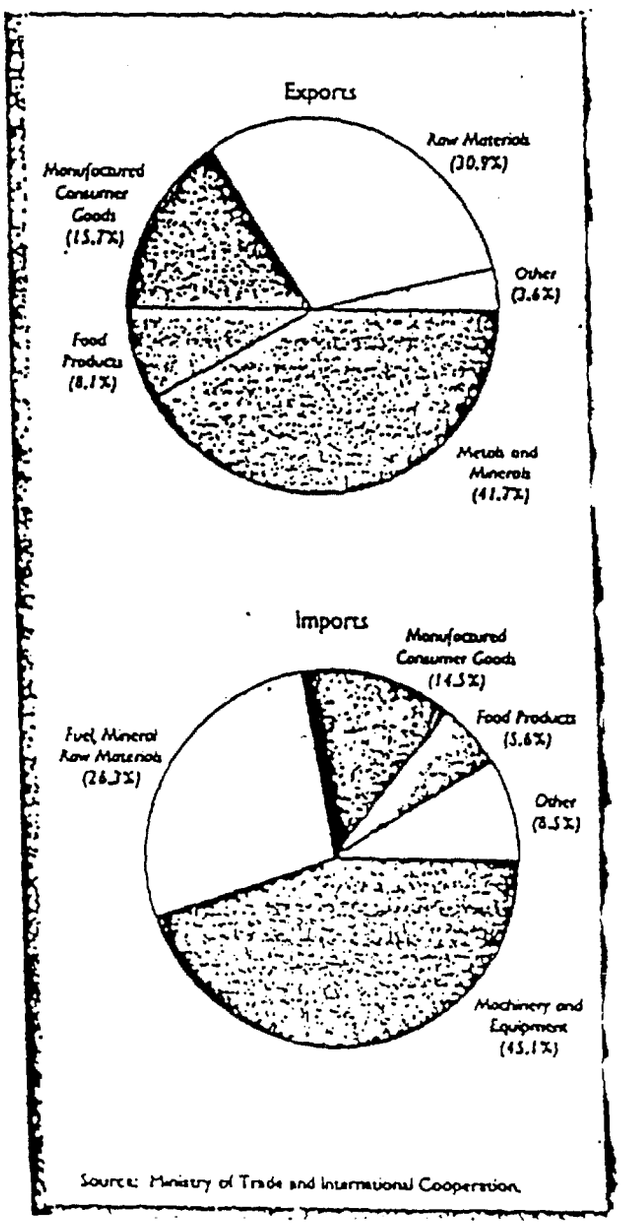
The CMEA countries have typically taken well over 90 percent of Mongolia's exports. The disarray in that bloc has hurt exports and complicated trading arrangements. From the point of view of the need for imported, consumer goods, trade would logically shift heavily towards China.

Exports in a pre-crisis year were 42 percent metals and minerals and over 50 percent commodities that are based directly or indirectly on agriculture (Figure 3).

Mongolia is innately a trading country with highly specialized agricultural and mineral resources. The full utilization of both requires a free trading regime. The Government continues to manage the bulk of trade, even though there are now private trading corporations. Given the nature of Mongolia's trading partners, it may be reasonable for the Government to command the output from large-scale industry and to barter with neighboring countries for critical commodities used in the large-scale sector or the government safety net system for vulnerable groups. Even so, government control of trading generally inhibits trade and productivity growth. This is most unfortunate in a nation for which trade is properly a large part of the GNP, with large potential for producing tradables in the small-scale and medium-scale sector, including agriculture, and with availability of consumer goods important to determination of output levels. Opening up export markets for small traders who would then provide outlets for and encourage small-scale marketing of meat, dairy products, and light manufactures would stimulate those sectors.

Figure 3: Commodity Composition of Exports and Imports, 1988

(in percent of total)



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The marketing of livestock products from present levels is probably quite elastic, given an attractive supply of consumer goods, the currently high stocking levels and the potentials for future improvement in herd offtake and forage production in extensive grazing areas. The present relationship between the domestic price of such goods and the import price is highly attractive to trade. A complete opening of petty trade across borders might bring an open market exchange rate well towards the official rate compared to the present free market rate. Such trade would also provide opportunities for import substituting domestic production of consumer goods in the small-scale and medium-scale private sector with a further boost to output. However, to achieve such freeing of petty trade requires major change in both internal and external policies.

Both of Mongolia's neighbors, particularly China, restrict trade across their border. In the case of China, cross border carry of personal luggage of over 35 kg is restricted. It appears that the regulations are sufficiently well enforced to greatly restrict cross border trade. In addition, Mongolia has strict regulation of cross border trade, essentially restricting it to large agents. It is understandable that Mongolia would not liberalize such trade, particularly of agricultural commodities, unless its neighbors also liberalize. However, failing to liberalize is particularly costly to Mongolia because of the lack of organization of its private sector, the small-scale production of the most appropriate of its consumer goods exports, and the small-scale production of its consumer goods imports.

If petty trade were liberalized one could expect a strong supply response and an indeterminant increase in domestic prices, particularly of meat, as the two exchange rates equalized. The extent of the increase in the domestic prices would determine the extent of squeeze on urban incomes and, hence, the stress put on the vulnerable group safety net. The effect would be significant, reducing meat consumption in particular and emphasizing the need to maintain grain imports as imported grain became relatively cheaper with respect to meat.

5. BALANCE OF PAYMENTS SUPPORT FROM FOOD AID

Agricultural commodities as a group are equal to a substantial portion of the balance of payments deficit, although no single commodity bulks very large. Six commodities comprise the bulk of agricultural imports (Table 9). Of the six, three are not produced in Mongolia, (sugar, rice, and vegetable oil) and three are imported in far smaller quantity than domestic production.

Given the balance of payments problem and the availability of surplus agricultural commodities from the United States, it is useful to examine the potentials for balance of payments support by provision of surplus agricultural commodities. There are four relevant questions:

1. Will the imports inevitably be reduced without such support, so the food aid would represent incremented consumption?

2. Are the domestic prices equal to international prices, and are they attractive to domestic producers so that imports do not discourage domestic production?

3. Are the imports of significant size relative to the balance of payments problem?

4. For the United States, are these commodities available for food aid shipments?

Table 9: Imports of Main Foodstuffs, 1985-1991

(all numbers are in thousands)

Commodity	1991		1990		1989		1988		1987		1986		1985	
	Tons	Value U.S.$	Tons	Value Rubles	Tons	Value Rubles	Tons	Value Rubles	Tons	Value Rubles	Tons	Value Rubles	Tons	Value Rubles
SUGAR	33.1	9,459.8	41.2	10,322.2	45.7	11,469.4	43.4		43.0		40.0		16.0	
WHEAT	--	--	30.0	--	--	--	--	--	--	--	--	--	--	--
RICE	14.7	3,746.1	19.1	4,882.1	16.8	4,254.9	15.5	--	--	--	15.5	--	16.0	--
BUTTER	1.7	2,429.7	2.2	3,093.9	1.2	--	1.2	--	1.1	--	8.6	--	--	--
VEG. OIL	1.7	1,489.7	4.7	2,721.5	2.5	1,521.3	1.1	--	1.9	--	1.7	--	--	--
MILK	2.5	1,104.0	3.6	3,528.6	1.7	1,984.7	3.5	--	3.9	--	--	--	--	--
FLOUR	36.0	8,519.4	27.7	5,685.9	30.8	6,299.4	30.1	--	26.0	--	--	--	27.0	--
TOTAL (includes miscell. other commodities)		26,738.7		29,967.1		20,069.0								

Source: Compiled for Mission by Ministry of Trade and Industry, Government of Mongolia

There are significant difficulties with respect to utilizing food aid in each of the six cases. Sugar, the largest import and priced relatively high, is important to diets, but is not available as food aid from the United States. Flour, the next most important commodity, is a complex case. Wheat production in Mongolia fluctuates in production considerably from year to year according to the weather. Wheat exports are significant but fluctuate with production, ranging from a high of 94,000 tons in 1988 to near zero in the last several years (Appendix III, Table 10). Wheat exports seem generally to be low quality, feed-grade wheat. Some wheat may be exported and flour imported because of inadequate milling capacity. The only recent year of wheat imports was 1990, when 30,000 tons of PL-480 wheat was provided by the United States (it is recorded for 1990 even though it arrived in 1991).

Flour imports are consistent from year to year and appear to average significantly more than wheat exports; hence, Mongolia is deficit in net wheat products. However, not only is feed wheat typically exported, but 30 percent of it is fed to animals in Mongolia. Wheat comprises the key concentrate, along with wheat bran, for the livestock industry. Wheat fed to animals is said to be of too low quality for milling and there seems to be a shortage of milling capacity. A combination of late planting and early lodging probably results in considerable amounts of immature grain in some years.

Wheat at the farm is priced more consistently with domestically produced products than with imported goods, despite being traded significantly. Thus, a food aid donor must be concerned about the signals it is sending with respect to domestic wheat production, allocation between feed and flour, substitution of wheat for rice, and substitution of goods purchased from feed exports compared to substitutes for wheat as feed. Given the complexity of pricing and production conditions, imported flour as well as domestic flour should be priced at the market. Assuming that the pricing problems can be managed, PL-480 flour would be a logical form of assistance to Mongolia. In the long run, increased quality of domestic production, increased milling capacity and increased high-protein feed imports should make flour imports unnecessary.

Thus, a PL-480 program for flour is recommended in Chapter 5 and in Part II. It should be priced at auction. A concurrent program to increase milling capacity, improve wheat quality, and import soybean oil meal would soon make flour imports unnecessary.

On the surface, rice is a simpler case. It is generally of significance in the diet (see Chapter 4), but is not produced in Mongolia. However, surplus rice from Taiwan and Japan seems readily available.

Butter is the fourth most important food import, comprising two and a half million dollars in 1991, about one third as important as flour. An important factor in the diet, butter has been consistently imported. Although domestic production should be adequate and should rise from effective development of the dairy industry, it will take several years before that can be achieved. Since Section 416 butter is to be provided in 1992, testing the supply capabilities, it would be an attractive Title III program on a short to intermediate-term basis. The proceeds would be used for dairy development, complementary to the protein feed program recommended later and to be phased out in the relatively short period it should take to develop domestic marketing capacity. In the context of PL-480 butter, it is notable that butter, in comparison with price relationships, in other countries, is priced high relative to milk and various other domestically produced agricultural commodities (Table 5). Thus, a modest relative price depressing effect of butter imports should not be discouraging to production if, as is certain, Mongolia has a clear comparative advantage in butter production.

Nevertheless, the Assessment Mission preferred flour to butter for commodity aid, primarily because it perceived flour as easier to handle, more directly important to food security, and imported in much larger quantities.

Vegetable oil, which is imported on a regular basis, is another commodity available under PL-480. However, the quantity is little more than half that of butter. The question of domestic substitutes also needs to be pursued, making it less attractive for assistance. Milk, largely dried milk, is regularly imported, but in modest quantities. The domestic price is below international prices even at the official exchange rate. It should almost certainly be higher relative to other prices. There is also a concern in health circles that availability of baby food and dried milk is encouraging premature weaning of infants and resulting in poorer health of infants.

D. RELATIVE DOMESTIC PRICES

The most important aspect of relative domestic prices has already been discussed in the context of the exchange rate and international trade. Given the difficulty of adjusting the exchange rate, this section concentrates directly on relative domestic prices.

Relative domestic prices are particularly important to this report in indicating the effect on production incentives of subsidized imports and of the production efficiency measures recommended later.

Perusal of Table 5 indicates that meat prices are moderate. The bulk of meat is produced under extensive conditions and is a joint product with important export commodities such as wool, hides and skins. If the prices of those commodities are gradually brought into line with the real exchange rate and international prices, the pricing of meat will be less important to farmer incentives than it is now. However, at present, with extremely low meat prices at the free market rate, it would undoubtedly be sensible to export more meat, particularly in small-scale trade for consumer goods attractive to the herdsmen community.

Butter prices are high, consistent with the fact that butter is imported. In the long run, it is likely that Mongolia will provide a comparative advantage in manufactured dairy products, at which point butter should be priced more nearly in line with the relative price of milk. Thus, the import of butter at traditional levels is not destructive to domestic incentives, in the context of appropriate production and marketing support.

In contrast, milk prices are relatively low. As will be seen later, there are particularly large efficiency gains available in milk production that require purchased inputs. While milk is only moderately high priced relative to domestic feed quality wheat (see Chapter 3), it is low relative to imported protein feeds which are central to increased efficiency in the dairy industry. Thus, a relative increase in the price of milk would be sensible. An opening to market forces would probably accomplish this, especially in the winter months, when present prices do not appear to be market clearing. However, technical assistance is needed to help shift intensive dairies toward greater output in the winter months.

Finally, it should be noted that food prices have been rising much more rapidly than salary levels. These changes and the resulting fall in real income were unavoidable consequences of the withdrawal of the USSR subsidization of the Mongolian economy. Real levels of living must decline in the short run. In Mongolia, that burden has fallen very lightly on the rural sector, particularly the herdsmen sector, and very heavily on urban people, particularly those spending a relatively high proportion of their income on food. It is from these price relationships that the delineation of deprived groups flows, and it is to them that targeted programs must be directed. This issue is discussed at length in Chapter 5.

E. PUBLIC FISCAL POLICY AND BUDGET BALANCE

A continuing, immense budget deficit on public account lies at the root of persistent inflation and the misalignment of the real and nominal exchange rates, with all the problems they create. The budget deficit arises initially from the sudden loss of the USSR subsidy, both on current and capital account. This problem is greatly exacerbated by sharp decline in domestic non-agricultural production, another response to the disruptions consequent to the loss of Soviet assistance. The budget will eventually have to be balanced by substantial reduction in implicit subsidies on meat, dairy products, other rationed goods; inefficiencies in public sector undertakings; and undoubtedly some significant decrease in public sector employment.

Chapter 4 contains recommendations to reduce food subsidies by removing the upper 70 percent of the income distribution from the beneficiary list. But reduction of public expenditure and employment will undoubtedly cause unfortunate reductions in education and public health, particularly for the extensive herding community. Delay in decreasing public employment at least offers the potential for the economy to begin growth again and, hence, to absorb some of that redundant labor. But even that is in the context of a rapidly expanding labor force. The solution requires more intensification of agriculture in the already more intensive areas and rapid expansion of the small-scale and medium-scale enterprise sector, which will tend to be relatively labor intensive. These issues are discussed in the next chapter and in Chapter 5.

Food aid has been discussed in the context of easing the balance of payments problem and the public finance transition. This report does recommend specific use of counterpart funds, but entirely for programs that will increase efficiency of production and, hence, the basis for providing more public revenues and for absorbing employment. Thus, even though food aid counterpart funds may be used to expand public expenditure, they will do so in a manner which eases the net public finance burden.

CHAPTER 3
THE STATUS AND POTENTIAL OF MONGOLIAN AGRICULTURE

A. STRATEGIC PERSPECTIVE

Mongolia is a country for which a high economic growth rate, certainly one with broad participation, requires rapid growth in the agricultural sector. Over 40 percent of the population is rural and agriculture directly provides employment for about 30 percent of the total labor force. The bulk of industrial employment is in industries based on agricultural raw materials. Despite the size of the mining sector, agriculture still generates, both directly and through raw materials, close to half of all export earnings and has potential to generate much more. Indeed, outside of the important (and potentially even more important) mining sector, there is little in government, manufacturing, or other services that is not dependent on agriculture for support, either from direct employment, provision of raw materials or provision of tax revenues.

The health and growth of the private sector in previously centrally planned economies depends primarily on the initiation, efficient management and growth of small-scale and medium-scale firms. In Mongolia, those will first be in agricultural processing and marketing or in small firms providing consumer goods to the rural sector. The food security problem in Mongolia arises from inadequate production of some foods, inadequate marketing of others, inadequate foreign exchange, and inadequate employment. Each finds its long-term solution in increased efficiency and productivity of the agricultural sector and the small-scale and medium-scale sectors it stimulates.

Much of the agricultural sector, and particularly the relatively more intensive agriculture of the north central region, which encompasses over half of the population, is operating inefficiently and at low levels of productivity. Thus, the potential for large aggregate increases in efficiency are particularly great in the intensive agriculture of the north central region. That will be an important theme in the proposed action program.

Agriculture in Mongolia is quite different from that in most countries. This calls for different approaches to development, a considerable sense of priority as to what and how to develop agriculturally, and sensitivity to the different nature of the interactions and support structures needed for ancillary development of other sectors. Thus, this chapter will devote considerable space to pointing out those differences and their development implications.

Mongolia is fortunate in having a minerals sector which already generates substantial foreign exchange and has potential to generate much more. A high proportion of agriculture is also already earning foreign exchange. With modest time and appropriate macro policy, Mongolia should not find foreign exchange availability constraining to the growth rate. However, because of past policies, as discussed in Chapter 2, it is now the most important constraint to growth.

An important development issue is the extent to which mining revenue is to be utilized to finance the physical and institutional infrastructure for effective rural development or is to be dissipated in capital intensive types of industry and the low productivity parts of the public sector, including much of the system of subsidies. At present, low resource productivity and inefficiency in many government services, in much of the large-scale sector and in central infrastructure, such as power and transport, pull off most of those benefits and divert them from high rate of return development activities.

In examining agriculture, the highly specialized nature of Mongolia's resource base must be clearly understood. Relative to the population density and distribution, the agricultural resource base is productive, but highly specialized in its potentials. A tiny proportion of the country is suited to intensive agriculture, under irrigated conditions, during a short growing season. Because of its scarcity relative to other resources, the irrigation potentials must be developed to their fullest economic potential. But they will never comprise an important proportion of agricultural output. A larger, though still small, portion of the country is suited to arable agriculture with favorable topography but a rainfall and growing season regime that enforces a narrow range of crops and at best modest yield levels.

The bulk of the country is suited to extensive grazing, with pockets of high-productivity grass land. The grazing is only possible during a relatively short summer growing season. The extent to which the grazing can be utilized is constrained by the supply of fodder for the long winter period, as well as by the supply of supplementary concentrate feeds necessary to intensive final output. Thus, the first claim on arable land is to complement the grazing land so it can be more fully utilized. Only after that need has been met should economic utilization turn to other commodities. Even then, complementary concentrate livestock feeds should be imported if optimal use is to be made of the grazing land.

The isolation of Mongolia, not only far from cheap water transport, but surrounded by large areas of relatively low population density neighboring countries with thin infrastructure, increases the costs of any industrial activity based on imported raw materials. At the same time, Mongolia's agriculture favors output, which offers opportunity for large value added in processing. Thus, non-agricultural development other than minerals development will for a long time be most economically based on agricultural raw materials. In the very long run, Mongolia should expect to build an industrial sector based on high-technology, low-raw-materials types of industry. Developing the educational system with that in mind would be good policy, but it certainly cannot become a significant factor in GNP or total employment for several decades. In the meantime, development must proceed with what is already in Mongolia.

Given the low productivity per unit area of land, the grazing areas support only a sparse population and, hence, low overall income. As a result, they cannot pay for an expensive system of physical and institutional infrastructure. Careful priority must be given to these investments. Fortunately, the products produced — wool, hair, skins, meat and dairy products — are all high-value products which require only a small portion of their value to be expended on transport, even with poor infrastructure conditions. The political regimes of the past several decades have placed great weight on development of human capital through education and public health measures, so this resource is well developed even in very sparsely populated areas. Indeed, one of the most important issues at present is how to maintain that investment, which is so essential to long-term development.

Another fortunate feature of Mongolia is a concentration of the best arable land in a small proportion of the country, which is also where a major portion of the mining is carried out. Consequently, this area contains over half the total population and the bulk of the physical infrastructure. Thus, it is logical to give priority in the sequencing of development to that central region with the most responsive agricultural resources, both crop and livestock, the bulk of the national market, the most easily accessible market, and the bulk of cost-reducing, development-oriented infrastructure. This is also where most, although not all, of the food security problem lies. The rest of the chapter will concentrate on that theme.

Succeeding sections will discuss the extensive livestock sector and then the arable agriculture and intensive livestock sector. The data are not available for a division into extensive and intensive livestock, nor for dividing the arable land in to the central districts and the outlying districts. However, the discussion of the extensive livestock sector will implicitly deal with it as largely outside of the north central set of

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districts, and the discussion of the intensive livestock and arable agriculture will deal with it as though it were wholly in the north central set of districts.

B. EXTENSIVE GRAZING

The key characteristic of extensive livestock is that it is the traditional means of livelihood in Mongolia. It is extensive, spread thinly over vast areas, poorly served by infrastructure, and well adapted to its environment through selection and observation over centuries. It lends itself relatively poorly to intensification and increased factor productivity because of the usual problem of modern science being unsuccessful in improving productivity under harsh production conditions (most innovations increase the responsiveness to favorable conditions) and to the high transaction costs incident to very low geographic densities of population and income. However, the livestock is of high value per pound of output and can be put in forms which are easily transported, so it has been and can continue to be highly commercialized. The potential for gradually improving the quality and processing of production can be gradually pursued. In addition, transportation links will improve over time. Better animal health, some breed improvements, cheese making and other processing are all worth pursuing. However, dramatic results should not be expected.

The extensive livestock areas do have potential food security problems which are discussed below before examining the larger potentials for contribution to food security and development foreseen in the north central, more intensive region.

1. HISTORICAL DEVELOPMENT

Historically, Mongol livelihood has depended on extensive, pastoral, migratory livestock production. The inherent risk of low and variable rainfall was countered by migration over long distances and a complex mix of animals including horses, cattle, sheep, goats and camels, the latter primarily in the more desert-like areas to the south.

Collectivization of agriculture, successfully implemented in the 1960s, combined farmers into large cooperative farms and reduced at least two of the means of risk reduction. Long distance migration was reduced or eliminated, although short distance migration remained, and greater homogeneity was introduced into herds. The long distance migration was reduced by interrupting traditional patterns by new cooperative farm and other political lines which were not rigid but which still reduced migration. Greater homogeneity in livestock herds was to increase productivity by greater specialization.

Practices that offset risk most directly were large-scale production of winter fodder on state farms, principally in the central region, and transport of that fodder throughout the country. The fodder was provided essentially without charging transport costs and even the direct costs of the fodder were subsidized. Figure 4 shows the dramatic year by year increase in feed provided to the extensive sector and the consequent decline in stock mortality. Table 10 shows the decline in fodder production on state farms in 1991. The specialized fodder farms decreased production little from 1990 to 1991, but the decline on fodder farms has been very sharp in 1992 in response to the clearly indicated lack of interest of private herdsmen in taking what are now expensive fodder supplies.

Privatization and a move towards market pricing have already eliminated the direct subsidy on fodder, in response to which herdsmen have taken far less fodder, and with the expected elimination of the transport subsidy it is expected that little or no fodder will be provided to extensive herdsmen. There has been indirect risk reduction through public veterinary services, boarding school for children's education

and health services. These are all expected to be reduced with increased direct pricing. Within the cooperative system there has been considerable interaction of herdsmen with respect to optimal levels of grazing. It is not clear whether that is an improvement over traditional systems, but it may well be an improvement over the "commons" problem expected with complete privatization of herding. In the context of broad efforts to improve production practices, as privatization proceeds, attention needs to be given to optimal range management systems.

Table 10: Hay for State Emergency Fodder Funds, 1990 and 1991

	(hectares)			*(percent)*	
Production Unit	1990 Actual	1991 Planned	1991 Actual	Actual to Planned	1991 to 1990
State Farm	31,655	32,000	26,850	83.9	84.8
Fodder Farm	105,602	113,300	106,090	93.6	10.1
*Negdels	11,400	12,500	9,760	78.1	85.6
Cooperatives	12,900	20,700	11,321	54.7	87.8

Source: Sheehy, 1991

*Self harvested fodder by the communes

2. THE CURRENT STATE OF FOOD SECURITY

Thus, as shown in the previous sections, collectivization removed mechanisms which reduced risks and introduced probably more than compensating mechanisms. Removal of the latter without reinstitution of the former will result in a substantial increase in vulnerability of some of the low-income members of Mongolian rural society. The most vulnerable will be the small herdsmen with only 10 cows, 30 sheep and 5 horses. There are reputedly large numbers of such people — perhaps a quarter of the population in the extensive herding areas.

Private herders will institute some additional coping mechanisms. For example, they can delineate areas of higher productivity grass to be barred to grazing and saved for cutting, by hand or machine, for increased local production of grass for winter feeding. There is also long-run potential for some breed improvement, increased quality of output and intensified marketing. But all this is difficult under conditions which are harsh and to which local breeds and practices have slowly adapted over centuries.

Within this relatively vulnerable situation the smallest herds will be most vulnerable, while their number is likely to increase. It is difficult to see what external assistance might be provided to deal with the food emergencies of this group except to get the economy moving again, allowing a siphoning off of surplus rural population, maintaining schooling and health systems to facilitate such shifts out of marginal herding, and emergency methods of providing food in periods of extreme crisis.

Table 11 suggests that the most likely location of food insecurity within the extensive herding system is in the aimaks of deficit grazing land forage. These are the districts most likely to suffer from the increased cost and, hence, lack of marketings of fodder from the old system. As will be noted later in a different

context, the north central districts and the eastern districts are all significantly surplus. The various Gobi districts also show as surplus, portions of them are very heavily at risk. The major deficits are in the three western-most districts, which are most remote from the fodder surplus areas, and one district directly southeast of the surplus areas, which could presumably be easily serviced in time of stress. It would seem that the most careful monitoring for food security needs to be in the far west in years of dry summer and unusually severe winter. The aimak averages hide problems within each aimak, and particularly so in the Gobi aimaks.

As pointed out in the next section, the apparent high stock numbers provide a substantial cushion of food supplies for the coming winter. Thus, the food insecurity problem in the extensive sector lies further down the road.

Table 11: Demand and Supply of Grazing Land Forage Based on Projected Livestock Numbers to the Year 2000

(1000 tons)

Aimag	1990 Supply	1990 Demand	1990 %	1995 Supply	1995 Demand	1995 %	2000 Supply	2000 Demand	2000 %
Arhangai	4,483.5	5,835.2	76.8*	4,482.8	5,485.5	81.7*	4,477.8	5,911.4	75.8*
Bayan-Olgii	4,171.7	5,345.1	78.0*	4,171.2	5,576.5	74.8*	4,170.3	5,420.6	77.0*
Bayan-hongor	8,724.5	7,387.6	118.1	8,720.5	7,771.8	112.2	8,717.5	8,255.2	105.8
Bulgan	2,953.5	3,140.0	94.1*	2,449.9	3,445.6	71.1*	2,949.9	3,735.3	79.0*
Gov-Altai	8,901.3	4,869.5	182.8	8,900.3	6,019.4	147.9	8,901.3	6,369.0	140.0
Dornogov	10,190.1	6,641.4	153.4	10,190.1	7,082.3	143.9	10,190.1	7,576.1	134.5
Dornod	9,052.6	3,385.8	267.4	8,553.9	3,527.0	242.5	8,615.1	3,770.0	228.5
Dundgov	7,400.0	7,878.0	93.9*	7,400.0	8,232.4	89.9*	7,396.0	8,726.0	84.8*
Zavhan	6,844.2	5,978.4	114.5	6,844.2	6,259.3	109.4	6,844.2	6,598.2	103.8
Ovor-hangai	5,983.1	6,883.4	86.9*	5,983.1	7,212.4	83.0*	5,980.1	7,718.0	77.5*
Omnogov	14,673.2	7,878.0	186.2	14,673.2	8,232.4	179.0	14,693.2	8,726.0	168.0
Suh-baatar	6,227.8	3,724.2	167.2	6,723.7	3,908.1	172.0	6,723.7	4,169.0	161.3
Selenge	1,786.4	1,359.4	131.4	1,786.4	1,478.6	120.8	1,786.4	1,642.3	108.8
Tov	6,027.8	5,355.6	112.6	6,026.8	5,679.3	106.1	6,021.8	6,104.3	98.7*
Uvs	5,666.9	8,592.5	66.0*	5,666.9	9,040.7	62.7*	5,666.9	9,588.8	59.1*
Hovd	5,960.9	9,760.5	61.7*	5,959.9	10,157.4	58.7*	5,959.9	10,864.9	54.9*
Hovsgol	5,927.2	5,893.4	100.5	5,926.7	6,143.2	96.5*	5,925.4	6,604.9	89.7*
Hentii	6,083.1	3,842.8	158.3	6,078.8	4,054.2	150.0	6,070.6	4,359.7	139.2
Darkhan	6,844.2	5,978.4	114.5	6,844.2	6,259.3	109.3	6,844.2	6,598.2	103.7

* Indicates Projected Deficiency in Supply of Grazingland Forage

3. NEAR-TERM GROWTH IN OUTPUT

The extensive livestock system is important to the food security of urban areas and to export earnings. Thus, its near-term actions are important although difficult to assess. Assessment of extensive interviews and analysis of data provide the following conclusions.

Although there is some disagreement on this matter, animal numbers in the extensive livestock areas appear to be at a record high. This is probably due in part to the incentive to build private capital incident to privatization and in part to the disincentive to market because of the relatively favorable price relationship for exchange for domestically produced goods and services (relative livestock prices are up substantially so it takes fewer sales to provide the basic necessities of life). Finally, the high livestock numbers are due to the relative unavailability of the attractive, at the margin, imported goods. It is the relative prices and availabilities at the margin which are critical to the level of marketing. Chapter 2 discusses this matter and its solution.

Thus, the extensive sector is vulnerable to substantial livestock mortality in the event of a severe winter in 1992; stands ready to provide larger than normal marketings this fall, dependent on the availability of consumer goods, which is in turn related to the potential for petty international trade or other sources of imported consumer goods; and is poised for large marketings of meat and other livestock products next year if winter mortality is not excessive.

4. LONG-TERM DEVELOPMENT AND FOREIGN ASSISTANCE

As is virtually always the case, the extensive sector has relatively low potential for productivity-increasing technological change. Some gradual breed improvement is possible, as is improvement in grassland and fodder production. Potential exists for decreasing winter mortality and increasing marketings by modest supplement of high-protein feed. All of this can be best assisted by foreign sources through technical assistance to the livestock research, extension and teaching systems. Obviously, it would be helpful if the best elements of the system of cooperation amongst herders could be maintained, particularly the educational and health systems, which are an outstanding and unusual feature of Mongolia's pastoral system.

While increasing production will be a gradual process, there is substantial potential for increase in the sales from the extensive areas by improved marketing. Several donors are examining the potential for processing plants for dried milk, butter and cheese production which offer potential for both domestic production and export. As the north central region becomes more developed, the infrastructure will be pushed into other areas. The first priority for economic development of the extensive areas would be to the areas with the greatest potential for increased marketings.

C. THE INTENSIVE CROP AND LIVESTOCK REGIONS

The four districts of the north central region include the bulk of the arable land of Mongolia, where the wheat, intensive fodder, potatoes and vegetable production takes place. Half of the total population lives in these four aimaks, which also include the three major cities of the country. The other area of significant arable land is in the extreme east of the country.

Not only do the four north central districts contain the bulk of arable land, the bulk of the urban market, and the bulk of the physical infrastructure, but they also contain a grossly disproportionate share of the livestock. Furthermore, it is a considerably more intensive livestock production than in the rest of the

country. Thus, the four north central aimaks contain 14 percent of the range land, but 35 percent of the cattle, 29 percent of the horses and 27 percent of the sheep (Appendix III, Tables 11 and 13). Only .04 percent of the camels and 15 percent of the goats, a lower-value animal, are in this set of aimaks. The addition of four contiguous aimaks raises the proportion of the country range land in the region to just over a quarter. But the proportion of cattle now moves up to half and of sheep to 40 percent.

These aimaks are also those of current surplus grassland grazing capacity (Table 11). Thus, the four north central districts are the logical point for concentrating growth and development effort, gradually expanding high-quality infrastructure into the adjoining districts to the west. It will be argued below that the greatest intermediate-term response to development will come from the intensive dairy sector, with substantial growth multipliers to other sectors of the economy and with particularly strong employment and food security linkages.

1. HISTORICAL DEVELOPMENT

Arable agriculture of any consequence is a recent phenomenon in Mongolia. Its rise was coincident with the new lands policy in the Soviet Union. Because of the timing, it was naturally all developed under large-scale State Farm systems. The increase in arable land in the State Farm context also facilitated large-scale fodder production farms and large- scale dairy farms, which was complementary to the fodder and feed production which accompanied the arable land. Thus, unlike the extensive livestock sector, arable agriculture, although recent, does not have an historical base in small-scale agriculture. The large-scale State Farms developed field layouts, housing for animals and people, machinery sizes, and institutional structures suitable to the large-scale system. That creates immense problems of privatization to small farms.

The principal crops are wheat, other cereals, fodder crops, potatoes and a small quantity of vegetables (Appendix Chart II). There is little irrigation, although some potential for further exploitation exists. Crop yields are somewhat on the low side, even taking into account the low rainfall and the variability in that rainfall. As in the Soviet Union, milk yields of dairy animals are very low, on the order of half those of the Moscow milk shed and one quarter of those of the New York milk shed (Table 12). The principal cause of low yields is poor feed, particularly lack of protein, interacting with moderately poor breeds and management practices.

The dairy sector stands out as having unusually large potential for relatively short-term increase in productivity with an unusually favorable impact on urban food security.

At present privatization is showing itself on the State Farms primarily by division of the farms into four or five smaller units, still managed with a similar structure to the past. It is likely that these systems will evolve further, but the process will, at its most rapid level, be evolutionary because of the large-scale centralized infrastructure and lack of experience with decentralized management systems. The key to evolution to smaller units lies with marketing and credit systems and management education. Foreign assistance could be extraordinarily helpful for each and is discussed below.

Table 12: Milk Yield on Mechanized Dairy Farms, 1988-1990

(liters per cow per year)

	ULAAN-BAATAR	CHOI-BALSAN	DARKHAN	ERDENET	OTHER	TOTAL
No. of mechanized dairies	24	2	6	1	8	41
1988	2256	2269	1923	2569	N/A	2236
1989	2190	2883	1939	2477	N/A	2210
1990	2211	2005	1577	2168	N/A	2101

Appendix III, Table 14 shows that even though intensive development of the arable areas did not begin until the 1960s, that development was proceeding rapidly until the mid 1980s. Thus, while meat and wool production stagnated in the 1980s; cereals production more than tripled, potato production increased by five times, and milk and egg production increased by 50 percent. Those increases were an important part of the generally laudable growth rate of the economy through much of the 1980s.

The potential for expansion of the area in intensive cropping has been largely utilized, particularly in the north central region. The need now is to further intensive production in these areas.

2. FOOD SECURITY

The food security situation is innately favorable in the rural areas of arable and intensive livestock farming. Income averages are high in the first place, production is more stable, and large livestock reserves are available.

3. SHORT-TERM PRODUCTION PROSPECTS

The arable and intensive livestock areas are the intensive users of inputs and are liable to reduced production with reduced availability of inputs. This issue is discussed at length in Chapter 2 in the context of the foreign exchange situation. It was concluded that this year the favorable weather will more than balance the unfavorable effect of reduced input availability, but that the problem of input scarcity was partly being met by postponing it into the next year. Thus, 1993 could prove a year of substantial production decline if those postponed problems coincide with drought.

4. LONG-TERM DEVELOPMENT

The optimal long-term development of the intensive north central set of aimaks would have the following priorities: an intermediate-term (e.g, five years) doubling of milk production by increased feeding of high-protein concentrates associated with breed improvement through improved selection and improved management practices; a longer- term program of improved quality of fodder production, of breed improvement for dairy animals, and improved nutrition and breed improvement for sheep in the higher

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productivity areas; and rapid development and expansion of small-scale and medium-scale firms involved in agro-processing and consumer goods. These efforts should continually emphasize improved management practices and the development of the small-scale sector. Finally, in the crop sector emphasis should be given to yield and production increase, including improved management in the vegetable sector and gradual improvement in grain yields. All of these would benefit immensely from technical assistance for technically oriented improved management.

D. AGRICULTURAL PRIORITY — THE INTENSIVE DAIRY SECTOR

The criteria for an agricultural development priority are (a) large, known potential for rapid increase in efficiency and factor productivity; (b) substantial size in absolute terms and as a proportion of the agricultural sector; (c) strong growth and employment linkages with other sectors; and (d) a significant role in food security of vulnerable groups. The intensive dairy sector meets each of these criteria.

The potential to double milk production per cow in the intensive dairy sector is well understood. Such doubling could occur in as little as five years, producing a 15 percent growth rate. The effective demand is present to absorb such a milk production increase, and resources saved could be switched to other types of livestock production.

A doubling of milk production in the intensive dairy sector would represent roughly a 72 percent increase in total milk production, or 3 percent per year compounded over five years. If the traditional dairy sector grew at a population growth driven rate of 3 percent per year the overall growth rate would be a healthy 6 percent per year.

The intensive dairy sector has strong processing linkages, particularly to the small-scale sector, which would be very helpful in initiating the growth of this key sector.

1. THE MEANS FOR ACHIEVING THE OBJECTIVE

The best means of increasing milk production in the intensive dairy sector is to increase feeding of concentrate feed and protein by addition of soybean meal to the diet. Specifically, the protein content of the dairy ration would be increased by feeding an average of 2.7 kg of soybean meal per day per cow in addition to present rations. It would also be beneficial to combine that improved diet with a culling program that would increase the responsiveness of the herd to improved diet, and to concurrently improve management practices. The proposed food aid program would provide soybean meal for four years and technical assistance for five years. The technical assistance would complement a set of locally financed activities that would be essential to the effectiveness of the project and would provide a permanent base for continuation and expansion of the program.

The program would cover 20 percent of the 20,000 intensively managed dairy animals the first year, 50 percent the second year and all of them the third year. The fourth year would be a year of consolidation. The technical assistance would continue for the fifth year, but the Government would be expected to provide the soybean meal commercially after the fourth year. An additional few years of concessional meal might be provided if the Government were making good progress in freeing the foreign exchange regime but were not yet ready to accommodate commercial soybean meal.

Other valuable uses of the soybean meal would be in piggeries and poultry operations, and as a winter supplement for the extensive livestock sector. It is possible that demand would grow far more than

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indicated in this project, which is prescribed specifically for the intensive dairy sector. The monitoring program recommended would measure these effects and provide the basis for appropriate ancillary policy.

The animal numbers and, hence, grazing pressure would probably decline somewhat as production per cow rose. Thus, the environmental impact would be favorable.

2. THE MARKET FOR INCREASED PRODUCTION OF MILK

Table 13 shows that per capita milk consumption in Mongolia is comparable to that of relatively high-income countries. This must be seen, however, in the perspective of the traditional diet composition and large rural, urban differentials.

The Government now provides 48 percent of the dairy needs of the urban population in the three major cities of the north central region, where the intensive dairy industry is concentrated. Average milk consumption per capita in Mongolia is approximately 149 liters per year. Average urban consumption is 90 liters but may have now dropped to 60 liters in Ulaanbaatar. Urban consumption is traditionally spread throughout the year, while rural consumption is concentrated in the summer months. Urban people wish to consume closer to the national average level of consumption of milk per year.

Marketing of the incremental production can be handled, at least initially, by rapid expansion of small private distributors who would buy bulk from the dairies, truck to the city and distribute it in cans directly from the truck or from retail stores. The milk would not be pasteurized, but Mongols boil all milk consumed, even that from the large-scale dairy — as is the case in most of Asia.

Although the effective demand for the incremental milk production planned is present and important to food security, the efficiency increase from the project could be taken in the form of smaller numbers of more productive dairy animals and resources transferred to other types of livestock production. With healthy private markets, the benefits would be achieved either as increased milk production or increased production of other livestock commodities, including those for export, for which the demand is highly elastic if adequate processing is supplied.

3. TECHNICAL ASSISTANCE NEEDS

Substantial technical assistance could be used in providing intensive development of the dairy sector. Such technical assistance is needed in (a) nutrition education; (b) farm management (preferably in the context of a larger effort to assist the transition from huge State Farms to smaller companies to family size units); and (c) monitoring of the market. These and related needs are delineated in Part II of this report.

Table 13: Consumption of Dairy Products in Selected Countries, 1980s

(kg per capita)

COUNTRY	POPU-LATION (Mill. pers.)	MILK	BUTTER	QUARK	CHEESE	TOTAL
Mongolia (production)	2	N/A	N/A	N/A	N/A	149.0
Finland	5	186.03	[illegible]	1.9	9.9	253.8
Denmark	5	124.7	[illegible]	1.0	11.6	173.3
Netherlands	15	91.2	4.1	1.2	13.7	168.3
USSR	285	129.9	6.0	3.2	3.0	157.6
Poland	38	127.8	9.2	11.2	3.6	157.3
New Zealand	3	106.3	11.8	0.0	8.3	152.5
United Kingdom	57	123.4	4.5	0.7	6.8	144.6
USA	243	97.1	2.1	1.8	10.9	135.2
Hungary	11	101.4	3.1	4.9	4.1	131.5
Germany	61	70.1	8.1	7.3	9.5	130.3

Source: International Dairy Federation, Doc. No. 241, Bruxelles 1990 and (Mongolia), Mongolian Food Industry Corporation.

4. POLICY REFORMS

Policy reforms are needed to complement the program in the following areas:

1. Marketing of milk must be made competitive by facilitating the proliferation of small-scale dairy marketing agents. This requires ready availability of trucks and fuel, open retail markets and probably financing. These are all critical areas of policy reforms.

2. Milk prices need to be completely freed.

3. Small-scale international trade is probably essential to dealing with the potentially very harmful difference between the free market and the official exchange rate. This requires major policy change in Mongolia, China and Russia. Appropriate discussions with the respective governments, the IMF and the WB should be initiated.

This project, with its modest objectives, can serve as a specific entry point for dealing with the three above problems, which in turn have wide ramifications to the whole process of privatizing and freeing markets. Entering the issues in this specific manner has major advantages over a general, non-specific approach.

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CHAPTER 4
FOOD AVAILABILITY AND ACCESS

This chapter briefly examines the composition of the Mongolian diet and its effect on nutrition and health; summarizes the availability of key dietary food commodities; describes the changing systems through which people currently access food; and assesses how well those systems are meeting the food requirements of the rural and urban population.

A. MONGOLIAN DIETARY PROFILE

Mongolian people have a highly unusual dietary pattern due directly to their traditional semi-nomadic lifestyle, which was prevalent throughout their history and which remains central to the economy and culture today.

With only an extremely small part of the country suited to the production of crops, early Mongolians depended on wildlife for food. Later, they domesticated animals, taking advantage of the extensive natural pastures to graze sheep, goats, cattle, horses, camels and other animals. Mongolians became proficient in caring for their animals, protecting them from the extreme cold and wind of the Mongolian winter, and using them to produce clothing, shelter and food.

The traditional houses of Mongolian herders, called "ghers" ("yurts" in nomadic areas of neighboring countries), can be disassembled in less than an hour and transported on horses or camels, allowing the household to move as the herd seeks better grazing. Families typically spend the winter near an administrative center where they can buy and sell goods and obtain education and health and other social services. In the spring, they move their ghers and their animals to grazing areas some distance away. During the course of the summer, they may move a dozen or more times to obtain good natural grasses, ending up in winter again close to the administrative center.

About one fourth of the population continues to live in this traditional semi-nomadic manner. These families continue to provide most of the nation's food supply and a large share of exports and inputs to industry. Households with other economic pursuits remain closely linked to the semi-nomadic lifestyle through history, culture, economics and family. Almost all urban households have family members in rural areas with whom they maintain regular contact.

The Mongolian diet that evolved from this lifestyle is almost totally dependent on animal products, including meat, milk and milk products. The lack of arable land and the mobile lifestyle that herding required meant that almost no food crops were grown. In addition, because of the great distances and lack of infrastructure, access to non-animal foods from other countries through trade was almost minimal, limited to spices, tea, sugar and a few other commodities.

Table 14 shows the average national food consumption during the 1985-89 period.

*Table 14: Average Annual Food Consumption, 1985-1989**

(kgs per capita)

Meat	89
Milk and milk products	147
Flour products	106
Eggs	1
Potatoes	27
Other vegetables	21
Cereals/rice	12
Fruits	11
Vegetable oil	4
Sugar and honey products	23
Fish and fish products	1

Sources: Assessment Mission calculations based on data from the Ministry of Health & Social Services and the State Statistical Bureau.

* Figures are averages for 1985, 1988 and 1989 except for meat and fish and fish products which are averages of 1985 and 1988 only. Average egg consumption, based on 1985 and 1990 data, is 28.

Animal products continue to make up about half of the calories in the Mongolian diet. As Table 14 shows, annual per capita meat consumption was about 89 kg (196 lbs), or an average of 1/4 kg each day for every man, woman and child. Because of the seasonal factors, consumption is much lower than this average in the summer months and markedly higher in the winter. This seasonal variation is partly a reflection of birthing and slaughtering factors. Slaughtering takes place primarily in the fall after animals have fattened on summer grasses and when meat can be frozen (or dried) for the winter. (Slaughter houses close from January to late July.) The most important meats in the Mongolian diet are mutton, beef, and goat, although wild game, horse and camel are sometimes consumed. Mongolians prefer meat with large amounts of fat.

With the warmer weather, milk production commences and offers a substitute for meat. Estimates of Mongolian per capita milk consumption vary widely, perhaps because a large percentage of production is consumed by the herding families whose animals produce about 85 percent of total production. The Assessment Mission believes that per capita consumption of milk and milk products in the 1985-88 period (prior to the current economic crisis) was about 147 kg, a higher level than in the U.S. and many other developed countries. Between 80 and 85 percent of this milk is produced by cows in the extensive (herding) sector and between May and November. Since only small amounts of milk are converted into powder or other products that can be stored for later use, the consumption rate for milk and milk products during these months is extremely high and probably exceeds that sustained in any other country.

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Milk production in the long, cold Mongolian winter comes primarily from 41 intensive dairy farms where some 20,000 cows are sheltered in heated barns. A small portion of that milk is consumed on or near the farms where it is produced; most is sent to urban processing plants and consumed in the cities. Since the intensive dairies produce only about 15 percent of Mongolia's milk supply and no more than half of that during the coldest six months, consumption of fresh milk during that half of the year is probably no more than two liters per capita per month.

Mongolians have been creative in using milk to make a considerable array of foods. These include whole milk of cows, mares, goats and camels; butter; yoghurt; cheese; dried curd; fermented mare's milk; cottage cheese; milk vodka and others. These foods are produced by every rural household and make up the bulk of the rural diet in the summer. Although the dependence on dairy products is less in urban areas, a similar dietary preference is often exhibited. Middle class urban families often move out of their apartments during the summer months into ghers or small country houses near the city in order to enjoy the countryside and to have access to the milk products produced by rural households.

The inclusion of grains, vegetables and other products in the Mongolian diet is relatively recent. The consumption of these products was not significant in the national diet until the 1950s when the New Lands Policy and the State Farms were initiated. Cultivation is still limited to the production of wheat, fodder and a small quantity and variety of vegetables using one percent of the national territory. Although almost all Mongolian families now consume some vegetables, wheat — used as flour for bread, biscuits, noodles and cakes — is the only domestically produced food crop to have made serious inroads into the Mongolian diet. Ministry of Health data for 1991 show that flour products provided about 38 percent of caloric intake. Potatoes, other vegetables and fruits together provided only 2 percent of caloric intake.

Mongolia supplements its limited domestic production of food through imports, which have come to play a small but important part in the diet. Commercial food imports come from the former Soviet Union, Eastern Europe and China (see Chapter 2 for details). Principal food imports include flour, sugar, rice, vegetable oil, butter, and fruits and vegetables. The current economic problems of Mongolia (and of the former USSR) have forced reductions in these imports and lessened their contribution to the diet. Ministry of Health data for 1990 and 1991 show that the percentage of calories attributable to food imports (excluding flour, which is discussed above) fell from 16 percent to 10 percent.

B. NUTRITION AND HEALTH PROFILE

A review of Mongolia's basic social indicators shows that the food consumption pattern, coupled with an unusually effective public health system, has produced a population that is healthier and lives longer than in many parts of the world. The following data are taken from a recent UNDP publication:

- 75 percent of the population have access to safe drinking water (1988-90)
- 87 percent of children receive immunizations during their first year (1988-90)
- 99 percent of births are attended by health personnel (1983-89)
- infant mortality is 65 per 1,000 live births (1988)
- primary and secondary enrollment are 94 percent and 92 percent respectively (girls receive 95 percent as much schooling as boys)
- life expectancy at birth is 62.5 years (1990)
- low birth weight babies are only 10 percent (1980-89)
- average per capita food intake consists of 2,458 calories, or 116 percent of daily requirements (1988).

The average Mongolian diet, although containing unusually large proportions of animal fats, does not appear to cause health problems. Caloric intake, 2,458 in 1988, rose to 2,540 in 1990 and then declined by 9.5 percent to 2,408 in 1991. Although these levels are high in comparison to low-income, tropical countries, Mongolians require additional calories because of the severe cold during much of the year. The Ministry of Health has established a daily intake target of 3,100 calories.

Nutritional surveys in the late 1980s found no evidence of acute food shortages (third degree malnutrition) or protein deficiency. However, there is evidence of chronic energy deficiency and inadequate amounts of total food present in all ages up to six years. National data for 1988 show low weight for age for 6.1 percent of infants below one year of age. Problems among low-income and other vulnerable groups are considerably higher than this average. A 1989 UNICEF survey of the nutritional status of children under one year old not attending creches found mild to moderate malnutrition among 15 percent of apartment dwellers, 20 percent of tent (gher) dwellers and 19 percent of children in the South Gobi aimak.

Almost everyone with whom the Assessment Mission met believes that nutrition standards have fallen over the past two years, causing increased health problems. Ministry of Health personnel report that there are now some cases of third degree malnutrition and that the incidence of low birth weight and of first and second degree malnutrition have increased substantially. (The Assessment Mission was unable to obtain supporting data during its visit.)

Other nutritional deficiencies according to the Ministry include vitamins C and D, iodine and iron. Rickets is widespread, affecting about 7 percent of the under one year age population in 1988, and the incidence of it is said to be increasing. Rickets is attributed to a lack of exposure to sunlight during the winter months. Some Mongolian doctors believe that depleted maternal supplies of calcium have led to low levels in breast milk. Neither milk nor flour are fortified with vitamin D.

C. AVAILABILITY OF KEY FOOD COMMODITIES

The purpose of this section is to summarize the Assessment Mission's findings on likely availability (or shortage) of key food products in the Mongolian diet. This section first discusses foods supplied entirely or principally from domestic production — meat and meat products, milk and milk products and wheat and flour; and, then provides a brief discussion of food commodities for which Mongolia depends entirely or primarily on imports — rice, vegetable oil, sugar and butter.

1. MEAT AND MEAT PRODUCTS

Mongolia has consistently provided an adequate supply of meat for its domestic needs and to export. With a population of 2.2 million people and a current stock of 26 million animals, Mongolia clearly will continue to be self-sufficient in meat, and it can continue to produce and consume at high levels. However, whether consumption (particularly in urban areas) will remain at current levels depends on factors influencing marketing and consumer purchasing power for meat.

On the marketing side, the shortage of consumer and investment goods that herdsmen typically buy with the cash proceeds of animal sales may be causing the supply curve to shift to the left, reducing the quantity offered at each price. The amount of meat offered for sale could also decline because of greater animal losses resulting from a decline in the availability of veterinary services and fodder. In addition, if markets are permitted to function with less government intervention, an increasing amount of meat may be diverted from domestic consumption to exports.

On the purchasing power side, the decline in real income now occurring in urban areas will mean less money available for all consumer goods including meat. As the single most important food in the Mongolian diet, such reduction in demand will present security problems for low-income urban people.

To date, the GOM has taken measures to prevent these factors from impacting significantly on meat consumption. Government orders for meat seem to still exist as a method of extracting an adequate supply of animals from herders, and the subsidized ration system has helped to keep demand from declining. In the current economic crisis, it is not clear that the Government should or will be able to sustain these policies as effectively as it has in the past. Nevertheless, given Mongolia's obvious comparative advantage in meat production and the political as well as nutritional arguments for ensuring the availability of low-cost meat, government and household behavior are likely to result in meat consumption remaining at or near current levels.

2. MILK AND MILK PRODUCTS

The recommendation to increase milk production is central to this report because of the unusual production potential, the importance of milk to food security, and the deficit in production. This section treats the latter two of these three issues.

Mongolia's milk production in 1990 was approximately 316 million liters. Of this amount, 80 million liters were used for making butter, 220 million for consumption as milk in rural and urban areas, and 12 million for other purposes. Milk, as stated in the beginning of the chapter, is a central element of diet in both rural and urban areas.

Although production is high for a country with Mongolia's population, production and consumption have such pronounced seasonal and geographic characteristics that the country has not been able to attain self-sufficiency. In the summer months when most production occurs, milk in the rural areas is very plentiful, and milk products constitute the bulk of the diet. However, the geographic distribution of production creates enormous difficulties in collecting the milk for transport to urban areas. According to Ministry of Agriculture analysts, only about 18 percent of the milk not used to produce butter or other products is used in cities and aimak centers, where more than half the population reside. In the winter months, production is so low that neither rural nor urban consumers have an adequate supply. Mongolia's import of 3,000 metric tons annually of powdered milk does not fill this deficit.

Ministry of Agriculture officials indicate that milk production has reportedly fallen slightly in the past two years. Possible reasons for a decline in production include a reduction in veterinary services and supplies and a reduction in the availability of better quality fodder. With regard to the latter, the Assessment Mission did find evidence of a decline in the cultivation of peas (grown as a feed crop) because of the lack of foreign exchange to procure seeds.

Available evidence suggests that the production decline has been slight. What is widely perceived as a decline in production may in fact be changes in the marketing of milk as the economy shifts from a controlled system to a market system. Some milk that previously passed through the urban processing plants (the point in the marketing system where quantities can most easily be measured) is now channelled directly from farms to consumers. Figures for 1990-91 show that intake of raw milk into the Ulaanbaatar milk plant decreased by 20 percent while national production figures fell by only 1.5 percent. This change is unlikely to produce adverse health consequences since Mongolians almost always boil their milk (even when it has been pasteurized).

Although a decline in milk production and resulting food security problem are not likely to occur, neither are steps being taken to increase production to eliminate the need for powdered milk imports or to meet existing or potential consumer demand. However, such an increase is possible. International experts reviewing the dairy sector for the Asian Development Bank (ADB), the Danish Assistance Agency (DANIDA) and others have concluded that giving cows higher protein feed would yield substantial increases in milk production. The Assessment Mission believes that this is perhaps the easiest step that Mongolia could take to increase its food security over the next several years. In absorbing this recommendation it must be remembered that Mongolia's resource base has made milk a key component in the diet and that milk supply for urban areas is produced inefficiently but with potential to greatly increase the efficiency.

3. WHEAT AND FLOUR

Over the past seven years, Mongolian wheat production has averaged 627,000 metric tons. In five out of those seven years production exceeded the 600,000 metric tons that government officials indicate is required for self-sufficiency. Imports are required only when frost or untimely rains sharply reduce wheat production.

The Government's target for wheat production in 1992 is 700,000 metric tons. However, because of a perception of losses due to cold June weather (despite generally good rains) and a lack of imported inputs, projected yield is now estimated to be from a low of 550,000 metric tons to a high of 650,000 metric tons. Based on its interviews with producers and government officials and its own observations in Mongolia's most important wheat growing area, the Assessment Mission believes that production will be at or above 600,000 metric tons. Thus, barring worse than normal weather at harvest or greater than anticipated problems in securing petroleum and workable machinery for the harvest, Mongolia should have adequate wheat without importing to last until the 1993 harvest.

The vagaries of weather aside, similar wheat harvests should be possible over the next several years. However, attaining this level of production will require adequate price incentives to producers and maintenance of current modest levels of ground preparation, fertilization and weed and pest control. Currently, the market mechanism appears to be working adequately to create an incentive for wheat production. Production technology has slipped slightly, but the impact on production to date is slight. Were economic conditions to impede the production process more seriously, Mongolia would face a shortage of wheat both for flour and for animal feed. If that occurs, the shortage of foreign exchange which precipitates the problem will also make the problem difficult to solve through imports. To the extent possible, the donor community would clearly be well advised to help Mongolia maintain or increase its domestic food production (in areas for which it has a comparative advantage) rather than trying to rescue it later with food aid. Foreign exchange allocations are required for production inputs and probably increased milling capacity.

Even with favorable economic conditions, Mongolia must expect to face a need to periodically import unless new varieties are introduced that reduce vulnerability to weather. Since production is affected by weather conditions occurring late in the growing season, the need for imports generally cannot be foreseen until the fall harvest. Although external financial assistance could help Mongolia at such times, the fairly short lead time (six to eight months) to effect imports suggests that commercial rather than concessional wheat imports are most appropriate.

If Mongolia is normally self-sufficient in wheat, one would expect it also to be self-sufficient in flour, at least in years when wheat production is favorable. However, Mongolia imports flour every year, with imports averaging 29,000 metric tons (about 15 percent of consumption) over the 1987-90 period. Imports grew to 36,000 metric tons in 1991.

Domestic flour production is inadequate because of the poor quality of a significant part of the wheat harvest, the (resulting) milling of that into animal feed, and inadequate flour milling capacity. The allocation of wheat to flour mills, feed mills and other purposes is shown in Table 15.

Policy needs to focus on expanding milling capacity and on changes in production practices, including research on improved varieties and improved harvesting techniques.

Table 15: Mongolian Wheat Production and Uses, 1990

(thousands of metric tons)

TOTAL HARVEST	526.0	SOLD TO STATE	372.1
Used on farms	58.1	Flour mills	262.1
Held for seed	95.8	Feed mills	75.9
Sold to state	372.1	Seed reserves	3.8
		Food factory	9.8
		Pagers	3.0
		Poultry	7.0
		Other farms	2.4
		Other fodder	8.0

Source: T. Bayersaikhan, "Agricultural Marketing in Mongolia," 1991.

Although the poor quality of much of the wheat crop is reported to be a serious problem, the primary obstacle to self-sufficiency in flour production appears to be inadequate milling capacity. Mongolia has nine flour mills with a total installed capacity of 208,000 metric tons. Effective capacity, given normal shut-downs for maintenance, power outages and other problems, is 190,000 - 200,000 metric tons. Actual production during the 1985-91 period has ranged from 174,000 to 197,000 metric tons, with no clear trend discernable. Thanks to increased imports, consumption during the same period rose about 3 percent annually and reached 230,000 metric tons in 1991.

Until Mongolia produces enough quality wheat and has adequate milling capacity, it will need to continue to import flour. As flour has become the most important source of calories in the diet, particularly for more vulnerable urban households, a reduction in the import level could have serious detrimental nutrition and health consequences. The availability of flour may well become more important if Mongolia suffers temporary disruptions in the supply of meat or milk products to urban areas. In view of Mongolia's severe foreign exchange constraints, donor community assistance with flour imports is appropriate over the next several years.

Over a longer period, Mongolia appears to have the capability of becoming self-sufficient in flour production. This will require that the quality of wheat produced be adequate for milling into flour and that milling capacity in the private sector increase. The price for wheat does appear to be rising in response to market conditions, thus offering an incentive to producers. However, flour prices remain fixed at an

extremely low level and although millers are presumably subsidized sufficiently to allow them to survive, changes in the flour price policy are clearly needed.

In providing flour, donors need to ensure that these imports do not facilitate the continuation of inappropriate pricing policies or discourage investment in flour milling capacity. In this regard, several entrepreneurs have reportedly invested in small mills of Chinese manufacture. According to one source, these mills are operating very inefficiently and will do little to make up the deficit, a point that merits further exploration.

4. IMPORTED COMMODITIES

a. Rice

Rice consumption is fairly inconsequential in comparison to wheat flour, providing only about 3 percent of average caloric intake in the Mongolian diet. Rice consumption over the 1985-89 period averaged 16,000 metric tons, rose to 19,100 metric tons ($4.8 million) in 1990 and then fell back to under 15,000 metric tons ($3.7 million) as Mongolia's shortage of foreign exchange prevented normal imports.

Although rice is not a major component in the diet, its availability could be important in times of increasing food scarcity. Recognizing the difficulty Mongolia is having continuing its normal commercial imports, several countries have indicated a willingness to consider providing rice on concessional terms. Taiwan has already provided 4,000 metric tons of rice to the Mongolian Red Cross (subsequently provided to the GOM for the ration program), and an additional 6,000 metric tons have been promised. With surplus rice also available in other Asian countries, concessional U.S. rice imports would appear unnecessary.

b. Vegetable Oil

Mongolia does not produce vegetable oil, and it does not play a major role in the diet. Mongolians traditionally depend on animal fats for cooking. As in the case of rice, imports of vegetable oil peaked in 1990 and then declined in 1991 due to the foreign exchange shortage. Imports in 1990 and 1991 were valued at $2.7 million and $1.5 million, respectively.

c. Sugar

Mongolia produces no sugar. Domestic consumption requires the import of approximately 41,000 metric tons at a cost of about $10 million. In 1990, sugar and candies provided about 262 calories daily, or 10 percent of daily caloric intake.

Because of the foreign exchange crisis, imports in 1991 fell to 33,100 metric tons. Traditional Mongolian candies were not available during the Assessment Mission's visit, suggesting that the lack of imports may have forced the closure of production plants. Cakes and other sweets were rarely available. Ministry of Health data show that daily caloric consumption of sugar and candies has fallen by almost 30 percent.

d. Butter

Mongolians traditionally use considerable amounts of butter, not only with bread but mixed in tea and other products, which Americans often find unusual. Butter production ranged from 4,400 to 4,800 metric tons between 1985 and 1990 and then fell to 3,100 metric tons in 1991. Butter imports also fell between 1990 and 1991 from 2,200 metric tons to 1,700 metric tons. Assistance in meeting Mongolia's butter

(and butteroil) demand is expected to be provided through a U.S. Government grant under Section 416(b) of the Agriculture Act.

D. SYSTEMS THAT PROVIDE FOOD ACCESS TO CONSUMERS

Mongolians access food supplies through four basic systems: (1) traditional pastoral agriculture, (2) government programs (military, schools, hospitals, creches, etc.) that provide food, (3) the food ration system, and (4) the free market. Most of these systems are undergoing changes that are causing interruptions in the smooth flow of food.

1. TRADITIONAL PASTORAL AGRICULTURE

As indicated earlier, about one fourth of Mongolia's population earn their livelihood as semi-nomadic herders. The great bulk of the herders' diet comes from their animals. The level of consumption thus depends in large part on the size and composition of the family herd. Consumption also depends on families' decisions on slaughtering, selling (trading) to obtain other goods, and saving. Saving is accomplished by decreasing slaughtering and increasing herd size (a particularly reasonable position given the recent inflation of the tugrik).

Even during the period in which herds were collectivized, families were permitted to retain up to 50 animals (75 in the Gobi regions), and almost 20 percent of animals remained in private hands. Privatization has now raised the proportion of animals in private hands to over 60 percent. Privatization appears to have also led to an increase in national herd size, with the current estimate of 26 million being the highest in recent history.

A typical herding family might care for 170-200 animals, two thirds of which would belong to the family and one-third of which would be the property of the company or cooperative with which it is associated. About two thirds of the herd might consist of sheep, and one third of goats, cattle and horses. There are, of course, considerable differences across families and among regions, e.g., families in the Gobi regions are most likely to have camels.

Despite their migratory habits and geographic dispersion, herding households are not isolated from the rest of society and are partially dependent on that society for food. Contact with urban areas increased rapidly following the collectivization of pastoralists in the 1940s. The collectives into which families were organized provided a variety of government services, including schools, hospitals and commercial outlets. These outlets permitted herders to purchase sugar, flour and other goods to supplement the foods they produced. Since January of 1991, herding families have been able to acquire flour, sugar, tea and rice at subsidized prices through the Government's ration system. Minor purchases of food such as vegetables and sweets through the free market system also occur.

Given their dietary preference for meat and milk products, herding families are able to meet their food requirements largely independent of others. Moreover, if the increased reliance on market forces increases the relative price of animals vis-a-vis other domestic products, the economic position of herders will improve further. Thus, traditional herding families are among the most food-secure of major groups within Mongolian society.

2. THE RATION SYSTEM

The GOM introduced a system for rationing food and other selected household items in January 1991. Under the Mongolian ration system, every household is entitled to participate and receives a ration card. The amount of each rationed commodity provided depends on family size and on whether the family is urban or rural. Family income and assets are not taken into account.

The Government periodically revises the commodities included in the ration as supply conditions change. Currently the food ration for an urban family includes flour, vegetable oil, bread, sugar, meat, green tea, butter and rice. Other commodities available through the ration system to both urban and rural families include matches, soap and detergent, candles, light bulbs and vodka. Participants pay a fixed price for each rationed commodity they acquire.

Table 16 shows the quantities and prices of rationed commodities currently available to an urban family of five. The rural ration is the same except that meat and bread are not provided.

Table 16: Mongolia's Ration System Type, Quantity and Cost of Commodities for an Urban Family of Five

(all prices in tugrik)

COMMODITIES	QUANTITY		COST AT RATION PRICE	COST AT MARKET PRICE
Flour	25	kg	90	430
Vegetable Oil	1	liter	50	250
Bread	1	loaf/day	6	8
Sugar	1	kg	18	150
Meat	13.5	kg	459	1,620
Green tea	2	kg	36	180
Butter	1.5	kg	108	290
Rice	1	kg	44	84
Total			811	3,012

Rationing seems to be accepted and welcomed by most Mongolians since it clearly provides basic food stuffs to them at very attractive prices. Indeed, since ration prices have remained fairly constant while the price of almost all commodities has risen several fold, the real price of rationed commodities has been falling. Most government officials with whom the Assessment Mission discussed the ration system

expressed an awareness of the financial burden it is creating for the Government and of the need to focus subsidies on households that truly need them.

Aside from the financial burden it imposes, the greatest problem faced by the ration system is securing commodities for it. Shortages are a recurrent problem. When this occurs, local officials lower or eliminate the particular commodity ration for that month. For example, Ulaanbaatar authorities now issue a monthly update of rationed commodities available.

The flow of commodities from producers to consumers through the ration system is an evolving combination of government-controlled and market systems. In theory, administration of the ration system has been decentralized to the municipal and aimak level where authorities purchase commodities through market mechanisms. What is happening in practice is somewhat unclear, since the Assessment Mission was given contradictory descriptions by different institutions. For example, the Assessment Mission was told that the municipality of Ulaanbaatar used the new agricultural commodity exchange to procure animals from meat-surplus aimaks. Others indicated that the meat processing plant procured animals for the ration system directly from producers, bypassing the municipal government and the commodities exchange.

The key question here is not who does the buying but whether a market mechanism is functioning. Many observers with whom the Assessment Mission met believe that the Government is using its control over transport, petroleum and most imported consumer goods to keep farmgate prices artificially low. Still, the price of animals and wheat have risen substantially in nominal terms (even when sold for the ration system), which suggests that there is indeed some room for negotiation of prices at the producers' level. With respect to imported ration commodities (rice, vegetable oil, sugar and tea), the Government is the importer and the price paid is the international market price.

The effect of partially freeing prices can be observed in the marketing of meat. The increased farmgate price for animals coupled with the fixed wholesale and retail prices for meat have placed meat processors and retailers in a difficult or impossible position. The Ulaanbaatar meat processing plant indicated to the Assessment Mission that it is currently purchasing animals for approximately 20 tugriks/kg liveweight and that it is forced to provide meat for the ration system at 34 tugriks/kg. According to the plant management, the company is operating at a loss of approximately 13 tugriks/kg of meat produced. This is due in part to inadequate margins, but may also be due to operating inefficiencies.

The ration system, as presently constituted, seems destined to produce increasingly severe problems. Unless producers' prices are allowed to move upward with market forces, supply will fall, and the ration system will find it increasingly difficult to acquire the food it requires. If producers' prices do rise, the cost must either be transferred to the consumers through higher ration prices or absorbed as an additional subsidy; neither option is attractive to the Government. The Assessment Mission believes that the best solution, although one that would not be popular with all groups, is to convert the current system into one that limits public subsidies to the most needy groups. It is this package of freeing prices and containing the ration system that will need to pursued in the near future.

Despite the ration system's problems and negative aspects, it seems to have accomplished two important objectives. First, it has produced a fairly even and equitable distribution of food across income groups. In the absence of the ration system or some other type of government intervention, low-income families might well have suffered considerable hardship because they would have been unable to compete for limited food. Second, the ration system has ensured that all families can obtain a significant portion of their food at very low prices. Because of these benefits and because the subsidy is growing with inflation, changing the system to one which targets needy groups could generate strong public disapproval.

3. THE MARKET SYSTEM

Under Mongolia's centrally planned economy, food production, transport, processing and marketing were controlled and implemented by government organizations. The private sector's role was limited to the ownership of some animals and the meat, milk and milk products they produced. Most of these products were consumed by the herding families, with some being given or sold through informal family networks.

The heart of Mongolia's present policy to dismantle the centrally planned system and to create a market economy is privatization. (See Chapter 2). Given the short time that has passed since that transformation began, Mongolia's progress is commendable. However, much of the production and marketing structure remains in government hands. Discussions with the managers of some State Farms and processing corporations that have officially been privatized revealed, for example, that the stock of companies that have been privatized often remains in government hands.

To facilitate market-directed trade in agricultural commodities, the Government stimulated the creation of an Agricultural Commodities Exchange. The Exchange is owned by Mongolian companies that purchased shares. Two thousand authorized agents residing throughout the country are permitted to negotiate transactions. The Exchange told the Assessment Mission that it had assisted transactions involving a number of commodities but did not provide data on the volume of these transactions. It appears that a large share of the agricultural commodities trade is occurring outside of this market.

The Assessment Mission attempted to supplement the limited information available on the marketing system with fairly extensive observations in two of Mongolia's four major cities (Ulaanbaatar and Darkan) and in a number of aimak centers and rural areas. Those observations revealed, first, that the variety and quantity of food products available in any kind of retail market is extremely limited. No fruit and almost no vegetables were seen. A typical store, probably now owned by the previous manager, has no more than two or three food products: perhaps a sheep quarter, bread (25-200 loaves) and a case of tomatoes or two dozen bunches of onions. These retail stores devote most of their space to clothes and miscellaneous household items (which are also in short supply).

A small amount of food is sold by street vendors. Like other food sellers, stocks are minimal; a typical vendor might have one or two commodities totalling no more than several kilograms.

Hotels and restaurants seem to have access to a slightly larger variety of food. Cabbage or tomatoes were served daily, and very small quantities of potatoes and radishes occasionally appeared. (The availability of vegetables is expected to increase in August when most of Mongolia's limited crop will be harvested.) Hotels and restaurants usually offer little or no choice of foods.

The Mission tried unsuccessfully to find wholesale markets or larger street markets. Something called the "Chinese Market" was said to exist, but was closed the morning the Mission visited it. The Mission believes that there is nothing in Mongolia resembling the wholesale meat, produce or grain markets that exist in other countries.

Interviews with a small number of urban women who purchase food for their households suggest that a significant share of their meat and dairy products comes directly from family members living in rural areas. The Assessment Mission believes that enterprises will gradually develop to put these flows on a more routine business footing. In Darkan, the Mission interviewed a family that had purchased a tank truck in order to sell fresh milk at regular stops around the city. The family plans to expand into processing milk into cheese and other products for sale at a fixed location. Government policies, which previously aimed at discouraging this type of enterprise, now need to create a positive environment with regulation

limited to hygiene and other measures required to protect the public (e.g., testing milk to see that water is not added). Previously, of course, enterprise of this type was illegal, but exchange controls and a lack of imports still serve as entry barriers.

Another source of food commodities that usually bypasses stores and goes directly to consumers is small-scale imports. Although some traders are traveling to Beijing for higher priced commodities, trade in food usually comes from the border area where rice and other commodities are consistently available, and vegetables from the State Farms (or from home gardens, which may be developing) sometimes appear.

4. SOCIAL SUPPORT SYSTEMS

Under its socialist system, the GOM developed an extensive system of social programs. These programs resulted in impressive achievements in improved health and education of the population. These systems deserve mention in the current analysis because they provide significant quantities of food and some of them reach particularly vulnerable groups.

In terms of the quantity of food provided, the most important government support program is the boarding school program for children in rural areas. Under this program, which serves children of both primary and secondary school age, children receive all meals and lodging at government expense. Although urban children live at home and do not receive food through the Government, they are given the opportunity to attend camps in the summers at government expense, and many do so. Other programs that provide significant amounts of food include the military and the hospitals.

The Government has also instituted programs to ensure adequate food to vulnerable groups. As noted, the most important program in this regard is now the ration program which does not target vulnerable groups exclusively but does serve them. In addition, the Government has a program which identifies and provides income directly to needy households. In 1991, this program provided approximately 300 million tugriks to low-income households. The Assessment Mission did not obtain data on the number of recipients or the average size of support grant. If monthly financial transfers to families averaged 1,000 tugriks (one fourth of average urban family income and adequate to purchase the food ration), resources would have been sufficient to support approximately 25,000 families, or 6 percent of the population. The Government's system of local administration (and control) built up over past decades gives it considerable knowledge of the families and their financial situation, enabling local authorities to make appropriate selection of needy households for this benefit.

E. IMPLICATIONS FOR SHORT-TERM AND MEDIUM-TERM FOOD SECURITY

1. ADEQUACY OF THE FOOD SUPPLY IN RURAL AREAS

Although rural areas sometimes suffer shortages of some food commodities normally available, these areas enjoy adequate (although seasonal) supplies of meat and milk products, the two food groups upon which rural Mongolians are overwhelmingly dependent. Small amounts of flour, bread, rice, sugar, tea, vegetable oil and tobacco are available, though somewhat erratically, in small provincial towns (aimak centers and former State Farms) through the ration system. Bread is also sometimes available on the free market, and potatoes and a few other vegetables may be available briefly in the summer and fall. Other food commodities are not available.

Data recently released by the Government and published in local newspapers indicate that rural cash income in May of this year averaged 3,400 tugriks, which is 85 percent of urban cash income. As rural households

produce most of their own food and have no expenses for rent or utilities, these data suggest that rural households as a group are probably doing better than their urban counterparts.

Within the herding population, however, there are vulnerable groups that face heightened risks as a result of Mongolia's current economic difficulties. Herding families with only small numbers of animals produce correspondingly less meat and milk. However, the size of herds is such that, even for families with smaller numbers of animals, producing enough food to provide family members with adequate calories and protein should rarely be a problem. Of greater concern is the ability of these households to produce a surplus to sell. Without cash income from animal sales, poor rural households will have difficulty obtaining grains, vegetables and other inputs to their diet.

Anecdotal evidence from observers who have spent time in the poorer Gobi grazing areas suggests that a growing number of rural families are facing economic difficulties and food security problems. One indicator of these problems is that some families are not obtaining rationed foods, apparently because they lack adequate cash income to do so.

A particular concern is that the food security situation for herders in areas deficient in winter fodder may worsen over the next several years. Under the collectivized agricultural system, those aimaks (mostly in the far west in the Gobi region) where the limited natural grasses produced in the summer do not permit the cutting and storage of adequate fodder for the winter and early spring were able to depend on fodder shipped in from collective farms located as far as 1,000 km away. The Government subsidized the transport costs. That system is now breaking down as the Government finds it impossible to maintain its subsidies, and farmers are unable or unwilling to pay the full costs of production and transport. If the amount of fodder is inadequate to sustain current herd sizes in the deficit regions, farmers will need to reduce herd sizes, a move that would reduce not only the food supply available to herding families, but also any future surplus which would otherwise have been marketed to urban areas.

2. ADEQUACY OF THE FOOD SUPPLY IN URBAN AREAS

The food security situation in urban areas is not critical, but the precariousness of the situation is easily seen. At the time of the Assessment Mission's visit, retail outlets, which provide both free market and ration foods, had little or no stocks of domestically produced commodities such as meat, milk and milk products, flour and vegetables. Commodities that are normally imported, such as rice, vegetable oil, fruit, most vegetables, sugar and tea, are either provided irregularly in small quantities through the ration system, sold as luxury goods at prices (often in U.S. dollars) that only a small number of Mongolians can afford, or are not available. Retail outlets typically have no more than three or four fresh food items in stock, and these are available in such limited quantities that they are often sold out in several hours.

Despite the apparent shortage of commodities in retail outlets, the urban population appears to be generally successful in obtaining sufficient food (if not ample or varied) to avoid serious or widespread malnutrition or social upheaval. The ration system has played an important role in providing food in urban areas because, as indicated earlier, it has ensured a fairly equal distribution of goods across all income groups and provided food at a much lower price than would otherwise be the case. However, the ration system falls far short of meeting food needs. Ulaanbaatar municipal officials estimate that residents of that city obtain roughly 60 percent of their food through the ration system, with the remaining part coming from a variety of government programs that provide food to participants, purchases on the free market, and family ties in rural areas.

With current urban family income estimated (by the Government) at 4,000 tugriks, the 811 tugriks that a family needs to spend monthly on the food portion of the monthly ration represents 20% of its income.

The food supplied through the ration system provides considerably less than the average consumption level attained several years ago; the ration provides only about 57 percent of Mongolians' normal flour consumption, 36 percent of normal meat consumption, and none of normal milk consumption.

To increase flour, meat and milk consumption to 75 percent of the national average consumption levels for the 1985-89 period, a family of five would need to obtain approximately 8 kg of flour, 14 kg of meat and 61 liters of milk. The cost of these commodities on the free market would total about 2,400 tugrik, or 60 percent of monthly income. The sum of ration and free market purchases requires 80 percent of income — generally considered a prime indicator of absolute poverty in poor countries. These figures suggest that even with the ration system, an average family cannot maintain previous consumption levels.

Whether or not the food security situation becomes more difficult over the next several years for urban Mongolians depends on overall food availability and on levels of real income and employment that are attained. Given the need to reduce public sector employment and move to greater efficiency in privatized business, further declines in income and employment at least through 1992 and 1993 must be expected. This will increase the amount of people in vulnerable groups.

3. MONGOLIA'S ABILITY TO PROTECT VULNERABLE GROUPS

Government and private income-transfer and food-transfer programs have provided an important safety net for vulnerable groups. The most important programs include:

The Ration System. (Described above.)

Government Social Programs. The Government has a variety of longstanding programs that provide food or financial support to low-income families (and often others as well). These include the provision of food to children in schools, preschool children in creches, men and women in the military, and those using hospitals and other public institutions. The Government provides an income averaging 345 tugriks to a large number of pensioners and last year provided 300 million tugriks in direct financial support to low-income families. These cash support programs ensure participation by families that might be too poor to take advantage of the low-cost food available through the ration system.

Traditional and Community Systems. In Mongolian society, people take responsibility for the welfare of their families and neighbors. Mongols are unlikely to let their neighbors (even strangers) go hungry unless they have nothing at all to share.

Private Voluntary Organizations. The Mongolian Red Cross also has funds and food to distribute to low-income families.

The ability of these systems to deal with food security difficulties may well diminish over the next several years. The transition to a market economy, the shortage of foreign exchange and the Government's fiscal crisis will make it increasingly difficult for the Government to maintain the current level of its social support programs.

4. MEASURES TO INCREASE FOOD AVAILABILITY AND ACCESS

Since Mongolia produces most of its own food supply, the most important actions are those that will ensure the continued availability of those commodities. The greatest threat to the flow of domestic commodities is that government controls and intervention in pricing and marketing will discourage or prevent production, processing and marketing. In addition, the severe shortage of foreign exchange, particularly for the transport of goods and the harvesting and processing of wheat, threatens further declines in food availability over the next several years.

Assuming that the foreign exchange crisis does not worsen and that the Government continues on its present movement toward a market economy, disruptions in domestic food supply should be manageable. Having observed the resourcefulness and determination of the Mongolian people, the Assessment Mission is cautiously optimistic that domestic food production will be maintained at close to present levels.

The Mission believes that there are important technical measures that can be enacted to increase domestic food production in the short run. The most promising action would be to increase milk production by improving the feeding of cows in the intensive dairy sector. The Assessment Mission's proposal in this regard is discussed in Chapter 3 and in Part II.

Increasing traditional food imports (e.g., flour, rice, vegetable oil, butter, sugar, vegetables and fruit) to normal levels would be the most effective way to ease the current shortage of those commodities. In view of Mongolia's balance of payments situation, this will be possible only with external assistance. Part II suggests participation through Food Aid.

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CHAPTER 5
RECOMMENDATIONS TO A.I.D.

The charge of the Assessment Mission was to "recommend appropriate interventions for immediate and longer-term A.I.D. support" to Mongolia, and more specifically, to "recommend longer-term food aid, agricultural or policy support activities that should be pursued to promote food security." The Mission was also to detail the case against providing food assistance if that were recommended. The Mission does indeed recommend food aid and summarizes its recommendations to A.I.D. under the headings of a) food aid, b) policy needs, and c) technical assistance. The three components are presented separately but should be seen as complementary parts of an integrated food security and policy package.

A. FOOD AID

The Assessment Mission recommends two complementary food aid programs. Each contributes directly to food security, long-term development and structural adjustment. The Mission recognizes the usual arguments for the efficiency of financial over food aid, but notes the efficiency of import of the two commodities it recommends, one over the long run and the other in the short run. Hence, food aid need not be an inefficient form of aid in these circumstances.

One of the food aid recommendations can be simplistically described as an effort to ensure increased food security through a major intensification and expansion of the intensive dairy sector of the north central region of Mongolia, where the bulk of the urban population is concentrated, and to do so through a comprehensive program in which food aid in the form of soybean meal would play a central role. The potential for large production increase is great, using known technology; the dairy sub-sector is large, with strong linkages to other sectors; and the output is of great importance to urban food security. Milk is a key commodity to urban food security (see Chapter 5) and offers the most easily achieved basis for increased production efficiency. Food security is best achieved in these circumstances by assisting domestic production.

The second food aid recommendation concerns flour, with the explicit objective of ensuring an important element of food security for the urban population of Mongolia and concurrently reducing the foreign exchange constraint that is not only holding back development generally, but also having negative effects on the food security of the country.

These two food aid recommendations are made in the context of an apparently good crop year and large farm livestock numbers in 1992. Thus, it is unlikely that there will be a food emergency in the winter of 1992-93. Such an emergency, however, could still occur if heavy, untimely rains fall just before harvest, more than undoing the favorable effects of the good rains during the growing season. A further tightening of the foreign exchange situation could also nullify the effect of generally favorable livestock prices by inhibiting the supply of imported consumer goods on which rural people spend the marginal proceeds from livestock sales. A.I.D. should monitor this situation by noting the severity of the winter, the level of urban unemployment, and the extent to which foreign exchange shortage is causing a breakdown in transport. Emergency measures would focus first on foreign exchange relief and then on third country shipments of emergency food.

It is far too early to predict the crop and livestock situation for 1993-94. The favorable 1992 crop prospects are due to good weather, which masks underlying retardants arising from the effect of foreign exchange shortage on imports of fuel, machinery spare parts, and fertilizer. These problems, discussed in Chapter 3, will reinforce the effect of bad weather if it were to occur in 1993. Similarly, at this stage

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one cannot predict whether or not a severe winter will sharply deplete livestock numbers, again in the context of reduced fodder production and shipment. However, the prospects are sufficiently favorable to recommend a development-oriented rather than an emergency approach to food aid.

1. SOYBEAN MEAL

For about half of their milk supply, the urban areas of Mongolia, largely concentrated in the north central region of the country, rely on the large-scale intensive dairy farms also located largely in the north central region of the country. These farms have the potential to divide into profitable family size operations. Milk production per cow is very low (2200 kg), primarily because of the cows' inadequate nutrient and protein intake. At present, the shortage of foreign exchange and arable land, the other claimants on the land, and long-standing practices arising from these circumstances have caused low feeding levels and, hence, low production. Other management practices are consistent with the low feeding levels. If half a ton of high protein feed, such as soybean meal, were provided per cow per year and improvements were made in culling practices and management, an additional 2,000 kg of milk would be produced per cow per year.

Given that there are approximately 20,000 cows in the intensive dairy sector, the Assessment Mission recommends a four-year program phasing up from 2,000 tons of meal in the first year, to 5,000 tons in the second year, and 10,000 tons in the fourth and fifth years. An associated technical assistance program would continue for a five-year period.

The technical assistance should start well before the arrival of the first shipment; should emphasize animal nutrition and the utilization of high-protein concentrate, broader farm management issues, and a monitoring/evaluation capability; and should include a major management training component. A substantial amount of the technical assistance could be provided by human and institutional resources in Mongolia. Modest technical assistance from the United States would make it possible to activate those resources.

The soybean meal should be auctioned on the Agricultural Commodity Exchange, assisting in the development of that institution. Prior to an auction, effective market development efforts would be needed.

Provision of soybean meal food aid would represent important long-term market development. Mongolia is a country that needs to trade much more than it does now. As its intensive livestock sector expands, it should include not only the intensive dairy farming, but dairy farming that is not as intensive, and poultry and pig operations. In addition, improvement should be made in the larger extensive livestock sector that will rapidly expand the market for soybean meal. A trilateral arrangement is recommended because of the proximity of soybean meal (or cake) supplies in northern China, not far from Mongolia, and the deficit in soybean meal, and indeed of soybean oil as well, in the southern part of China.

If the only feed deficiency were protein, fish meal would be a cheaper source than soybean meal. However, the nutrient shortfall is more general.

2. FLOUR

As delineated in detail in Chapter 2, Mongolia faces extreme foreign exchange stringency. In order to meet an important food security need in the urban areas and help release that critical foreign exchange constraint, a four-year food aid flour program is recommended. The annual recommended shipment of 25,000 tons is equal to 87 percent of the average annual imports in the three normal years prior to the onset of the present economic crisis in 1990. It is recommended that these shipments be auctioned through

the new agricultural commodity market. The counterpart funds need not be specifically programmed for development projects since the purpose is to save foreign exchange and relieve a food security problem. General budgetary relief is a sensible use of the funds under these conditions. If A.I.D.'s extreme administrative constraint (i.e., a two-person mission) were to be relaxed, then a major program to support the Agricultural Credit Bank would be desirable. The total funds could be easily used in that context. However, there would then need to be a technical assistance component for assisting an appropriate expansion of the Agricultural Credit Bank and monitoring use of the proceeds.

B. POLICY NEEDS

Although the GOM has been making rapid progress in privatization, freeing of prices, and the development of market processes, the Assessment Mission notes four specific areas currently needing further policy emphasis. Each is specifically important to food security. They are as follows:

1. The immense gap between the official exchange rate and the free market exchange rate is clearly creating substantial problems in development. The real exchange rate, in terms of relative prices, probably lies somewhat nearer the official exchange rate than the free market rate. However, as long as the public sector is a massive and inefficient user of foreign exchange, there is little way out of this problem.

   The Assessment Mission therefore recommends that steps be taken to open petty international trade to the private sector. That is, traders should be permitted to purchase goods, including meat and dairy products, on the local market, exporting them and bringing back goods from neighboring countries. The Assessment Mission believes that this would bring the two exchange rates much closer together and break an important consumer goods bottleneck impeding the effective operation of the price system for encouraging marketing in the extensive livestock sector.

   Without opening such small trade, the Government will continue, and on the surface rightfully so, to garner all possible exports and utilize them for crucial imports for the large-scale sector. Although lack of such imports is clearly constraining the infrastructure sectors at the present time, there needs to continue to be heavy pressure to increase the productivity of those sectors and there needs to be some release of foreign exchange for a broader range of development purposes. These policy changes of opening foreign trade must be reciprocated in the neighboring countries if they are to be fully effective.

2. Practically all processing of agriculture commodities in Mongolia lends itself to small-scale operation. This includes small-scale marketing of milk and meat and somewhat larger-scale operation of flour and feed mills. In response to the underlying economies, the small-scale and medium-scale private sector is moving quickly into these areas. It is important, however, that policy facilitate that movement, by ensuring access to foreign exchange, particularly for transport, to the small-scale and medium-scale sector. There should be careful monitoring to be sure that there are no government-imposed bureaucratic inhibitions to the rapid growth of the small-scale and medium-scale agricultural marketing sector.

3. The Assessment Mission is, on the one hand, impressed by the ability of the GOM to provide safety nets to the disadvantaged urban population through the rationing system and complementary programs. On the other hand, it is concerned that the cost of the program, with its 100 percent eligibility of rural and urban people irrespective of income will soon become

constraining to the program under the necessity of reducing budget expenditures. A logical way to handle this problem is to reduce eligibility for the ration system to no more than the 30 percent of the urban population that is most at risk in terms of poverty and food security.

The Government still demonstrates a capacity to obtain deliveries of key livestock products from the rural sector. It could relieve the budget constraint to a food safety net by using that capacity to obtain the necessary modest deliveries, as compared to the present size of the ration system, from the rural sector at below-market prices in order to finance low-cost sales through the ration system.

Having stated a concern and two elements of solution, the Assessment Mission realizes that it is nevertheless important that the GOM be free to find its own solution. It has a highly decentralized system at the aimak and the suom levels and all the knowledge of individuals in poverty that goes with such a system.

4. While most prices have been freed, milk prices seem de facto to be artificially constrained and flour prices are regulated. These distortions will prove increasingly inefficient and need to be removed.

C. TECHNICAL ASSISTANCE

The Assessment Mission fully recognizes the scarcity of administrative personnel within A.I.D. generally and in the Mongolia Mission specifically. Thus, with respect to the flour aid program, the Mission suggests not programming the counterpart funds. However, since the soybean meal food aid program is intended to bring about an increase in milk output, which is important to urban food security, by a substantial multiple of the actual food aid received, it is important that the program be accompanied by technical assistance. The Mission has delineated a lean technical assistance program, divided into five parts and presented in the order of importance to the progress of the program.

Soybean meal is critical to increased dairy production in Mongolia. There is a favorable environment for absorbing it rapidly, arising both from the relatively large-scale of dairy operations and from the high educational level of the major operatives in the dairy business. Nevertheless, there needs to be an intensive animal nutrition educational program commencing some months prior to the arrival of soybean meal shipments. That is the first element of the technical assistance program. The Asian Development Bank (ADB) has a large team in the field and will likely make a large livestock sector loan. The proposal made here is complementary to the large ADB effort.

The necessity for a major program for monitoring the activities is very much allied to the soybean meal program. The second technical assistance effort not only would facilitate appropriate adjustment of the educational programs and measurement of the success of the program, but would also help build a capacity for such analytical work within Mongolian institutions.

The third element of technical assistance is with respect to farm management. Assistance is needed in further division of the still large private companies that have been born from the old State Farms. Help is also needed to do what Mongolians are least experienced at in the Mongolian context — understanding an enterprise system in terms of its implications to the strategic and day-to-day management of farm and agribusiness operations. An impact could be gained that is far larger than the specific dairy program proposed. The technical assistance needs to be pursued by building a capacity within Mongolian institutions for providing such training.

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The fourth element of the technical assistance program is business management assistance, preferably provided in conjunction with the business management efforts of the Peace Corps in order to improve the management of the small-scale and medium-scale processing industry.

The fifth element of technical assistance would be to help the budding Agricultural Commodity Exchange develop their capacity for larger operations. Using the imported soybean meal as an auction commodity and initiating the commodity exchange into handling imports and moving into the agribusiness sector would be a particularly important entry point for such an effort.

D. CLOSING REMARKS

The Assessment Mission proposes a food security program designed to relieve a foreign exchange constraint with respect to import of a key food security commodity (flour) for the urban market in Mongolia. The program would concurrently use food aid in another form (soybean meal) to accelerate growth and increase efficiency in the intensive dairy sector so as to contribute to long-term food security. The Assessment Mission then proposes policy changes, within the context of the current direction of policy change in Mongolia, and a judiciously chosen technical assistance component. The effect is an immediate improvement in food security through the flour imports, and a long-term improvement in food security through the increased milk production. The program should be initiated with the expectation that the economy of Mongolia can move rapidly over the next three to five years to the levels of growth experienced in the 1980s. It will do so, however, on a self-reliant basis with rapidly increasing efficiency and removal of structural imbalances rather than with decreasing efficiency and the development of structural imbalances, as was the case in the 80s. Thus, the foreign assistance should be phased out within a five-year period. The program presented, while oriented specifically to immediate and near-term food security, provides the basis for phasing out those needs as well as foreign assistance in general.

PART II

A PROPOSAL FOR FOOD AID TO MONGOLIA

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CHAPTER 1
INTRODUCTION

A. BACKGROUND

The Assessment Mission was asked to make recommendations concerning the need for food aid in Mongolia. If the Mission believed food aid was needed, it was to present a proposal that would outline the type of food aid recommended. In its efforts to determine the need for food assistance the Mission met with GOM and local officials, farmers, company directors, the A.I.D. Representative, U.S. Embassy personnel in both Ulaanbaatar and Beijing, and others over a period of three weeks. Based on analyses of information gleaned from these meetings and readings, the Mission concluded that two types of food aid are appropriate to the situation currently prevailing in Mongolia.

In considering various approaches, the Mission recognized at the outset that Mongolia is not a "developing country" in the sense that Bangladesh or many African countries are. Rather, it is a country that has fallen on harsh times, albeit temporarily so. Mongolia's financial difficulties are largely due to the breakup of the Soviet Union, which had provided a substantial subsidy to its economy for a number of years. Thus, the Mongolian situation is unique in terms of traditional food aid programs of the past few decades.

The Mission concluded that emergency assistance is not required at this time nor is it likely to be in the foreseeable future unless an unexpected man-made or natural disaster strikes. However, developmentally oriented assistance is temporarily needed to assist Mongolia in addressing the severe problems of the current transition from a controlled to a free economy.

B. RECOMMENDATIONS

Based on the analyses in Part I of this report, there are two proposals recommended for development assistance to the food sector in Mongolia. The first is designed to increase food security by expanding and improving production in the dairy industry. The second is aimed at addressing food security in the urban areas by assisting the GOM to relieve a critical foreign exchange shortage by providing flour under PL 480. Concurrently, the GOM should be encouraged to expedite policy reforms aimed, inter alia, at freeing prices, privatizing marketing and trade, and encouraging the development of small-scale agricultural enterprises.

Proposals are outlined in Sections D and E of this Part. The ideas presented in these proposals have been tested with GOM officials in preliminary discussions, with officers in the U.S. Embassy in Mongolia, with the A.I.D. Representative in Mongolia, and with officers at the U.S. Embassy in Beijing. The Mission believed that, as contractors, it was not appropriate to get into those project details that are properly the subject of negotiations after a project is approved and an agreement is under discussion with the GOM. It is up to A.I.D. and/or USDA in Washington to make the decision on whether to go ahead with the proposals officially. Therefore, the Mission presents them as conceptual designs on which, if desired, full-fledged projects can be based.

By way of background, Section B outlines U.S. food assistance to Mongolia during 1991 and to date in 1992. Section C describes the legislative alternatives under which U.S. food aid might be provided and makes recommendations as to which of the alternatives would be appropriate. Sections D and E consist of descriptions of the interventions the Mission proposes to address food security and agricultural

development issues. In each section the problems and constraints, recommended general program design and relevant issues are outlined, as well as preliminary cost estimates, logistic factors and other pertinent details.

CHAPTER 2
U.S. FOOD ASSISTANCE TO MONGOLIA IN 1991 AND 1992

In 1991, in the face of a severe shortage in Mongolia of wheat and flour, the U.S. provided 30,000 metric tons of wheat to the GOM under the emergency provision of Title II of PL-480. Of this amount, 10,000 metric tons were exchanged with China for 5,000 metric tons of wheat and 4,250 metric tons of flour in order to expedite delivery of at least a portion of the commodity. There were logistic difficulties attendant upon the delivery of the remainder of the wheat due to infestation discovered at the port in China, which made it necessary to institute procedures to fumigate the commodity before turning it over to the GOM. Delays in activating the fumigation procedures until the onset of winter (at which time the intense cold killed the insects, rendering fumigation unnecessary) resulted in corresponding delays in delivering all of the commodity to the Mongolian consumer. Final distribution of the wheat was accomplished in the spring of 1992.

In the early summer of 1992, the GOM requested 5,000 metric tons of butter, 2,000 metric tons of butteroil and 2,000 metric tons of nonfat dry milk under Section 416(b) of the Agricultural Act to alleviate production/consumption shortfalls in these commodities which the GOM is unable to fill due to lack of foreign exchange. Nonfat dry milk is no longer in surplus; however, the Office of the A.I.D. Representative in Mongolia expects shortly to receive final approval by USDA/Washington for the butter and butteroil. The commodities will be sold by auction on the Mongolian Agricultural Commodities Exchange and the local currency proceeds used for defraying transport and other program logistical costs, as well as for activities to be mutually agreed upon by the GOM and the U.S. Government (USG) (Note: the GOM may buy a portion of the commodities itself to provide food to vulnerable groups.)

CHAPTER 3
LEGISLATIVE MECHANISMS EXAMINED

The Mission examined the legislative modalities described in the following paragraphs through which food assistance might be provided to Mongolia, and assessed each as to its feasibility and appropriateness to the Mongolian situation and to each of the proposed interventions.

1. **A PL-480 Title I** concessional sale for dollars or local currency is one option. In either case, the sale would be on a long-term credit basis (up to 30 years). If the sale were for local currency, USDA would be responsible for programming it for trade development (i.e., developing markets for U.S. commodities) or for agricultural development activities in Mongolia, e.g., increased production, credit policies for private sector agriculture, processing, agricultural research.

2. **The Food for Progress Act of 1985**, as amended, permits the use of dollar funds in conjunction with Title I programs. The general criterion for utilization of funds under Food for Progress is to assist "emerging democracies....committed to expanding free enterprise elements in their agricultural economies." Here dollar funds could be used perhaps to provide technical assistance and other inputs, as appropriate, to activities funded with local currency aimed at expediting privatization of the Mongolian economy.

3. **Title II of PL-480** would require the presence of a U.S. Private Voluntary Organization (PVO) in Mongolia for a non-emergency program. There is no PVO representation here as yet, although there are some PVOs who have apparently evinced some interest. It is a long and usually difficult process to obtain representation rights in a country , e.g., recognition, registration. Title II seems, moreover, to be under a good deal of pressure as a result of the Southern Africa drought.

4. **Title III of PL-480** is another option. In order to qualify for assistance under Title III, a country must meet the criteria for least developed countries. Although Mongolia did not qualify as such for FY 1992 according to the *PL 480 Title III Guidelines* issued in July, 1991, the situation has apparently changed. Assuming that Mongolia does qualify, a monetization program could be undertaken under Title III aimed at enhancing food security and improving agricultural development through policy reform and balance of payments support. Like Title II, however, Title III resources appear to be strained in that claims on them are likely to be made to satisfy Southern Africa drought needs.

5. **Section 416(b) of the Agricultural Act of 1946** is normally utilized under emergency conditions. In any case, it is not considered a viable mechanism for long-term programming because of the year-to-year uncertainty of commodity availabilities under the Section. Only surplus commodities are included in Section 416(b) and currently only butter and butteroil are on the list. Again, as with Title I, USDA is responsible for this program.

With the possible exception of Section 416(b) it probably would be feasible to utilize almost any of the mechanisms outlined for the proposed development projects. However, the Mission considers that two of them are particularly appropriate: PL-480 Title I with the Food for Progress component, and Title III. While recommending one of these as the preferred option, the Mission emphasizes that, if that option proves not to be feasible because of competing demands on resources or other reasons, the other will serve equally well.

The Mission recommends the use of Title III in both proposed interventions. The development purposes that Title III is intended to support are clearly addressed in these two proposals. For example, policy reform to improve food security and agricultural development are explicitly set forth in Title III Section, 306(a)(1), the promotion of free and open markets in Section 306(a)(4), private sector development in Section 306(a)(9) and support for research and extension in agriculture in Section 306(a)(13). As integral parts of A.I.D. country development policies and strategies, Title III projects are fully integrated into overall Mission programs. Therefore, it seems appropriate to utilize the legislative mechanism administered by A.I.D., i.e., Title III. It must be noted here, however, that the Dairy Development project will also require some dollar funds for the technical assistance and training component.

Title I supplemented with Food for Progress funds is a viable alternative. Mongolia is eligible for Title I under the criteria in Section 102 of the Act: The GOM is undertaking measures for economic development to improve food security and promote agricultural development, and Mongolia has the potential of becoming a commercial market for U.S. agricultural products, albeit a relatively small one. Mongolia is clearly eligible for Food for Progress funds, being committed to democracy and free enterprise in all sectors of its economy. Such funds could be used for much needed technical assistance and training in the intensive agriculture sector. Lastly, payment for Title I commodities may be made either in local currency or dollars and initial payment can be deferred for up to seven years. While Mongolia is presently extremely short of foreign exchange and is experiencing severe transitional difficulties, in all likelihood, it will not take seven years for the economy to become fairly healthy, especially if judicious and relevant technical assistance and training are provided by the U.S. and other donors.

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CHAPTER 4
PROPOSAL FOR A DAIRY DEVELOPMENT PROJECT FOR MONGOLIA

The Assessment Mission recommends a Title III project designed to increase food security in Mongolia by improving the dairy industry through the importation of soybean meal to supplement the feed of 20,000 dairy cows in the intensive agriculture sector. The soybean meal would be provided over a period of four years in incremental amounts beginning with 2,000 metric tons in year one, 5,000 metric tons in year two, and 10,000 metric tons each in years three and four, for a total of 27,000 metric tons.

A. PROBLEM DESCRIPTION

There are, of course, many problems faced by Mongolia in this period of transition from a controlled political and economic society to a political democracy and free market economy. A major share of these problems has to do with food security, as Part I of this report has made clear. Several of them are related directly to the need for the GOM to carry out policy reforms to free trade and prices, reform the ration system, privatize agriculture and encourage development of a small-scale agricultural sector. To supplement these policy efforts by the GOM, programs of assistance to increase the food supply are feasible with inputs of relatively small amounts of funds and commodities, provided requisite technical assistance and training are incorporated into the planning and implementation.

Nearly two thirds of the Mongolian caloric intake is derived from animal products such as meat, milk and milk products. While meat is the principal component of the diet in winter, during the summer the major reliance is on milk and other dairy products. Milk production is seasonal, with production in the cold months limited primarily to the 41 large-scale intensive state dairy farms where animals are sheltered. Some of that milk is consumed on and near the former State Farms where it is produced, but most of it is sent to urban processing plants. Since the intensive dairy operations produce only 15 to 20 percent of Mongolia's milk supply and is itself somewhat seasonal, consumption is low during the winter season even in urban areas. Thus, the great bulk of Mongolia's consumption of dairy products takes place in the summer.

Prior to the current economic transition period, that is, during the years 1985 to 1988, Mongolia's per capita consumption of milk products is estimated to have been 147 kg per year (estimates range from 113 kg to 200 kg). During the past two years, however, production and particularly processing of milk and milk products have declined, availability is low and demand is not being met, particularly in the major urban areas of Ulaanbaatar, Darkhan and Erdenet, where roughly 34 percent of the population dwells.

Reasons for low milk production and processing are various. Although the price of milk is theoretically not controlled, in reality the GOM has set a ceiling on the price to producers and, consequently, producers are holding back on sales to the urban processors. Barriers to the entry of small-scale milk processors and distributors and lack of foreign exchange for machinery and veterinary supplies contribute to the overall picture. Milk production in Mongolia, however, is naturally low, with the yields of dairy cows averaging only about one quarter of that in the U.S. and only one half of that in Russia. Increasing the quantity and quality of dairy cattle feed and providing technical assistance and training to dairy farmers can help to address production constraints. At the same time the GOM must undertake to implement policy reforms designed to free up prices and facilitate the entrance of small-scale distributors into the distribution network. (See Chapter 3 of Part I for a more detailed discussion of the intensive dairy sector.)

B. PROJECT JUSTIFICATION

1. TECHNICAL AND PRICING CONSIDERATIONS

Even in the intensive sector animals receive grossly inadequate intakes of feed, especially protein. That is the major reason for low production per cow and, hence, the milk supply problem for vulnerable groups and the urban population in general, albeit, as stated, there are other external reasons contributing to the insufficient supplies of milk and milk products. Often cows receive no concentrate when on summer pasture and even the best commercial herd is fed only wheat bran as a summer pasture supplement. The feeding practices are consonant with, although somewhat worse than, those typical in Russia, and are in no way in keeping with modern western practice.

With such inadequate feed intake, culling practices do not emphasize responsiveness to feed and management practices become lax. Improving the feed quality and quantity comes first, and the others must follow.

Current price ratios of milk to feed-quality wheat in Mongolia, expressed in tugriks, are favorable both to increased feeding and to feeding soybean meal as a concentrated nutrient and protein source. It should pay dairy farmers to use soybean meal at 1.5 to 2.0 times the feed wheat price. Therefore, in auctioning the soybean meal on the Agricultural Commodities Exchange (see below), it would be advisable to set a floor price of 1.2 times the wheat price to ensure appropriate utilization.

2. THE DEMAND FOR INCREASED MILK PRODUCTION

The GOM now provides 48 percent of the dairy needs of the urban population in the three major cities of the north central region where the intensive dairy industry is concentrated. As stated above, average milk consumption per capita in Mongolia is traditionally 147 liters per year. Average urban consumption is reported as 90 liters and may now be as low as 60 liters in Ulaanbaatar. While urban consumption is spread throughout the year, rural consumption is concentrated in the summer months. Urban people would like to consume closer to the average level of consumption each year.

3. VULNERABLE GROUPS

According to GOM officials from the Ministry of Health and the Ministry of National Development, the number of people deemed to belong to the vulnerable population has been increasing since 1990. The number of small children exposed to dietary deficiencies is continuing to rise and among that group there is reported to be an increase in incidence of malnutrition. An official in the Nutrition Department of the Ministry of Health stated that prior to 1991 there were no cases of second degree malnutrition, but that there now are reported cases of both second and third degree malnutrition. The Mission recognizes that increasing the production of milk products alone will not suffice to address all the food needs of vulnerable groups, especially children, but it will provide some additional nutrition of particular relevance to the requirements of pregnant women and lactating mothers.

4. MARKETING

Marketing of the incremental production can, at least initially, be handled by rapid expansion of small private distributors who would buy bulk from the dairies, truck to the city and distribute it in cans directly from the truck or from retail stores. The milk would not be pasteurized, but Mongols boil all the milk they consume, even that purchased from supplies provided by the large central dairy.

Although the effective demand for the incremental production planned is present as part of the food security and food system, the efficiency increase from the project could be taken in the form of smaller numbers of more productive dairy animals and resources transferred to other types of livestock production. With well operating markets, the benefits would be achieved either as increased milk production or increased production of other livestock commodities, including those for export, for which the demand is highly elastic if adequate processing is supplied. (For detailed discussion of milk production and demand, see Chapter 3 of Part I, and for discussion of dietary habits and vulnerable groups, see Chapter 4.)

C. PROJECT DESIGN

1. PROJECT OBJECTIVE

The project objective is to increase milk production of the 20,000 cows on the intensive dairy farms from the current annual average of 2,200 liters per cow to 4,200 liters per cow and to do so over a five-year period. This would mean a nearly 20 percent increase in the overall milk production in Mongolia, and milk supply to the large urban centers located in the intensive agriculture belt would be sharply increased. At the same time, the GOM will be encouraged to implement policy reforms aimed at freeing prices and removing barriers to the emergence of small and medium size milk distributors.

2. PROJECT ELEMENTS (Also see Part I, Chapter 3)

a. Use of Soybean Meal

The meal will be fed to dairy cows in the intensive dairy sector at the rate of 2.7 kg per day per cow in addition to present rations. Combined with that, a culling program will be undertaken to increase the responsiveness of the herd to improved diet and a technical assistance and training program will aim to improve management practices. The program should provide soybean meal under Title III of PL-480 for four years and technical assistance for five years.

The program would cover 20 percent of the 20,000 intensively managed dairy animals the first year, 50 percent the second year and all of them the third year. The fourth year would be a year of consolidation. The technical assistance would continue for the fifth year, but either the GOM or, preferably, private farms or a cooperative of dairy farmers, would be expected to import the soybean meal commercially after the fourth year. If Mongolia is making good progress in freeing prices, relaxing barriers to the establishment of small-scale industries and in overall privatization, but the foreign exchange situation is still such that it would be excessively burdensome for either the GOM or the private dairy sector to import commercially the required soybean meal, the USG might wish to consider providing an additional one or two-year supply, contingent on the GOM's continued progress in implementing the necessary policy reforms.

Although this project is prescribed specifically for the dairy sector, additional uses of soybean meal might be identified during the course of the project, e.g., in pig and poultry operations and to supplement winter feed in the extensive livestock sector. It is thus possible that demand would grow considerably. The monitoring program recommended below would measure project effects and provide the basis for appropriate ancillary policies and activities.

b. Technical Assistance

Technical assistance will consist of the components outlined in the following paragraphs.

1) Animal Nutrition

An initial intensive educational campaign should be initiated with about 200 chairmen of dairy companies, 200 operational managers of those same dairies and selected small herdsmen (perhaps 50 as a trial). The program might be run jointly with the Animal Research Institute and would include key people from the University and the GOM. Preliminary estimates of needed assistance are: four months, comprising three periods of visits by a high-level animal nutritionist from the U.S.; several seminars; materials preparation; and demonstrations that would continue for the five-year period.

It is important that this aspect of the technical assistance program start several months before arrival of the first soybean meal shipment. At present, the knowledge of Mongolian dairy farmers concerning soybean meal is rudimentary. While they are aware that it is a good thing to feed their cattle, they have little or no knowledge of how or how much, nor do they understand the benefits that are likely to accrue in terms of improved milk production.

It is expected that it will be possible later to integrate these technical assistance and training activities with those of the ADB livestock project, once that activity commences. During the Assessment Mission's visit, conversations were held with technical advisors of the ADB who were in Mongolia conducting the preparatory studies relating to an improved livestock project. The advisors indicated that they considered upgrading livestock feed essential for achieving improvement in the dairy herds and increasing milk production, and signified their interest in participating in such an effort by providing technical assistance and training where appropriate and feasible.

2) Monitoring

A contract would be let with the Agricultural Economics Research Institute, within the Ministry of Agriculture, for a base line survey and regular follow-up survey to measure the progress of the project in feed use, animal production, and profitability. It is anticipated that technical assistance from the U.S. would be needed for one month each year over the five-year period, beginning with year two, for a total of four visits. This person should be an agricultural economist knowledgeable in dairy management and operations, who could ascertain over time whether the project is sustainable, i.e., whether dairy producers will continue to be able to obtain high-protein feed either through imports or domestic production and, in this connection, whether Mongolia should grow or import soybeans?

3) Farm Management

Both for this project and for broader purposes of assisting the gradual decentralization of State Farms into family operations, farm management consulting services are required. Through the assistance of these services, the capacity of the University to train people in applied farm management would be increased and the University would be able to offer management service to farming companies and individual farmers. It is generally the case that countries commencing to privatize from a base of collective agriculture and large State Farms lack the necessary management capacity to implement successfully the transfer to small, privately owned and operated enterprises.

4) Assistance to the Commodity Exchange

Technical assistance is needed to assist the commodity exchange to prepare for future handling of substantial transactions, including foreign exchange management and other aspects of commodity imports so that it will be able to service a growing commercial livestock industry involving both imports and exports. Short-term U.S. consultancies and some training in the U.S. for members of the exchange are envisaged.

5) Management of Small Business

Some technical assistance is necessary to ensure that the small agribusiness capability to handle milk and the provision of feed is developed adequately. In conjunction with the technical assistance, monitoring studies should be carried out to verify acceptable progress.

6) Other Technical Assistance Needs

There are a number of other areas linked to the dairy/livestock industry which would undoubtedly profit from some technical assistance as well as infusions of funds, either foreign exchange or local currency. Further investigation of the agricultural credit system, for example, would be desirable, as it would appear to be appropriate for that system to provide a major portion of its funds to small agribusiness firms.

c. Implementation

Initially, the government department designated by the GOM would be responsible for receiving the soybean meal and auctioning it on the Agricultural Commodities Exchange (See Item 4 below).

Implementation details would be decided during the negotiation of the agreement. The project would be implemented by the buyers of the soybean meal, i.e., the dairies, under the guidance of the technical assistance advisors contracted under the project. (See Section 3.b.(2) above).

D. DISTRIBUTION MECHANISM

Distribution plan details will have to be finalized during the negotiation of the Title III agreement. However, the procedures should follow the lines of those which have been agreed upon with respect to the Section 416(b) donation of butter and butteroil, which is expected to be approved shortly by Washington. The general outline of those procedures, as applied to the Title III soybean meal, is set forth in the following paragraph.

The soybean meal should be auctioned on the Agricultural Commodities Exchange. Prior to negotiation of the Title III agreement, the GOM should provide a detailed description of its plan for selling the commodity, the uses for which it plans to program the auction proceeds, and the arrangements for depositing the proceeds in an interest-bearing account. There may be some short-term help required to arrange the auction procedure; however, in view of the upcoming auction of Section 416(b) butter and butteroil on the Agricultural Commodities Exchange, the GOM may be expected to have gained the necessary experience to handle the auction of the soybean meal. The exchange rate for purposes of denominating the value of the soybean meal in dollars when setting the minimum acceptable auction bid will be the official one at the time of the sale.

E. LOCAL CURRENCY PROCEEDS

Provisions should be included in the Title III agreement regarding the use by the GOM of local currencies generated by the sale of soybean meal. In accord with past practice, one such use could be to defray internal transport costs of the commodity. In regards to other uses, the GOM should provide information to the USG on its plans for utilizing the currencies. The GOM should also agree to provide the funds necessary for the project's local costs. (See Section 12 below.)

F. POLICY REFORMS

When the Title III agreement is negotiated, the policy reform agenda will be agreed upon, including the timetable for implementation of the reforms. To facilitate the success of the program, the GOM should be encouraged to implement policy reforms in the areas outlined below.

1. First, milk prices should be completely freed. The GOM has indicated that it intends to completely free all prices in September 1992. Hopefully, the GOM will have adhered to this schedule. If it has not, efforts should be undertaken to persuade it to do so as expeditiously as possible.

2. Milk marketing should be made competitive by facilitating the proliferation of small-scale dairy marketing agents. This requires a relaxation by the GOM of existing controls and barriers, ready availability of trucks and fuel, open retail markets, and probably financing.

3. This project, with its modest objectives, can serve as a specific entry point for dealing with the above two problems, which in turn have wide ramifications to the whole process of privatizing and freeing markets. Approaching the issues in this specific manner has major advantages over a general, non-specific approach. (See Chapters 2 and 5 of Part I for additional discussion concerning policy reforms.)

G. ISSUES

1. TRILATERAL VS. BILATERAL

In considering the most efficient and expeditious way to bring soybean meal to Mongolia, the possibilities of a trilateral arrangement were explored. In such a case, soybeans would be sent to South China and soybean meal shipped from Northern China to Mongolia. Logistically, this would be advantageous for many reasons. Internal transport problems would be minimized, since it would obviate the necessity for arranging transshipment through China to Mongolia, thus avoiding delays in arrival which might jeopardize the effectiveness of the linkage between technical assistance and the commodity arrival. Perhaps more important, it would minimize duration of commodity storage; soybean meal has a short shelf life and, therefore, shipments should be as small as feasible to ensure prompt usage. Another advantage would be that shipment costs would be minimized, as the entire quantity of soybeans could be sent in one shipment to China, with incremental amounts of soybean meal being sent on an agreed upon schedule to Mongolia.

During discussions with the U.S. Agricultural Attache and the U.S. Economic Officer in Beijing, the Mission was told that China regularly imports soybeans and that the U.S. is desirous of further promoting the market in China for U.S. soybeans. A trilateral deal would have the advantage of helping to promote

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the development of such a market by providing the Chinese with soybeans in exchange for soybean meal, of which the Chinese apparently have sufficient quantities in areas near the Mongolia border and at locations close to the railway. Although the quantities with which this proposal deals are small, such a proposal might be of interest to the Chinese.

There will be a number of issues that will have to be resolved if the trilateral option is to be taken up. The Chinese meal would have to conform to U.S. specifications and, although the Chinese are capable of manufacturing it to those specifications, they also apparently sometimes produce meal of an inferior quality. This would mean that every shipment would have to be tested to ensure that the quality was acceptable. It might be necessary, therefore, for someone to come from the U.S. to inspect the meal (although the expertise should be available in Beijing where the American Soybean Association has an office). As mentioned above, it would probably be preferable to ship the entire amount at once. In addition to the advantage of less expensive transport costs for the U.S., it is likely that, in view of the relatively small total quantity (in Chinese terms), the Chinese would want it in one shipment. In that case, a firm agreement would have to be negotiated providing that the Chinese ship specified quantities of soybean meal to Mongolia at specified intervals during the four years. The terms also should include the price the Chinese would be required to pay (in soybean meal) for the soybeans, making allowances for future changes in prices, inflation and other variables over the four-year period. It may not be easy to negotiate such an agreement and to ensure that the terms are adhered to.

Under a bilateral agreement, the soybean meal should be shipped from the U.S. in no less than semi-annual increments, as soybean meal can be stored only for a maximum of four months, even under the best storage conditions. It is assumed that the meal would be auctioned immediately upon arrival or shortly thereafter. Once auctioned it should be used promptly, so shipment in annual increments would not appear to be practicable. Unfortunately, a shipping schedule like this will result in expensive transportation costs, to which the further high cost of bagging the meal in the U.S. would be added.

Taking the above facts into consideration, the Mission believes that the trilateral option is the most advantageous and recommends that it be employed.

2. PROJECT PLANNING AND MANAGEMENT

It is vital to this project that technical assistance be carried out in a timely fashion. Above all, it will be necessary that training be provided to dairy farmers prior to the arrival of the soybean meal. Although the Mongolian dairy farmers with whom the Mission spoke indicated that they know the advantages of adding soybean meal to the diet of their dairy cows, it was clear that they do not know exactly how it should be mixed, when it should be fed or how much should be fed. In any case, it is normal to find inertia in making such changes.

The prior technical assistance is also necessary because the meal will be sold by auction on the Agricultural Commodities Exchange; if farmers are not sure of the value of the product to their operations, there are not likely to be many satisfactory bids.

The foregoing implies the need for sufficient funds to provide the requisite technical assistance. The Mission has estimated the dollar funds needed for the project to be U.S.$350,000 over the five-year period. (See section below for the preliminary cost breakdown.)

There should be little, if any, additional management responsibilities for the Office of the A.I.D. Representative in Mongolia. There should be no involvement with the expenditure of local currency beyond reviewing periodic reports on the uses to which proceeds have been put; management of the

technical assistance should be provided under an overall contract. Also, if required, there could be some short-term management assistance (either TDY from A.I.D./W or contracted) from time to time to ensure that necessary accountability procedures are being carried out. Furthermore, the OAR has authorization for additional professional positions. These, taken together with the contractual arrangements, should ensure sufficient management capability.

3. USUAL MARKETING REQUIREMENT (UMR)

The question of UMR should not arise, since Mongolia has no history of importing soybean meal and no current plans to import it as far as the Mission has been able to ascertain. As indicated above, the Mongolian farmers are not skilled in using soybean meal although they know it is a good feed source. In fact, one of the anticipated outcomes of this program is the creation of a Mongolian market for U.S. soybean meal.

H. IMPACT ANALYSIS

The project would substantially increase income of dairy farmers. In the long run that will encourage privatization and eventual division into family size farms. The benefits to women who do much of the milking of dairy cows will be particularly great because of increased employment and consequent improvement of the labor market for such services. Food security and human health will be increased in urban areas to the particular benefit of low-income consumers, who spend a relatively high proportion of their income on milk.

Improved supplementary feeding of dairy animals will have a favorable environmental impact by increasing the return to natural grass and thereby encouraging better management of that environmentally sound land use.

I. RELATION OF INVESTMENTS TO BENEFITS

Incremental production in the amount of 108 million liters should result from the input of 27,000 metric tons of soybean meal. At a price of 7 tugriks per liter, this provides 756 million tugriks of benefits which, at the official exchange rate of 40 to 1, provides U.S.$18.9 million. The cost of 27,000 metric tons of soybean meal, including shipping, plus the cost of technical assistance, would be approximately U.S.$8.8 million. The gross benefits would be 2.1 times the direct costs of the program. These are, of course gross benefits - a reasonable way to look at benefits to the economy as a whole. But the net benefit to a participating farmer would be far less highly profitable.

Although there is some potential for producing soybean meal in Mongolia, since the eastern and north central regions are technically suitable, it is more likely that in the long run Mongolia will find its comparative advantage in using such land for vegetables, potatoes and cereals for human consumption and grain for livestock. Thus, in the long run a commercial market for soybean meal should be built. This market might best be served by China, with China in turn increasing its import of soybeans. For this reason the proposal includes the possibility of initially providing meal to Mongolia through a trilateral arrangement with China, with the meal coming from Manchuria and the soybeans being shipped to southern China.

J. BELLMON AMENDMENT PROVISIONS

1. DISINCENTIVE EFFECTS

There will be no disincentive effects attributable to this project. Presently there is virtually no soybean production in Mongolia, only some experimental growing. Additionally, there is very limited capability for processing and no plans to further develop processing capability. If anything, the project could act as an incentive. However, it does not seem appropriate to encourage domestic soybean production (at least for the foreseeable future) as the technology for processing has so far to go, there are so many other priorities for the development of Mongolian agriculture and, in any case, it is not sensible for Mongolia to strive for self-sufficiency in all aspects of agriculture.

2. STORAGE CAPACITY

The Central Food Trade Board warehouse has a storage capacity of 21,000 metric tons of pelletized commodity. The warehouse is covered, clean and well ventilated, security is adequate, and there is no evidence of infestation (Art Wong's report of July, 1991). In other aimaks there is an average of 200 metric tons of storage capacity. In any event, storage should not be a problem since the soybean meal will be auctioned immediately upon arrival or shortly thereafter.

K. LOGISTICAL CONSIDERATIONS

1. SHIPPING SCHEDULE

The exact shipping schedule of the soybean meal, whether from China or the U.S., will be determined from year to year. It is preliminarily suggested that the amounts to Mongolia be as follows: 2,000 metric tons in year one, 5,000 metric tons in year two, 10,000 metric tons in year three, and 10,000 metric tons in year four, for a total of 27,000 metric tons. If shipped from the U.S., shipments should all be on through bills of lading.

As stated above in Section 8, if a trilateral arrangement is finalized, China would probably prefer to have all the beans shipped in one year with the Chinese agreeing to provide the soybean meal to Mongolia in increments over the four-year period. Although this could pose a number of problems, it appears to be the better way to handle the shipments.

Under a bilateral agreement as described in Section 8, the soybean meal should be shipped from the U.S. in no less than semi-annual increments because of short shelf life. Unfortunately, as noted, a shipping schedule like this will result in extremely expensive transportation costs.

If a bilateral course should be decided upon, transit through China should not pose the 1991 wheat shipment problems (which, in any event, were due largely to reported infestation of the wheat). A transport agreement designed to alleviate transshipment difficulties between China and Mongolia was signed in late August 1991. Provided good arrangements are made in advance, theoretically there should be minimal complications. Still, according to U.S. Embassy personnel in Beijing, the agreement is vaguely worded and basically leaves the Chinese free to levy whatever terms they wish and to make any changes they wish from time to time. It would be prudent, therefore, to have someone on TDY in China when the soybean meal arrives who can monitor its transshipment to Mongolia. In addition, as was done with the 1991 wheat shipment, it would be advisable to ask the World Food Program for assistance in expediting arrival formalities at the Chinese port and transshipment through China to Mongolia.

2. METHOD OF SHIPMENT

Again, this depends on whether a trilateral or bilateral program is implemented. Under a trilateral agreement, arrangements for shipment of the meal from China to Mongolia should be negotiated between the GOM and China, with the assistance on the Mongolian side of the Office of the A.I.D. Representative, and on the Chinese side the U.S. Agricultural Attache and the U.S. Embassy. The Agricultural Attache in Beijing should assist also, as necessary, with arrangements for delivery of the soybeans to China.

Under a trilateral agreement, it is assumed that arrangements for shipping the soybeans from the U.S. will be negotiated among the USG, the Chinese and the GOM. It is also assumed that the costs of shipment of the soybeans to China will be assumed by the USG if it is a Title III project or advanced by the USG if it is a Title I project. In the latter case, these costs would be added to the "bill" presented to the GOM. Shipment costs from China to the designated port of entry in Mongolia would be dealt with in the same way.

Under a Title III bilateral program, the USG will arrange and pay for ocean freight and further transportation to the designated port of entry in Mongolia. Transportation within Mongolia must be paid by the GOM. Local currencies generated by the soybean meal sales may be used to cover these costs.

If it should be a Title I bilateral program, the GOM will arrange for the ocean transportation on through bills of lading to the designated site in Mongolia. For each shipment the GOM will hire a U.S. freight forwarder (who will be approved by USDA) to arrange in the U.S. for booking of the commodity, ocean freight and inland forwarding on a through bill of lading to the point in Mongolia designated by the GOM. Here too, the shipping and inland transport costs will have to be advanced by USDA as the GOM has no foreign exchange with which to pay them.

L. PRELIMINARY COST ESTIMATES

Until project details are worked out between A.I.D. and the GOM, only tentative cost figures can be given. The cost estimates given below are based on very rough estimates of technical assistance costs, and commodity costs based on the figures the Mission had available, and transportation costs (from the U.S. to the Mongolian port of entry) estimated at roughly 50 percent of the commodity cost. The figures are for five years.

Table 17: Cost Estimates for Soybean Meal Food Aid Program, 1992

	U.S.$	TUGRIK (U.S.$ equiv.)*
Commodity Cost	5,616,000	
Transportation	2,808,000**	
Sub-Total	8,424,000	
TECHNICAL ASSISTANCE		
Animal Nutrition	70,000	200,000
Monitoring	80,000	450,000
Farm Management	100,000	400,000
Commodity Exchange	50,000	100,000
Small Bus. Management	50,000	50,000
Sub-Total Tech. Assis.	350,000	1,000,000
GRAND TOTAL	8,774,000	1,000,000

* Converted at the current official rate off 40 Tugriks = U.S.$1.
** Bilateral shipping costs; trilateral should be less than half.

CHAPTER 5
PROPOSAL FOR A TITLE III BALANCE OF PAYMENTS SUPPORT PROGRAM FOR MONGOLIA

The Assessment Mission recommends a Title III program designed to address food security needs through balance of payments support to the GOM. Over a three-year period, 75,000 metric tons of wheat flour would be provided in annual increments of 25,000 metric tons, representing about 87 percent of average flour imports during the years 1987 through 1989, the years preceding the current economic crisis.

A. PROBLEM DESCRIPTION

Mongolia is presently confronting many difficulties as it struggles to make the transition from a controlled political and economic society to democracy and a free market economy. A major share of Mongolia's problems has to do with food security. Due to a severe foreign exchange constraint, the urban population, in particular, is feeling the effects of shortages in essential imported foods. While it is incumbent upon the GOM to implement policy reforms to free prices, privatize agriculture and encourage development of small-scale enterprises in the agricultural and other sectors, the food security of the urban population is immediately threatened by the inability of the GOM to procure necessary imported foods, of which sugar, rice, tea, flour, butter and vegetable oil are the most important. With meat, they form the backbone of the ration system.

The ration system, consisting of both domestically produced and imported foods and covering the entire population, has made it possible for all Mongolians to procure at least a minimum of essential foods. Nevertheless, to retain the system as it is will soon strain the already scarce resources of the GOM, making it increasingly difficult for the Government to obtain the necessary commodities for all. It will become ever more necessary for people to go outside the ration system to obtain essential foods at higher prices. Those who will suffer the most under those circumstances will be the lowest-income groups. To conserve existing resources and avoid depriving lower-income groups, therefore, restricting the ration system to those in the lower-income brackets would appear to be necessary. (See Part I, Chapter 4, for a discussion of the ration system.)

Even under ideal economic conditions, Mongolia is not likely to achieve self-sufficiency in food production. The country will continue to depend on imported foods to supplement domestically produced commodities. Three of the six imported foods listed above (sugar, rice, and vegetable oil) are not produced in Mongolia. Wheat is grown in Mongolia, but not enough wheat of sufficiently good quality. Coupled with the lack of flour mill capacity, this has long necessitated the importation of flour to supplement domestic production. Butter production has been constrained by less than optimum development of the dairy industry. (The proposed dairy development project outlined in Part II should, over time, facilitate the increased production of butter.)

Given the foreign exchange/balance of payments problem and its impact on the importation of essential food commodities, the Mission considered there to be advantages to providing short-term balance of payments support through the provision of an agricultural commodity under PL-480. In reviewing the possibilities, the Mission focused on such questions as: a) Will the imports inevitably be reduced without this support? b) Will the support discourage domestic production? c) Are the imports of significant size relative to the balance of payments problem? and, d) Are these commodities available under PL-480?

Agricultural commodities are equal to a substantial portion of the balance of payments deficit but no single commodity is dominant. Furthermore, it is not possible to provide some of the six imported commodities through food aid, and others pose difficulties as well. For example, sugar is the largest import, is important to Mongolian diets, and is priced relatively high, but it is not available under PL-480. Nor is tea, of course.

Rice is generally of significance in the diet, is not produced in Mongolia and is available under PL-480. However, surplus rice in neighboring countries, especially Taiwan and South Korea, seems readily available. Both countries have donated quantities of rice to Mongolia over the last year. (See Appendix I: Other Assistance Donors). Hence, it would be more appropriate for the U.S. to consider commodities that may not be so plentiful in nearby locations.

Butter is an important domestically produced food which has been consistently imported. In 1991 the total value of butter imports was $2.5 million, about one third as important as flour. Although domestic production should be adequate and should arise from effective development of the dairy industry, it will take several years before that can be achieved. Currently, the GOM is awaiting approval of its request for 5,000 metric tons of butter and 2,000 metric tons of butteroil under Section 416(b).

Flour is the most important imported commodity of those also produced in Mongolia. Wheat production in Mongolia fluctuates considerably from year to year according to the weather. Wheat is exported, but it is low-quality wheat for feed use. In the past wheat has normally not been imported; however, a severe shortfall in the 1990 wheat harvest necessitated the emergency shipment of PL-480 wheat.

Flour has been imported consistently over the years in significantly larger quantities than wheat exports. Typically some feed wheat is exported, some is held on the farm for seed, and about 30 percent is used in Mongolia as the key concentrate, along with wheat bran, for the livestock industry. Wheat fed to animals is of too low quality for milling, in any case. In 1990, the quantity of wheat distributed to the flour mills represented barely half of total production and this, combined with the low milling capacity, underscores the need for imports of flour.

(See Part I, Chapter 3 for further details on agricultural production and Chapter 4 for a discussion of systems for accessing food in Mongolia.)

B. PROGRAM JUSTIFICATION

While policy reform by the GOM is the basic requisite for Mongolia's development, the Mission believes it is feasible to supplement the GOM's efforts by furnishing temporary balance of payments support through provision of an essential food commodity to increase the food supply, particularly for the urban centers. Concurrently, the GOM would be encouraged to implement policy reforms freeing all prices, removing other constraints to liberalization of trade, stepping up privatization of agriculture and other industries, and encouraging the development of small-scale and medium-scale enterprises.

After reviewing those imported commodities deemed essential to the Mongolian diet, the Mission believes the most appropriate one for this balance of payments support is flour. Butter was considered seriously as it has traditionally been imported. However, taking into consideration the impending Section 416(b) donation of 5,000 metric tons of butter and 2,000 metric tons of butteroil, as well as the dairy development project recommended in Section D above, the Mission concluded that it would be more appropriate to recommend flour.

Although substantial flour consumption is of fairly recent origin (the 1950s) flour was second only to milk products in per capita consumption during the years 1985-1989, with Mongolians consuming 106 kg per capita. In 1991, flour provided 38 percent of the caloric intake of the Mongolian population. It is thus important that a sufficient supply of bread and flour be available for Mongolian consumers.

Inadequate Mongolian domestic flour production is attributable to some extent to poor quality wheat, but to a greater extent to lack of milling capacity. Although the total installed capacity of Mongolia's nine flour mills is reportedly 208,000 metric tons, actual production in recent years has been in the range of 174,000 to 197,000 metric tons. At the same time, consumption of flour has been on the increase and in 1991 was 230,000 metric tons. With out of date machinery and shortages in petroleum and spare parts, as well as fixed prices for flour, milling capacity is not improving. This, taken together with the poor quality of domestic wheat, means that self-sufficiency in flour is not likely to be achieved in the near term and imports will continue to be necessary.

The foreign exchange constraint is such that without assistance it is next to impossible that the GOM will be able to provide enough flour and bread for its people. There have been a few donations from abroad, notably from Japan (see Appendix I), but not in any significant quantity.

Vulnerable group numbers are on the increase. The Ministry of Health and the Ministry of National Development assert that this population has been rising steadily since 1990. A Ministry of Health Nutrition Department official stated that the number of children at risk from malnutrition is larger than ever before and that for the first time there were cases reported of second and third degree malnutrition in small children. In view of the major share of calories from flour reported above, an adequate supply of flour and bread for the vulnerable population must be maintained. This population relies heavily on the ration system; hence, it is important not only that the system be able to provide sufficient foods, but also that the GOM be encouraged to restrict access to the system to the lowest-income group. (See Part I, Chapter 4, for a discussion of vulnerable groups.)

C. PROGRAM DESIGN

1. PROGRAM OBJECTIVE

The immediate program objective is to contribute to food security for the urban population in Mongolia by relieving the foreign exchange constraint through the provision of wheat flour over a period of three years. The ancillary objective is to support and encourage policy reform initiatives to promote food security and agricultural development. The GOM will be encouraged to undertake policy reforms to free prices, remove barriers to marketing and trade, and reform the ration system so that it is restricted to the lowest-income group.

2. IMPLEMENTATION

The implementation schedule will be drawn up when the program is negotiated with the GOM. Management responsibilities on the A.I.D. side will be minimal for this balance of payments support effort. Performance indicators will be jointly identified by the GOM and A.I.D. when an agreement is negotiated.

D. ISSUES

1. PRICING ISSUE

The price of flour is strictly controlled and is fixed at an extremely low level. Millers are subsidized, which enables them to remain in business, but in order to provide incentives to investment in flour mills and improvement in milling capacity, prices must be freed. Equally, A.I.D. and other donors providing flour must monitor the situation carefully to ensure that investment is not discouraged because of the provision of donated flour. Currently, there are reported to be a few small private mills in operation, but apparently their operations are inefficient.

The GOM must be encouraged to lift the controls on flour prices. Furthermore, the Mission recommends that, as a condition of the program, the GOM must agree that all transactions involving the Title III flour will be at free market prices.

2. USUAL MARKETING REQUIREMENT (UMR)

The Mission recommends that, at least for the first year, the UMR requirement be waived. The GOM has little or no foreign exchange with which to import, thus this Title III proposal is to provide crucial budget support. Attempting to conform to a UMR would constitute an undue burden on the GOM and would largely nullify the benefits of the program.

During the succeeding two years of the program the GOM's situation should be reviewed from time to time to determine whether there has been a change in the foreign exchange situation sufficient to permit compliance.

For the record, following are the production and import levels of flour during the period 1987-1991:

Table 18: Flour Production and Imports, 1987-1991

(metric tons)

Year	Production	Imports
1987	198,700	26,000
1988	196,400	30,100
1989	119,700	30,800
1990	189,800	27,700
1991	174,400	36,000

Source: Ministry of Trade and Industry, Mongolia

E. DISTRIBUTION MECHANISM

Distribution details will have to be finalized during the negotiation of the Title III agreement. The procedures will, however, be essentially those that have been agreed upon with respect to the upcoming Section 416(b) donation of butter and butteroil outlined in the following paragraph.

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The flour should be auctioned on the Agricultural Commodities Exchange. Prior to finalization of the Title III agreement, the GOM should have provided a detailed description of the plan for selling the commodity, the uses for which it expects to program the auction proceeds, and the arrangements for depositing the proceeds in an interest-bearing account. There may be some short-term help required to arrange the auction, but the GOM should have acquired the necessary experience from the Section 416(b) commodity auction.

The GOM must ensure that the PL-480 flour is free of any price controls; it must be auctioned freely and there must be no restrictions on subsequent sale by the buyers. The exchange rate for purposes of denominating the value of the flour in dollars when setting a minimum acceptable auction bid will be the official rate at the time of the auction.

F. LOCAL CURRENCY PROCEEDS

Provisions should be included in the Title III agreement regarding the use by the GOM of the local currencies generated by the auction of the flour. In accord with past practice, one such use might be to defray internal transport costs. Since this program is directed at saving foreign exchange and general balance of payments support, the GOM is not obliged to use the proceeds for specific development projects. However, the GOM should inform the USG, prior to negotiation of the agreement, as to the uses to which it is planning to put the proceeds.

G. POLICY REFORMS

When the Title III agreement is negotiated, the policy reform agenda will be agreed upon, as will the timetable for implementing the reforms. The GOM should be encouraged to implement specific policy reforms in respect to freeing prices of all commodities; removing barriers to trade and marketing, both domestic and international; encouraging the growth of small-scale and medium-scale industries, especially in the agricultural sector; and reforming the ration system. (See Part I, Chapter 5.)

H. IMPACT ANALYSIS

The program ensures that there will not be an interruption of flour to urban consumers even in the face of severe foreign exchange constraints. In addition, by relieving these constraints, the program reduces the probability of a short crop year in 1993 or 1994 that would cause a deficiency in this important source of calories. Furthermore, relief of the foreign exchange constraint will cause the economy and, hence, employment to recover more quickly, thereby omitting the most food-insecure groups. The policy changes, particularly freeing of flour prices, will assist the move towards privatization and free markets.

I. RELATION OF INVESTMENTS TO BENEFITS

The benefits of the provision of flour are relief for vulnerable groups for whom the alternative is nutritional stress, general economic development through greater foreign exchange availability, and greater privatization and free market orientation. The relation of program and benefits is direct but not appropriately quantified.

J. BELLMON AMENDMENT PROVISIONS

1. DISINCENTIVE EFFECTS

The quantity of flour proposed to be provided under this program is considerably less than that which had been habitually imported by Mongolia when foreign exchange was not the problem it is today. No disincentive effect is anticipated under present circumstances. When the Mongolian economy has progressed through policy reform to the point where flour milling capacity can be increased through commercial imports of modern milling equipment, and the quality of wheat has been improved to the point where a much greater share of the production is fit for milling into flour, import of flour under PL-480 will perhaps constitute a disincentive, but that day is not expected to arrive before this program is at an end.

2. STORAGE CAPACITY

There should be no problem regarding storage as the flour should be auctioned immediately upon arrival or shortly thereafter. In any event, the total storage capacity of flour mills throughout Mongolia is 315,900 metric tons, which should be ample (source: Ministry of Agriculture Board of Crop Production Policy). Moreover, the Central Food Trade warehouse has a storage capacity of 21,000 metric tons of pelletized commodity and each of the aimaks has a storage capacity of around 200 metric tons (Art Wong's report of July 1991).

K. LOGISTICAL CONSIDERATIONS

1. SHIPPING SCHEDULE

The desired shipping schedule will be indicated by the GOM during agreement negotiations. Depending on the local supply/demand situation, e.g., the domestic flour milling schedule and seasonal factors, as well as the operational conditions prevailing at the Agricultural Commodities Exchange, the GOM may prefer shipments on an annual or more frequent basis.

2. TRANSSHIPMENT THROUGH CHINA

All shipments should be on through bills of lading. Providing that adequate arrangements are made in advance, theoretically there should be minimal problems as a transport agreement was signed by China and Mongolia in late August of 1991. The agreement is vaguely worded, however, according to U.S. Embassy personnel in China, providing a good deal of scope for the Chinese to interpret its provisions in varying ways as they see fit. Therefore, when flour shipments arrive in the Chinese port of Tianjin, it would be wise for the USG to have someone there to monitor the off loading and onward transit to Mongolia. It would also be a good idea to request assistance from the Beijing office of the World Food Program, as was done in the case of the 1991 emergency wheat shipment.

3. METHOD OF SHIPMENT

Under a Title III bilateral program, the USG arranges and pays for transport as far as the Mongolian point of entry. Transportation from that point is the responsibility of the GOM; local currencies generated by the sale of the flour may be used for these costs.

L. PRELIMINARY COST ESTIMATES

The following estimates are for commodity and ocean transportation costs to the Mongolian border. Commodity costs are based on prices listed in USDA's "Estimated Export Prices for P.L. 480", dated May 28, 1992. Transport costs are rough estimates based on discussions with various persons knowledgeable about freight costs.

Table 19: Cost Estimates For PL-480 Flour Program, 1992

Wheat Flour	U.S.$(000)
Year One	4,800
Year Two	4,875
Year Three	5,025
Total Commodity	14,700
Transportation	
Year One	2,400
Year Two	2,438
Year Three	2,512
Total Transportation	7,350
GRAND TOTAL	22,050

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APPENDIX I
OTHER DONOR ASSISTANCE

The following tables outline major other donor assistance to Mongolia for the years 1991 and 1992. It covers food aid provided as of mid-1992 and assistance to agriculture in 1991-92, including pledges made at the May 1992 Tokyo Donor's Conference.

1. FOOD AID

COUNTRY/ AGENCY	COMMODITY	QUANTITY (METRIC TONS)	VALUE (U.S.$)
German Red Cross	Vegetable Oil Flour	612 612	399,024* 121,176*
Japan	Flour	4,350	861,300*
South Korea	Rice	1,800	626,400*
South Korea Red Cross	Rice	1,000	348,000*
Taiwan (donated to Mongolian Red Cross)	Rice	10,000**	3,480,000*

* Value estimated at U.S. 1992 export prices (USDA listing).

**4,000 metric tons provided and distributed through the ration system; 6,000 metric tons expected by end of 1992 and will also be distributed through the ration system.

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2. ASSISTANCE TO AGRICULTURE

Country/Agency	Activity/Project	Value (U.S.$)
Asian Dev. Bank	Livestock: fodder, animal feed pre-project study	not known
Australia	Agriculture Management, training and support; extension; production	not known
Denmark/DANIDA	Livestock Sector Master Plan Development	not known
Japan	Food - Tech. Assistance	1,425,000
	Food production	1,075,000
FAO	Small-scale agr. projects — mini-plants for: milk drying; pig/poultry feed; meat processing	235,000
	Pesticide Quality Control	157,000
	Assist. to Nat'l Center Sciences and Technology	126,000
	Strengthening regional animal gene banks	196,000
	Agr. Macro-Econ. Policy	61,000
	Other**	919,000
UNDP	Agriculture Management (1990-94)	447,967

**1987-1991. Projects in: Milk testing, management of cooperatives, sector review, management training, pastoralism workshop

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APPENDIX II

STATEMENT OF WORK — MONGOLIA FOOD SECTOR STUDY

BACKGROUND

Mongolia, a buffer state between China and Russia, was heavily subsidized by the former USSR for decades. Previous to 1990, 95 percent of Mongolia's trade was with CMEA countries. Since Soviet trade and aid to Mongolia was withdrawn in 1990, the country has been in a difficult period of transition. The Mongolians have adopted a system of political democracy with a new constitution and several active political parties. The election of a new parliament in June 1992 was its second free and open election. The transition from a command economy to a market economy is proceeding slowly with consequent inequities, imbalances and hardships.

The GOM is working with the international community to make the transition. The GOM signed an IMF Standby Agreement in 1991. Compliance is difficult but proceeding. The GOM and the World Bank are implementing a transitional program and expect to agree to a larger program within the next year, and the ADB has approved a loan. Total support available under these three agreements totals $90 million. Meanwhile, the economy is experiencing a downward spiral with rising unemployment rates, increasing prices, and food and energy shortages.

An A.I.D. program began in 1990 which offered assistance totalling $22 million in food aid, ESF and DA funds in FY 1991, and $15 million in ESF and DA in FY 1992. For FY 1993, $18.6 million has been requested in DA and ESF funds. An A.I.D. office was opened in late 1991.

The GOM requested emergency food assistance in 1991. A food needs assessment conducted in early 1991 recommended assistance and A.I.D. provided 30,000 metric tons of wheat and flour. The commodities arrived (insect infested) in July/August 1991 and were not drawn down until early 1992. Required GOM reports were not received until well after the due date.

In August, 1991, the GOM requested a total of 16,000 metric tons of rice, vegetable oil, powdered milk and high-protein baby food on an emergency basis. A second food needs assessment took place in late December 1991. The Mission concluded that:

1) There is no immediate famine. However, production disarrays and shortfalls, transportation systems problems, pricing policies and other factors have combined to place excessive strains on the food system, particularly in the urban areas.

2) Distribution problems prevented distribution of existing food stocks.

3) Apparent scarcities exist in the commodities requested.

While there was no immediate famine, the Mission recommended that, unless another donor were to do so, the U.S. supply the commodities requested for the purposes of underwriting social stability, protecting vulnerable groups and combatting malnutrition among children. As the information in the report did not justify provision of commodities on an emergent basis, the GOM was advised that no commodities would be forthcoming.

However, based on this assessment, on the lack of available food sector data, on subsequent reports on economic trends, on lack of availability of foreign exchange, on the provision of food by other donors, on the possible impact of climatic changes this year on the crop calendar, and on the continued decline of the agricultural and distribution systems, the Mission anticipates that food availability could suddenly become a critical issue during the forthcoming winter. The GOM, working with the State Department, has formally requested butter, butteroil and nonfat dried milk under the Section 416 program. USDA is considering the application as this Scope of Work is written. Provision of such commodities would be supplementary to a larger food program.

The Asia Bureau wants to establish whether or not there will be a food emergency in Mongolia within the next year and whether or not food assistance can be used by the GOM to change and establish policies that will lead to a secure food supply as Mongolia completes this transition period.

ARTICLE I - TITLE

Mongolia Food Sector Study

ARTICLE II - PURPOSE

The purpose is to prepare a report that assesses Mongolia's immediate food needs, predicts trends in food security, and provides a better understanding of the evolving food systems in transition from a command to a market economy. If a food aid need exists, the various PL-480 options must be reviewed and a proposal concerning the most appropriate type of program prepared. If no food aid is recommended, the Mission will detail the case against providing such assistance including conditions under which food aid should be reconsidered.

OBJECTIVES

1. To assess the need for emergency food aid in FY 92 or FY 93.

2. To assess Mongolia's food security situation over the next several years. Are the existing policies and systems (i.e., economic, agricultural land, food) adequate to ensure food security and economic growth? (A.I.D. and World Bank define food security as having been met when all people at all times have access to sufficient food to meet their dietary needs for a productive and healthy life.)

3. To determine the effects of privatization of the food sector on food needs, food security, exports and economic growth.

4. Based on the results of the above assessments, recommend appropriate intervention for immediate and longer-term A.I.D. support. Recommend longer-term food aid, agricultural or policy support activities that should be pursued to promote food security. If no food aid is recommended, detail the case against providing such assistance including conditions under which food aid should be reconsidered. If food aid is recommended, provide a detailed proposal outlining the suggested type of food aid program and the implementation and management arrangements.

ARTICLE III - STATEMENT OF WORK

Food Security

The Mission will provide an assessment of the food sector and the food security situation in Mongolia, both immediate to near term (one to three years) and long term (four years and beyond).

Shifting to a market economy will cause structural adjustments in the food production and distribution systems. During this period of adjustment, what will be the impact of these supply disruptions of food security? Which segments of the population will be most adversely affected?

The Mission will identify the temporary food supply problems caused by the transition from the centrally planned production and distribution systems to the private sector. What will be the long-term trends in food production, shifts in demand, and overall food security?

Based on the above analyses, the Mission will recommend whether or not a food aid program is required, and what longer-term program and policy changes are necessary for current and future food security maintenance. If food aid is recommended, the Mission will prepare a proposal that is consistent with the PL-480 guidelines relevant for the recommended program (i.e., Section 416, Title II and Title III) and is acceptable to the ASIA Bureau for developing a PL-480 or agricultural support program in Mongolia. If no food aid is recommended the Mission shall describe in detail the case against providing such assistance including conditions under which food aid should be reconsidered.

AGRICULTURAL SECTOR OVERVIEW OF THE FOOD SYSTEMS IN TRANSITION

What are the policy changes needed to facilitate increased private sector involvement in the food production and distribution systems?

The Mission will provide a general overview of the food and agricultural sector and describe the main commodity groups' production and marketing systems. This will include the collection of data on major commodity production, marketing and trade flows and an analysis of production trends. The Mission will also analyze the agro-industrial structure with an emphasis on describing the degree of efficiencies in food processing and value-added industries. (Note that other donors, World Bank, ADB, and the Danish Government, are undertaking a detailed livestock and livestock feed sector study. Information on livestock, livestock products and marketing should be available from the World Bank in Washington or from their sector teams in Mongolia).

Data and other information shall be collected by a review of existing documents in A.I.D., State and USDA/Washington, Ulaanbaatar, Mongolia and other appropriate donors. This will include personal interviews and meetings with relevant U.S. and Mongolian public and private sector representatives. One member of the Mission may be authorized to visit the Agricultural Attache, American Embassy, Beijing.

The data available to the Mission from GOM sources in the capital should be verified by Mission visits to a representative sample of food production, processing and marketing entities, both urban and rural. The firsthand information obtained from these visits may be necessary for estimating food availability.

ISSUES TO BE ADDRESSED

1. Is the lack of adequate access to food for all (particularly those in urban areas) an emergency situation in Mongolia? If so, what type of program could most effectively address the emergency?

2. Review the results of the two previous USAID food aid programs and the lessons learned about management and accountability of a food aid program, and about availability and reliability of data on food needs.

3. What changes in existing GOM policies and programs will be necessary to foster: increased food security? privatization of the food sector? increased agricultural production through support of free and open markets for food and agricultural producers? promotion of exports, economic development and economic democracy?

4. What are other donors doing to address food security needs in Mongolia?

5. How could A.I.D. assist in fostering the changes outlined in Issue #3?

6. If a food program is proposed, address the following:

   A. Which PL-480 program is proposed? Provide a review in priority order off all PL-480 programs, and address their appropriateness for meeting food aid needs in Mongolia.

   B. The case for food aid should consider whether a multiple-year PL-480 Title III food program focused on advancing policy dialogues and using Title III resources to promote broad-based, equitable and sustainable economic development (including agriculture) is appropriate for Mongolia.

   C. Which commodities should be sent? Which commodities are culturally acceptable to the Mongolians? Which commodities are available through the various PL-480 programs?

   D. How will they be distributed?

   E. Should they be sold/donated to governmental or non-governmental entities?

   F. What is the management capacity of both the public and private sectors in Mongolia?

   G. What is the best way to involve the private sector in this effort?

   H. Should proceeds be programmed to support specific development projects, balance-of-payments assistance or policy dialogue?

   I. How will the USG manage this program, particularly given its limited in-country staff? What is the management capacity of the Office of the A.I.D. Representative to undertake this effort?

   J. If the food preferred by the Mongolian people is not available through the USG, are there any innovative options to provide Mongolia with the resources needed to obtain the food desired? (e.g., food could be sold or traded in neighboring countries).

APPENDIX III

STATISTICAL TABLES

TABLE 1: 1980-1989

Real NMP and Real GDP
(constant prices; 1986 = 100)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989 Est.
					(In millions of togriks)					
NMP	5,006.3	5,427.1	5,885.9	6,242.0	6,515.9	6,865.8	7,247.6	7,489.2	7,802.1	8,564.6
Industry	1,575.2	1,714.3	1,897.9	2,085.8	2,267.7	2,390.0	2,442.8	2,511.3	2,604.6	2,902.3
Agriculture	1,071.4	1,185.7	1,352.7	1,364.9	1,314.3	1,437.2	1,520.7	1,424.2	1,456.7	1,659.0
Construction	342.1	342.3	346.1	352.6	367.5	382.0	423.1	503.8	563.1	617.2
Transportation[1]	480.7	508.0	541.9	572.6	605.9	658.5	740.8	750.8	786.3	774.3
Communications	52.5	63.5	71.3	82.6	89.2	93.6	104.4	110.3	119.6	129.5
Distribution and warehousing	1,365.0	1,493.3	1,545.8	1,649.5	1,737.6	1,770.8	1,865.2	2,036.2	2,129.8	2,327.4
Other	119.4	120.0	130.2	134.0	133.7	133.7	150.6	152.6	142.0	154.9
Adjustment items:										
Nonmaterial services[2]	819.6	870.8	895.3	922.4	956.6	1,000.7	1,065.4	1,149.2	1,242.0	1,285.4
Depreciation of fixed capital	1,154.4	1,245.1	1,361.5	1,421.0	1,592.4	1,709.7	1,845.1	1,990.1	2,109.4	2,150.5
Other[3]	−795.8	−840.8	−877.4	−906.4	−931.4	−975.0	−848.1	−908.4	−940.3	−1351.0
GDP	6,184.0	6,702.2	7,265.3	7,679.0	8,133.5	8,601.2	9,310.0	9,720.1	10,213.2	10,649.5
					(Annual percent change)					
NMP	...	8.4	8.5	6.0	4.4	5.4	5.6	3.3	4.2	9.8
GDP	...	8.4	8.4	5.7	5.9	5.7	8.2	4.4	5.1	4.3

Sources: Mongolian authorities; and IMF staff calculations.
[1] Gross output of nonmaterial services.
[2] Including subsidies from the state budget for intermediate consumption, and intermediate consumption of nonmaterial services.

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TABLE 2: SELECTED ECONOMIC INDICATORS, 1987-1992

	1987	1988	1989	1990	1991 (Est.)	1992 (Proj.)
	(Change in Percent)					
Gross domestic product						
Nominal	4.3	6.1	4.2	-2.5	54.1	100.8
Real	4.4	5.1	4.2	-2.5	-16.2	-5.0
Prices						
Consumer	--	--	--	--	120.1	139.2
Wholesale	3.6	4.9	5.1	--	--	--
GDP deflator	--	--	--	-0.4	84.0	111.3
Interest rates (in % per annum)						
1-year term deposit	4.0	4.0	4.0	4.0	15.0\a	30.0\b
Budget						
Revenue	4.1	3.0	12.1	1.6	70.2	14.3
Expenditure	5.8	5.2	5.3	-4.3	64.7	22.9
Monetary						
Domestic credit	-0.5	1.7	2.0	11.4	70.3	34.0
Government, net	--	--	7.1	29.1	-14.6	0.8
State enterprises	-0.7	0.6	-0.6	-0.2	38.5	16.8
Private	--	--	4.6	22.4	403.3	84.8
Broad money	0.1	3.4	6.6	25.1	56.3\c	27.6
	(In Percent of GDP)					
Budget						
Revenue	46.8	45.4	48.6	50.6	55.9	31.8
Expenditure	65.5	65.0	65.3	64.1	68.5	41.9
Overall deficit	-18.7	-19.5	-16.8	-13.5	-12.6	-10.1
Financing						
Foreign, net	18.7	19.6	15.0	10.5	11.3	10.0
Domestic, net	-0.3	-0.1	1.8	3.0	1.3	0.1
Monetary						
Broad money	50.5	49.2	47.4	60.8	61.7	39.2
Of which: Currency in circulation	5.0	5.1	5.4	7.1	10.5	7.3
	(In US$ millions, Unless Otherwise Specified)					
Balance of payments\d						
Exports, f.o.b.	816.7	829.2	795.8	444.8	346.5	357.0
Imports, c.i.f.\e	-1,358.6	-1,458.1	-1,911.8	-1,023.6	-501.2	-555.0
Current account deficit	-990.2	-1,033.4	-1,240.4	-644.0	-110.8	-187.3
Overall balance	73.9	-2.6	5.9	-53.2	-47.8	-31.2
Change in reserves, net (increase, -)	--	--	-5.9	53.2	31.2	-27.8
Net international reserves	--	--	102.5	49.3	18.0	45.8
(weeks of imports)	--	--	(3.7)	(3.4)	(2.2)	(4.6)
External debt						
In nonconvertible currencies (Tg. bn.)	--	--	9.9	10.5	10.6	10.6
In convertible currencies ($mn.)\f	--	--	--	--	150.8	298.7
Arrears ($mn., end of period)\g	--	--	--	--	34.6	--
Debt service ratio\h	3.1	5.6	8.3	13.4	5.7	13.9

Source: Government of Mongolia, 1992a.

\a Central Bank lending rate as of December 31, 1991.
\b Effective March 23, 1992.
\c This rate of growth is overstated since the clearing of payment orders against deposits did not take place as scheduled before end-1991.
\d Calculated using official exchange rates.
\e Includes imports and payments associated with turnkey projects.
\f Excluding reserve liabilities other than to the IMF.
\g Includes US$18 million of arrears on reserve liabilities.
\h As a proportion of goods and services; no allowance is made for servicing of debt to

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TABLE 3: MAIN ECONOMIC INDICATORS, 1980-1989

	1980	1985	1986	1987	1988	1989
Output and Prices	*(percent change)*					
GDP		4.2	-0.7	4.3	6.1	4.2
Nominal	---	5.7	8.2	4.4	5.1	4.3
Real	---	3.5	-5.1	3.2	5.5	9.6
NMP						
Nominal	---	3.5	-5.1	3.2	5.5	9.6
Real	---	5.4	5.6	3.3	4.2	9.8
Of which:						
Agriculture	---	9.4	5.8	-6.3	2.3	13.9
Industry	---	5.4	2.2	2.8	3.7	11.4
Distribution and warehousing	---	1.9	5.3	8.2	4.6	9.3
Prices						
Consumer	---	0.6	-1.0	—	—	—
Wholesale	---	4.1	5.0	3.6	4.9	5.1
Export	1.7	3.9	-6.4	4.3	4.1	5.1
Import	10.0	2.1	5.5	3.2	1.9	---
Terms of trade	-8.3	3.8	-11.9	1.1	2.2	---
Budget, credit, and money	*(Percent of GDP)*					
Revenue	51.1	52.5	46.8	46.8	45.4	48.9
Expenditure	-59.0	-59.3	-64.5	-65.5	-65.0	-65.3
Overall deficit	-7.9	-6.9	-17.7	-18.7	-19.5	-16.4
Broad money:	38.4	51.8	52.1	50.5	49.2	47.8
Of which:						
Currency in circulation	(5.6)	(4.4)	(4.7)	(5.0)	(5.1)	(5.4)
	(Percent change)					
Revenue	---	5.1	11.3	4.1	3.1	12.0
Expenditure	---	6.0	8.0	5.9	5.2	4.7
Domestic credit	---	---	6.9	-.05	1.7	-.05
Broad money:	---	---	-0.2	1.2	3.4	1.1
Of which:						
Currency in circulation	(---)	(---)	(7.8)	(11.4)	(7.4)	(10.5)
External accounts						
	(In millions of U.S. dollars[2], unless otherwise specified)					
Balance of payments						
Exports, f.o.b.	402.7	567.1	741.3	816.7	829.2	793.2
Imports[3]	-677.1	-1,003.8	-1,329.1	-1,358.6	-1,458.1	-1,202.4
Current account deficit	-344.2	-813.4	-1,061.5	-990.2	-1,033.4	-858.3
Overall balance	-.01	29.7	22.0	73.9	-2.6	-24.4
Gross international reserves[4]	9.1	51.8	73.8	147.7	145.1	120.8
External debt[4]						
(in billions of transferable rubles)	3.41	6.39	7.15	7.90	8.58	9.82
Debt-service ratio[1]	12.1	13.0	2.2	3.1	5.6	8.3
	(Percent of GDP)[2]					
Exports, f.o.b.	17.3	22.4	25.3	24.3	23.2	22.2
Imports[3]	-29.1	-39.8	-45.4	-40.5	-40.9	-33.6
Current account deficit	-14.8	-32.2	-36.2	-29.5	-29.0	-24.0

Source: Government of Mongolia, 1992a

[1]Average annual percent change for 1975-1980.

[2]Data maintained in transferable rubles or tugriks are converted into U.S. dollars at the official rates of exchange.

[3]Most contracts are specified in c.i.f. terms, although some with the convertible currency are on an f.o.b. basis.

[4]Outstanding, end of period.

[5]Percent of exports of goods and services.

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TABLE 4: SOCIAL INDICATORS, SELECTED YEARS

	Unit of measure	25-30 years ago	15-20 years ago	More recent estimate
Human Resources				
Size: growth: structure of population				
Total population (mrc - 1990)	'000	1,094	1,412	2,128
14 and under	% of pop.	41.4	44.8	40.7
15-64	% of pop.	53.1	54.2	55.7
Age dependency ratio	unit	0.84	0.89	0.79
Percentage in urban areas	% of pop.	42.1	48.7	52.3
Population growth rate	annual %	3.0	2.4	2.8
Urban	annual %	6.1	3.9	2.9
Urban/rural growth differential	difference	5.3	2.9	0.3
Projected population: 2000	'000	..	..	2,735
Stationary population	'000	..	..	6,226
Determinants of population growth				
Fertility				
Crude birth rate	per '000 pop.	42.7	40.1	35.1
Total fertility rate	births per woman	5.94	5.62	4.70
Mortality				
Crude death rate	per '000 pop.	15.7	12.1	8.3
Infant mortality rate	per '000 live births	113.2	92.0	61.8
Under 5 mortality rate	per '000 live births	..	..	83.4
Life expectancy at birth: overall	years	50.0	55.2	62.6
female	years	51.3	56.5	63.8
Labor force (15-64)				
Total labor force	'000	514	668	1,029
Agriculture	% of labor force	54.4	43.8	..
Industry	% of labor force	20.0	21.0	..
Female	% of labor force	44.7	45.2	45.5
Participation rate: overall	% of labor force	48.1	46.2	47.0
female	% of labor force	43.0	41.8	42.9
Natural Resources				
Area	km^2	1,566,500	1,566,500	1,566,500
Density	pop. per km^2	1	1	1
Agricultural land	% of land area	89.8	89.8	80.1
Agricultural density	pop. per km^2	1	1	2
Forests and woodland	km^2	150,000	152,180	139,150
Deforestation rate (net)	annual %	0	0	0
Expenditure				
Food	% of GDP	..	..	..
Cereal imports	'000 metric tons	69	56	57
Food aid in cereals	'000 metric tons	..	..	..
Food production per capita	1979-81=100	124.7	122.7	..
share of agriculture in GDP	% of GDP	..	..	..
Daily caloric supply	calories per person	2,364	2,436	2,479
Daily protein supply	grams per person	98	98	89
Energy consumption per capita	kg of oil equivalent	460.8	771.0	1,276.5
Investment in Human Capital				
Medical care	% of GDP	..	..	..
Population per: physician	persons	726	..	..
nurse	persons	317	248	..
hospital bed	persons	..	..	..
Access to health care	% of pop.	..	..	100.0
Immunized (under 12 months): measles	% of age group	..	..	88.0
DPT	% of age group	..	..	84.0
Oral rehydration therapy use (under 5)	% of cases	..	..	59.0
Gross enrollment ratios				
Primary: total	% of school-age group	98.0	108.0	98.0
female	% of school-age group	97.0	104.0	100.0
Secondary: total	% of school-age group	66.0	81.0	92.0
female	% of school-age group	66.0	84.0	96.0
Tertiary: science/engineering	% of tertiary students	..	..	35.6
Pupil-teacher ratio: primary	pupils per teacher	32	31	28
secondary	pupils per teacher	..	15	22
Newspaper circulation	per '000 pop.	34.4	79.3	98.1

Source: Government of Mongolia, 1992a

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TABLE 5: OUTPUT OF BASIC INDUSTRIAL PRODUCTS

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
	(In thousands of metric tons, unless otherwise specified)									
Electricity (mn. kwh)	1,566.3	1,562.8	1,517.9	1,697.2	2,264.3	2,843.2	3,169.6	3,361.1	3,544.1	3,568.3
Coal	4,376.1	4,302.9	4,920.7	4,976.6	5,431.0	6,523.2	7,064.5	7,765.3	8,605.8	8,044.5
Fluorspar	603.5	594.9	666.6	708.1	747.3	786.8	—	543.7	522.7	578.2
Bricks (millions)	110.1	109.0	113.0	122.7	126.9	143.0	169.8	169.8	180.6	172.8
Cement	177.9	106.1	178.7	165.3	140.6	150.5	424.7	541.4	502.1	512.6
Lime	63.8	79.4	90.1	92.8	105.7	102.6	106.6	114.1	122.2	95.0
Sawn timber (thousands of cubic meters)	559.4	578.7	646.7	627.6	701.5	686.2	623.7	580.5	540.7	553.1
Scoured wool	11.8	10.2	12.1	12.1	11.6	11.3	10.7	10.4	9.6	10.1
Felt (thousand meters)	614.6	615.1	618.0	618.1	621.7	623.9	636.2	630.4	631.1	849.7
Woolen fabrics (thousand meters)	963.5	962.4	962.9	965.5	980.2	1,432.5	2,212.0	1,549.8	1,595.1	1,978.2
Coats (thousands)	190.6	201.0	201.8	223.0	195.7	186.2	153.8	99.4	101.7	89.7
Suits (thousands)	179.2	188.9	169.9	196.1	196.5	163.9	141.5	168.6	152.0	182.6
Hides	1.4	1.2	1.0	0.9	0.9	0.8	0.8	0.9	0.9	1.0
Leather footwear (thousand pairs)	2,104.9	1,916.4	1,727.4	2,226.3	2,677.1	2,883.4	3,149.3	3,517.3	3,920.6	4,140.0
Leather coats (thousands)	53.3	64.1	73.3	74.4	79.6	81.0	42.7	49.6	31.4	41.6
Sheepskin coats (thousands)	83.0	82.9	87.1	90.4	64.5	135.2	149.3	161.2	181.6	180.2
Meat	56.8	67.1	67.4	64.4	68.8	62.5	63.9	64.7	62.0	61.7
Sausages (tons)	2,966.1	3,510.8	3,364.2	4,195.1	4,161.8	4,051.5	4,462.1	4,782.1	5,284.7	5,824.3
Flour	83.4	125.2	119.6	150.2	185.1	175.7	185.9	198.7	196.4	199.7
Bakery goods	47.2	49.3	53.7	60.7	59.7	65.4	68.4	68.7	69.9	66.7
Confectionery	22.9	23.9	25.2	26.1	33.9	37.1	38.9	37.2	41.8	45.8
Milk and dairy products (liters)	24.8	—	—	—	—	45.2	52.8	55.6	59.0	62.0
Butter	3.8	4.0	4.0	4.0	4.7	4.4	4.6	4.7	4.6	4.6
Toilet soap	5.2	5.4	5.9	6.1	7.3	9.3	8.2	5.4	6.8	10.3
Household soap	3.9	3.4	4.1	4.7	4.7	4.1	3.9	3.7	2.5	3.3
	(Annual percent change)									
Electricity	...	−0.2	−2.9	11.8	33.4	25.6	11.5	6.0	5.4	0.7
Coal	...	−1.7	14.4	1.1	9.1	20.1	8.3	9.9	10.8	−6.5
Fluorspar	...	−1.4	12.1	6.2	5.5	5.3	...	...	−3.9	10.6
Bricks	...	−1.0	3.7	8.6	3.4	12.7	18.7	—	6.4	−4.3
Cement	...	−40.4	68.4	−7.5	−14.9	7.0	182.2	27.5	−7.3	2.1
Lime	...	24.5	13.5	3.0	13.9	−2.9	3.9	7.0	7.1	−22.3
Sawn timber	...	3.5	11.8	−3.0	11.8	−2.2	−9.1	−6.9	−6.9	2.3
Scoured wool	...	−13.6	18.6	—	−4.1	−2.6	−5.3	−2.8	−7.7	5.2
Felt	...	0.1	0.5	—	0.6	0.4	2.0	−0.9	0.1	34.6
Woolen fabrics	...	-0.1	0.1	0.3	1.5	46.1	54.4	−29.9	2.9	24.0
Coats	...	5.5	0.4	10.5	−12.2	−4.9	−17.4	−35.4	2.3	−11.8
Suits	...	5.4	−10.1	15.4	0.2	−16.6	−13.7	19.2	−9.8	20.1
Hides	...	−14.3	−16.7	−10.0	—	−11.1	—	12.5	—	11.1
Leather footwear	...	−9.0	−9.9	28.9	20.2	7.7	9.2	11.7	11.5	5.6
Leather coats	...	20.3	14.4	1.5	7.0	1.8	−47.3	16.2	−36.7	32.5
Sheepskin coats	...	−0.1	5.1	3.8	−28.7	109.6	10.4	8.0	12.7	−0.8
Meat	...	18.1	0.4	−4.5	6.8	−9.2	2.2	1.3	−4.2	−0.5
Sausages	...	18.4	−4.2	24.7	−0.8	−2.7	10.1	7.2	10.5	10.2
Flour	...	50.1	−4.5	25.6	23.2	−5.1	5.8	6.9	−1.2	1.7
Bakery goods	...	4.4	8.9	13.0	−1.6	9.5	4.6	0.4	1.7	−4.6
Confectionery	...	4.4	5.4	3.6	29.9	9.4	4.9	−4.4	12.4	9.6
Milk and dairy products	...	...	...	...	...	...	16.8	5.3	6.1	5.1
Butter	...	5.3	—	—	17.5	−6.4	4.5	2.2	−2.1	—
Toilet soap	...	3.8	9.3	3.4	19.7	27.4	−11.8	−34.1	25.9	51.5
Household soap	...	−12.8	20.6	14.6	—	−12.8	−4.9	−5.1	−32.4	32.0

Source: Milne, 1991

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TABLE 6: EMPLOYMENT BY SECTOR, 1980-1989

(average annual number of employees, in thousands)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Total employment	511.2	518.0	532.2	543.0	550.3	561.6	580.9	598.4	616.2	633.2
Material sphere	388.3	388.8	399.6	406.4	409.1	413.2	426.6	435.5	443.4	451.4
Agriculture	202.7	195.4	196.3	195.9	189.6	187.0	185.8	184.8	183.6	186.0
Industry	81.6	85.0	92.5	96.8	100.9	104.6	109.9	115.6	119.2	119.6
Transportation	32.3	33.3	34.7	35.6	37.8	38.7	43.4	44.6	47.4	47.0
Construction	30.7	31.7	31.4	32.0	32.6	33.9	35.5	37.2	38.9	41.7
Other[1]	41.0	43.4	44.7	46.1	48.2	49.0	52.0	53.3	54.3	57.1
Nonmaterial sphere	122.9	129.2	132.6	136.6	141.2	148.4	154.3	162.9	172.8	181.8
Education	49.2	51.6	53.5	54.7	55.8	58.7	60.4	63.1	70.5	74.6
Health	32.0	32.9	33.6	34.7	35.5	37.3	39.7	42.2	42.9	44.7
Science, research, and development	9.0	9.1	9.0	9.0	9.9	10.3	10.7	11.3	12.9	14.1
Other	32.7	35.6	36.5	38.2	40.0	42.1	43.5	46.3	46.5	48.4
Memorandum items:										
Women in work force[2]	49.6	49.0	49.2	49.2	49.8	50.6	51.1	51.5	51.2	51.2
Workers in the socialist sector (percent)	62.6	64.6	65.6	67.2	68.5	70.0	71.0	71.7	72.9	73.5
Average number of hours worked per week	46.0	46.0	46.0	46.0	46.0	46.0	46.0	46.0	46.0	46.0

[1] Including communications and trade.
[2] In percent of the female population.

Source: Milne, 1991

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TABLE 7: INCOME AND EXPENDITURE OF POPULATION, 1980-1989

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989 Est.
					(In millions of tugriks, unless otherwise specified)					
Income of population	3,558.3	3,627.1	3,819.5	4,018.5	4,211.9	4,387.9	4,628.6	4,808.9	5,028.0	5,266.6
Of which:										
Wages and salary	2,015.4	2,135.1	2,265.2	2,436.6	2,560.8	2,682.6	2,808.8	2,946.1	3,101.9	3,287.8
Income from agricultural cooperatives	477.8	501.8	531.1	528.8	531.7	541.0	566.4	578.7	584.6	668.5
Self-employment income	123.2	109.1	106.2	109.4	109.3	117.4	150.5	158.7	169.9	179.7
Subsidies and allowances	430.7	424.8	450.4	487.6	505.6	532.7	563.7	600.4	635.1	672.1
Scholarships	110.5	123.7	124.8	132.8	138.6	138.4	146.7	142.9	128.9	126.3
Expenditure of population	3,538.5	3,612.0	3,822.4	4,164.5	4,351.1	4,376.5	4,597.0	4,758.7	4,992.3	5,234.6
Of which:										
Products	2,943.4	2,993.8	3,170.1	3,329.8	3,472.6	3,590.0	3,723.3	3,876.1	4,037.9	4,290.9
Services	595.1	618.2	652.3	690.7	731.9	766.5	873.8	882.6	954.4	943.7
Savings of population[1]	19.8	15.1	−2.9	−146.0	−139.2	11.4	31.6	50.2	35.7	32.0
Savings ratio[1]	0.6	0.4	−0.1	−3.6	−3.3	0.3	0.7	1.0	0.7	0.6
					(Annual percent change)					
Income of population	...	1.9	5.3	5.2	4.8	4.2	5.5	3.9	4.6	4.7
Of which:										
Wages and salary	...	5.9	6.1	7.6	5.1	4.8	4.7	4.9	5.3	6.0
Income from agricultural cooperatives	...	5.0	5.8	−0.4	0.5	1.7	4.7	2.2	1.0	14.4
Self-employment income	...	−11.4	−2.7	3.0	−0.1	7.4	28.2	5.4	7.1	5.8
Subsidies and allowances	...	−1.4	6.0	8.3	3.7	5.4	5.8	6.5	5.8	5.8
Scholarships	...	11.9	0.9	6.4	4.4	−0.1	6.0	−2.6	−9.8	−2.0
Expenditure of population	...	2.1	5.8	8.9	4.5	0.6	5.0	3.5	4.9	4.9
Of which:										
Products	...	1.7	5.9	5.0	4.3	3.4	3.7	4.1	4.2	6.3
Services	...	3.9	5.5	5.9	6.0	4.7	14.0	1.0	8.1	−1.1

Source: Milne, 1991

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TABLE 8: MONGOLIA - BALANCE OF PAYMENTS, 1990-1993

(in U.S.$ million)

	1990	1991 Total (Est.)	1992 Total (Proj.)	1993 Total (Proj.)
Current Account	-644.0	-110.8	-187.3	-101.0
Trade balance	-314.5	-80.0	-160.0	-87.0
Exports, f.o.b.	444.8	346.5	357.0	398.0
Of which: barter \a	427.8	289.4	130.0	0.0
Imports, c.i.f.	-759.3	-426.5	-517.0	-485.0
Of which: barter	-673.1	-286.2	0.0	0.0
Turnkey projects \b	-264.3	-74.7	-38.0	0.0
Services balance	-72.6	0.2	-15.9	-23.0
Receipts	48.0	26.5	38.1	40.0
Payments \c	-120.6	-26.3	-54.0	-63.0
Unrequited official transfers	7.4	43.6	26.6	9.0
Capital Account	583.5	106.9	156.1	27.4
Direct investment	0.0	0.0	-5.0	5.0
Med.-/long-term (excl. dir. invest.)	516.7	130.3	146.1	35.7
Disbursements	537.4	139.3	162.2	65.0
Of which: Turnkey projects	264.3	74.7	38.0	0.0
Other	273.1	64.6	124.2	65.0
Amortizations \c	-20.7	-9.0	-16.1	-24.3
Short-term \d	66.8	-23.4	-5.0	-18.3
Errors and omissions	7.2	-43.9	0.0	0.0
Overall balance	-53.3	-47.8	-31.2	-73.6
Financing	53.3	47.8	31.2	73.6
Change in net official reserves (increase, -)	53.3	31.2	-27.8	-20.0
Arrears	0.0	16.6	-16.6	0.0
Remaining financing gap	0.0	0.0	75.6	93.6
Memorandum items:				
Net official reserves (end of period)	49.2	18.0	45.8	65.8
Assets	177.3	126.7	218.3	--
Liabilities	128.1	108.7	108.7	--
In weeks of total imports	3.4	2.2	4.6	7.1
In weeks of nonbarter imports	29.7	6.7	4.6	7.1

Source: Government of Mongolia, 1992a

\a 1991 data includes private barter trade estimated at US$49.1 million.
\b Includes both goods and labor services: data are not available for disaggregation.
\c No allowance is made for servicing of debt obligations to the former CMEA members.
\d 1990 data include changes in balances of nonconvertible currency deposits held by nonresidents, net borrowing from IBEC, and other clearing accounts as reported by the (former) State Bank. 1991 data includes counterentry for estimated trade balance with the U.S.S.R.

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TABLE 9: STOPPAGES AND THEIR CAUSES AT EXPORT ORIENTED INDUSTRIES, First quarter 1992

Enterprises	Production capacity	Share of export products (%)	Stoppages (days)	Causes (percent)		
				Power cuts	Shortage of	
					Spare parts	Raw materials
1. "Gobi" cashmere factory	—	90	20	100	—	—
2. Spinning factory	2500 tn	10	18	40,0	21,0	39,0
3. Leather factory	—	96	42	20	—	80
4. Ulaanbaatar carpet factory	475,0 sq m	80	10	50	—	46
5. Carpet factory in Choibalsan	400,0 sq m	40	20	—	40	60
6. Carpet factory in Erdenet	1150,0 sq m	40	20	20	10,0	70
7. Berh fluer spar mine	—	100	22	—	—	100,0
8. Erdenet copper concentrate factory	20 mln tn of ore	100	—	100	—	—
9. Woolen textile factory	1 mln pcs	20	12	30	10	60
10. Mongol textiles company fabric	1300,0 m	30	18	64	30	—
11. Wood processing factory	193,0 cub. m	20	—	—	60	30
12. Wool washing factory	4000 tn	10	10	70	10	20

Source: Government of Mongolia, 1992a

These industries produce 70 percent of the country's export products, of which Erdenet copper concentrate factory alone accounts for 50 percent.

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TABLE 10: AGRICULTURAL EXPORTS, 1986-1991

Date: 13 June, 1992

N	GOODS	1986 quantity	1986 value mln.trans. rubls.	1987 quantity	1987 value mln.trans. rubls.	1988 quantity	1988 value mln.trans. rubls.	1989 quantity	1989 value mln.trans. rubls.	1990 quantity	1990 value mln.trans. rubls.	1991 quantity	1991 value mln. USD
0	1	2	3	4	5	6	7	8	9	10	11	12	13
1	Live animals ('000 tons)	30.0	18.4	31.3	19.2	21.6	13.4	21.6	13.5	20.8	12.8	20.1	9.6
2	Horses ('0000 head)	64.0	12.5	64.0	12.5	64.0	12.5	64.0	12.5	42.3	8.3	23.2	4.6
3	Meat ('000 tons)	43.9	46.3	38.5	41.1	29.0	32.0	30.0	32.6	24.5	26.7	10.8	5,8
4	Wheat ('000 tons)	37.0	4.7	4.8	.5	93.6	12.2	11.0	1.4	4.9	.6		
5	Timber ('000 m3)	39.0	1.5	39.4	1.5	19.8	.7	31.4	1.2	19.9	.7		
6	Sawn wood ('000 m3)	121.3	11.9	126.1	12.5	93.6	9.2	70.7	6.1	42.5	5.5		
7	Scoured wool ('000 tons)	5.1	10.7	5.0	10.6	4.9	9.8	3.5	7.3	2.8	4.6	.2	.4
8	Sheep / lambs wool ('000 tons)	2.0	3.5	2.1	3.8	1.9	3.5	1.4	2.6	.5	1.0		
9	Camel wool ('000 tons)	2.7	10.7	2.2	9.5	2.4	9.9	2.1	9.1	1.9	8.0	.2	.1
10	Goat down ('000 tons)	.8	.6	.8	.5	.8	.5	.8	.5	.7	.5		
11	Horse mane ('000 tons)	.7	1.7	.7	1.6	.7	1.6	.7	1.7	.5	1.2	.1	.2
12	Horse skins ('000 tons)	81.3	.6	60.2	.5	132.0	1.3	124.7	1.2	105.2	.8	78.5	.8
13	Sheep skins ('000 pieces)	278.4	2.5	275.0	2.6	253.5	2.6	289.0	3.2	130.0	1.6		
14	Goat skins ('000 pieces)	240.7	1.4	252.0	1.7	214.0	1.9	30.0	.3	113.2	1.0		
15	Leater clothes ('000 pieces)	281.0	16.5	302.4	16.6		14.8		16.9	242.9	19.6	135.5	10.5
16	Chevrette (1000 pieces)	239.1	2.0	195.7	1.4	164.8	1.2		.8	24.1	.2		
17	Carpets (million m2)	1.5	26.5	1.7	30.5	1.7	29.9	1.9	33.4	1.7	29.9	0.007	1.4
18	Woolen fabrics ('000 m)	45.0	.2	45.2	.2	45.0	.2	37.2	.2				
19	Woolen blankets ('000 pieces)	322.2	3.8	325.5	3.9	326.0	3.9	377.0	4.4	293.8	3.5		
20	Goat down goods (1000 pieces)												
21	Camel woolen goods (1000 pieces)	65.4	2.2	69.9	2.3	69.9	2.5	65.0	2.7	65.8	3.1		
22	Marmot skins (1000 pieces)	764.8	4.8	865.2	5.8	981.6	6.2	311.5	2.2	73.0	.6		
	AMOUNT:		183.0		178.8		169.8		153.8		130.2		27.6

Source: Compiled for the Mission by the Ministry of Trade and Industry

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TABLE 11: LAND TYPE BY AIMAG, MONGOLIA, 1981

Aimags and cities	Total (thousand hectare)	Including Zones: HIGH MOUNTAINS		FOREST-STEPPE		STEPPE		DESERT-STEPPE		DESERT	
		Total	%	Total	%	Total	%	Total	%	Total	%
1 Arhangai	4492.1	575.0	12.8	3328.6	74.1	588.5	13.1	--	--	--	--
2 Bayan-Olgii	4179.4	1176.6	28.2	417.2	10.0	1735.7	41.6	838.7	20.1	4.2	0.1
3 Bayan-Hongor	9526.8	338.4	3.5	1048.0	11.0	1981.6	20.8	3420.1	35.9	2743.7	20.8
4 Bulgan	3059.1	64.2	2.1	2303.5	75.3	691.4	22.6	--	--	--	--
5 Dornod	1062.6	--	--	3434.7	29.5	7438.3	70.0	53.1	0.5	--	--
6 Dornogov	10.0	--	--	--	--	763.9	7.5	6314.6	62.0	3106.3	30.5
7 Dundgov	73.3	--	--	--	--	3172.2	42.9	4066.9	55.0	155.3	2.1
8 Omnogov	142.5	--	--	14.7	0.1	264.0	1.8	7204.2	49.1	7189.6	49.0
9 Zavhan	6873.6	653.0	9.5	3340.0	48.6	1347.7	20.0	1354.1	19.7	151.2	2.2
10 Ovor-hangai	5982.2	6.0	0.1	1567.3	26.2	1698.9	28.4	2578.4	43.1	131.6	2.2
11 Suh-baatar	7727.2	--	--	873.2	11.3	5447.7	70.5	1375.4	17.8	30.9	0.4
12 Selenge	1966.5	37.4	1.9	1675.4	85.2	253.7	12.9	--	--	--	--
13 Tov	6002.8	300.1	5.0	2173.0	36.2	3529.7	58.8	--	--	--	--
14 Gov-Altai	9230.9	27.7	0.3	--	--	1218.5	13.2	3448.0	37.7	4504.7	48.8
15 Uvs	5641.5	231.3	4.1	1004.2	17.8	1342.7	23.8	2521.7	44.7	541.6	9.6
16 Hovd	6035.5	500.9	8.3	--	--	1333.8	22.1	2384.0	39.5	1816.8	30.1
17 Hovsgol	5905.5	1677.2	28.4	4157.5	70.4	70.8	1.2	--	--	--	--
18 Hentii	6109.5	152.7	2.5	3671.8	60.1	2223.9	36.4	61.1	1.0	--	--
19 Darkhan	44.6	--	--	14.3	32.0	30.3	68.0	--	--	--	--
20 Erdenet	53.0	--	--	53.0	100.0	--	--	--	--	--	--
21 Ulan-baator	75.5	--	--	54.7	72.5	20.8	27.5	--	--	--	--
TOTAL	125776.5	5735.5	4.6	22831.7	22.9	35181.1	28.0	35652.3	28.3	20375.9	16.2

Source: Sheehy, Dennis, 1991

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TABLE 12: LIVESTOCK NUMBERS IN MONGOLIA BETWEEN 1930 AND 1990

(in thousands)

Year	TOTAL	Camel	Horse	Cattle	Sheep	Goat
1930	23676.2	480.9	1566.9	1887.3	*15660.3	4080.8
1935	22595.6	563.0	1788.8	2372.0	13610.1	4261.7
1940	26204.8	643.4	2358.1	2722.8	15384.2	5096.3
1945	20015.6	649.0	2098.1	1994.8	11570.8	3702.9
1950	22702.2	844.2	2317.0	1987.8	12574.0	4978.6
1955	23085.1	*879.8	2386.0	1812.3	12559.2	5447.8
1960	2300.5	859.1	2502.7	1905.5	12101.9	*5631.3
1965	23834.6	684.7	*2432.6	2093.0	13838.0	4786.3
1970	22574.9	633.5	2317.9	2107.8	13311.7	4204.0
1975	24351.5	617.1	2254.6	2427.0	14458.1	4594.7
1980	23771.4	591.5	1985.4	2397.1	14230.7	4566.7
1985	22485.5	559.0	1971.0	2408.1	13248.8	4298.6
1990	25856.9	#537.5	2262.0	*2848.7	**15083.0	***5125.7

* year with highest total number of kind of livestock
\# year with lowest number of camels
** year with highest number of sheep since 1930
*** year with highest number of goats since 1950

Source: Sheehy, Dennis, 1991

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TABLE 13: POPULATION AND NUMBER OF ANIMALS, BY PROVINCE, 1990

PROVINCE NO./ NAME	POPULATION X 1000 Inhabitants	Farmers	Cattle	Camels	Horses	Sheep	Goats
1. Arhangay	87.1	10.3	272.8	2.3	186.2	746.2	174.6
2. Bayan-Olgiy	93.6	8.8	111.6	10.4	83.4	770.3	308.3
3. Bayanhongor	76.7	10.1	118.9	46.2	99.6	706.5	507.3
4. Bulgan	53.3	5.0	165.0	4.3	120.2	554.2	99.3
5. Govi-Altay	64.5	7.5	81.4	53.3	82.1	923.7	495.6
6. Dornogovi	58.6	3.7	80.0	67.5	85.8	525.9	203.1
7. Dornod	81.8	3.8	121.3	14.1	90.9	652.9	44.2
8. Dundgovi	87.1	6.2	87.1	56.0	144.8	744.7	374.1
9. Dzavhan	90.9	10.5	179.6	15.4	149.2	1303.9	339.2
10. Ovorhangay	99.4	12.3	187.0	31.7	185.7	1135.7	397.5
11. Omnogovi	43.5	5.0	25.3	133.7	67.8	294.7	431.6
12. Suhbaatar	52.3	5.5	129.2	16.8	123.7	592.0	135.1
13. Selenge	89.5	2.5	92.9	0.3	28.2	332.3	24.1
14. Tov	102.9	7.4	191.9	9.7	195.7	1025.8	166.2
15. Uvs	86.5	8.5	156.4	41.8	133.4	978.8	303.8
16. Hovd	78.8	8.0	133.9	37.6	101.5	889.3	475.3
17. Hovsgol	104.6	13.0	300.9	7.0	158.6	1061.7	274.6
18. Hentiy	75.8	8.4	184.9	9.8	141.6	901.8	185.2
19. Ulaanbaatar	560.6	0.5					
20. Darkhan	37.4	0.3					
21. Erdenet	57.1	0.2					
TOTAL	2095.6	137.5	2620.1	558.2	2178.4	14137.4	4939.1

Source: DANAGRO, 1991

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TABLE 14: OUTPUT OF MAJOR AGRICULTURAL PRODUCTS, 1980-1989

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989 Est.
					(In millions of zugriks)					
Value of gross output	1,746.1	1,959.4	2,176.9	2,209.7	2,140.0	2,464.5	2,552.5	2,468.7	2,536.2	2,650.7
Animal husbandry	1,426.6	1,561.6	1,600.0	1,412.0	1,438.1	1,648.3	1,736.0	1,719.6	1,775.2	1,848.7
Crop production	319.5	397.8	576.9	797.7	701.9	816.2	816.5	749.1	761.0	802.0
					(In thousands of metric tons, unless otherwise specified)					
Main products: output volume										
Meat	468.0	486.8	484.0	475.4	481.7	465.2	495.0	484.7	462.7	491.9
Milk (mn. liters)	219.1	221.2	232.5	234.7	252.4	261.6	287.3	290.5	291.5	310.0
Butter (metric tons)	3,812.8	3,940.2	4,006.7	4,022.9	4,400.0	4,380.9	4,585.2	4,721.9	4,622.3	4,844.7
Eggs (millions)	21.1	19.2	19.0	22.1	23.3	25.9	27.2	28.7	31.1	35.8
Wool	27.9	28.6	29.2	27.8	27.2	26.0	26.2	25.3	25.8	26.5
Cereals	286.8	343.9	551.3	812.8	597.9	886.0	869.4	689.3	814.3	839.1
Potatoes	37.9	40.4	75.1	97.5	126.0	113.9	132.9	147.6	103.2	155.5
Other vegetables	26.3	29.1	36.1	34.3	35.4	41.2	46.4	48.0	56.3	59.5
					(Annual percent change)					
Value of gross output	...	12.2	11.1	1.5	−3.2	15.2	3.6	−3.3	2.7	4.5
Animal husbandry	...	9.5	2.5	−11.8	1.8	14.6	5.3	−0.9	3.2	4.1
Crop production	...	24.5	45.0	38.3	−12.0	16.3	—	−8.3	1.6	5.4
Main products: output volume										
Meat	...	4.0	−0.6	−1.8	1.3	−3.4	6.4	−2.1	−4.5	6.3
Milk	...	1.0	5.1	0.9	7.5	3.6	9.8	1.1	0.3	6.3
Butter	...	3.3	1.7	0.4	9.4	−0.4	4.7	3.0	−2.1	4.8
Eggs	...	−9.0	−1.0	16.3	5.4	11.2	5.0	5.5	8.4	15.1
Wool	...	2.5	2.1	−4.8	−2.2	−4.4	0.8	−3.4	2.0	2.7
Cereals	...	19.9	60.3	47.4	−26.4	48.2	−1.9	−20.7	18.1	3.0
Potatoes	...	6.6	85.9	29.8	29.2	−9.6	16.6	11.1	−30.1	50.7
Other vegetables	...	10.6	24.1	−5.0	3.2	16.4	12.6	3.4	17.3	5.7

Source: Milne, 1991

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TABLE 15: MONTHLY INTAKE OF RAW MILK, ULANBAATAR DAIRY, 1989-1992

Year	1989	1990	1991	1992
January	2,777.7	2,314.7	1,343.5	946.5
February	2,091.1	2,186.2	1,693.1	902.2
March	2,461.4	2,718.9	1,850.5	1,193.9
April	2,778.8	2,829.1	2,239.6	1,396.5
May	3,727.6	3,245.1	2,359.9	1,402.8
June	4,710,7	3,967.1	4,701.1	2,852.6
July	5,521.1	5,831.5	1,191.1	
August	5,219.3	4,628.1	1,781.1	
September	3,647.9	4,594.0	2,967.5	
October	2,566.9	2,562.6	1,961.3	
November	2,356.7	2,105.8	1,211.3	
December	2,335.4	1,392.8	1,236.2	
Total	39,657.6	38,377.1	30,572.8	

Source: Supplied by Manager of Dairy

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TABLE 16: TOTAL MILK PRODUCED, 1979-1990

(million litres)

	1979-81	1987	1988	1989	1990
Supply to major cities	N/A	N/A	48.2	51.5	48.1
Used for butter	N/A	N/A	N/A	88.9	81.4
Rural consumption	N/A	N/A	N/A	178.9	182.7
TOTAL PRODUCTION[7]	236.0	284.0	299.0	319.3	312.2

Source: DANAGRO, 1991

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TABLE 17: MILK SUPPLIED BY FARMS FOR URBAN CONSUMPTION, 1988-1990

(thousand litres)

	ULAAN-BAATAR	CHOIBAL-SAN	DARKHAN	ERDENET	TOTAL
1988					
Milk from mechanized dairies	27690	1824	3728	2618	35860
Milk from simple dairies	9659	829	1709	117	12314
TOTAL MILK SUPPLY	37349	2653	5437	2735	48174
1989					
Milk from mechanized dairies	29323	2341	4166	2764	38594
Milk from simple dairies	10334	604	1651	268	12857
TOTAL MILK SUPPLY	39657	2945	5817	3032	51451
1990					
Milk from mechanized dairies	29341	1724	4394	2210	37669
Milk from simple dairies	8916	299	1191	N/A	10406
TOTAL MILK SUPPLY	38257	2023	5585	2210	48075

Source: DANAGRO, 1991

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VOLUME II

MONGOLIA FOOD SECTOR STUDY

Appendices

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ANNEX I

THE MONGOLIAN PEOPLE'S REPUBLIC: TOWARD A MARKET ECONOMY

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OCCASIONAL PAPER 79

The Mongolian People's Republic: Toward a Market Economy

by Elizabeth Milne, John Leimone, Franek Rozwadowski, and Padej Sukachevin

INTERNATIONAL MONETARY FUND
Washington DC
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The following symbols have been used throughout this paper:

... to indicate that data are not available;

— to indicate that the figure is zero or less than half the final digit shown, or that the item does not exist;

– between years or months (e.g., 1990–91 or January–June) to indicate the years or months covered, including the beginning and ending years or months;

/ between years (e.g., 1990/91) to indicate a crop or fiscal (financial) year.

"Billion" means a thousand million.

Minor discrepancies between constituent figures and totals are due to rounding.

The term "country," as used in this paper, does not in all cases refer to a territorial entity that is a state as understood by international law and practice; the term also covers some territorial entities that are not states, but for which statistical data are maintained and provided internationally on a separate and independent basis.

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Preface

This paper is based on an internal staff report prepared in connection with the application of the Mongolian People's Republic (Mongolia) for membership in the International Monetary Fund. Mongolia became a member of the IMF on February 14, 1991. The descriptions of the economic and financial systems, recent developments, and reform proposals are based on data gathered during a staff visit (which included, in addition to the authors, Kunio Saito, head of mission; Simon Nocera; Jai Keun Oh; Sarah Tenney; and Amparo Rosario, Staff Assistant) to Ulaanbaatar in August 1990 and on subsequent discussions with the Mongolian authorities held in Washington. Additional information was obtained following a technical assistance visit by the Fiscal Affairs Department held in November. Events, however, may have already overtaken some of the information in this paper, reflecting the rapid changes taking place both within Mongolia and in the global economic environment, as well as the usual time lags between preparation and publication.

The authors would like to acknowledge the assistance and warm hospitality extended to them by the officials of Mongolia. They wish to express their gratitude for the contributions of Jacques Baldet and Kunio Saito. The authors would also like to record their appreciation to Noy Siackhachanh for research assistance, to David M. Cheney, Margaret A. Casey, and Elisa M. Diehl of the External Relations Department for editorial comments and advice, and to Sylvia Aida, Lan Nguyen, and Belinda Ruch for secretarial support. Any opinions expressed are those of the authors alone and do not reflect the views of the Mongolian authorities, Executive Directors of the IMF, or other IMF staff members. The authors bear sole responsibility for any factual errors.

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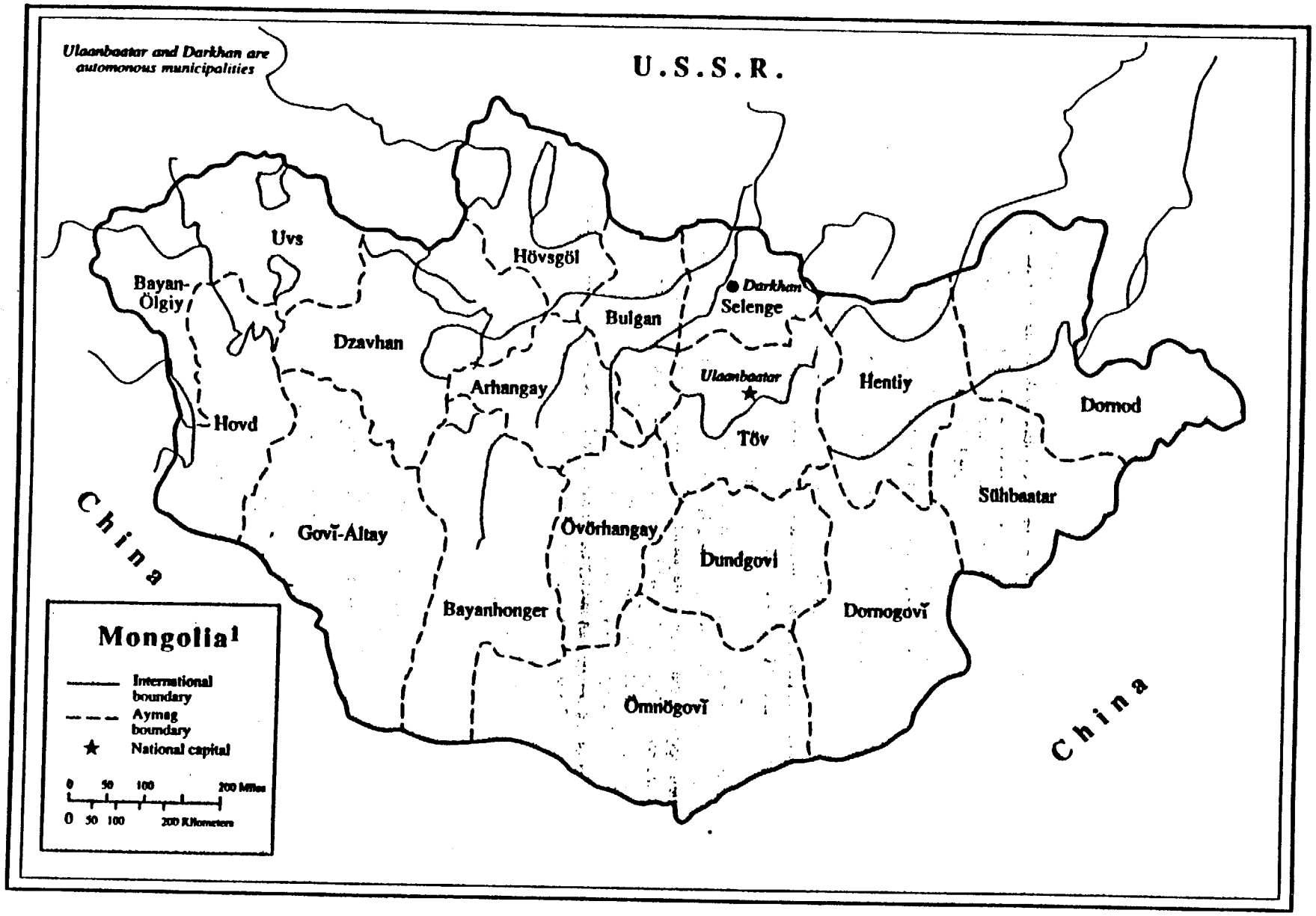

I Political and Economic History

Introduction

Mongolia, a country with rich and ancient traditions, entered the twentieth century as a frontier province of China. Feudal rights and obligations defined the relationships between the local nobility and the Chinese Emperor, as well as among the Lamaist[1] temples, local nobles, and the populace. Internal political and economic power were vested primarily in the temples. Economic activity was narrowly based on animal husbandry and rudimentary processing of animal by-products.

By 1924, political autonomy from China was achieved and the People's Republic founded, although the development of a command economy dates only from the late 1930s. The central role of the public sector was firmly established by 1960, and the next two decades witnessed a strengthening of ties with the U.S.S.R. and increasing industrial and mining activity, facilitated by Soviet aid (mainly in the form of loans). By the mid-1980s, mounting internal and external imbalances, as well as nascent political and economic reforms in the U.S.S.R., spurred the relaxation, albeit limited, of central orders. Domestic reforms focused primarily on improving the efficiency of the command economy. By early 1990, however, following student protests, a new reform government was formed to lead the country toward its first multiparty elections and to develop a market-based economy. Since the July 1990 elections, the new government has accelerated the transformation to a market economy and its integration with the world financial community.

This paper reviews Mongolia's political and economic history, highlighting its changing economic structure following World War II and its recent efforts to introduce market mechanisms. The paper begins with an overview of the evolution of the economy from a feudal to a centrally planned system and of the pressures that led to the initiation of economic reforms beginning in the mid-1980s. It then focuses on the progress of these reforms during the last half of the decade, their macroeconomic impact, and the current institutional and economic environment. The paper concludes by outlining the challenges inherent in shifting from a command to a market economy and the planned policy response to these challenges. The appendices contain detailed descriptions of the structure of the government and banking systems and the exchange and trade systems.

[1] Tibetan Buddhist.

Political History

Archeological finds have established the Mongols as a distinct people as early as the second millennium B.C.[2] Ancient Chinese writings have frequently referred to Mongolia, although Mongolia as a political entity was first mentioned in the writings of the tenth and eleventh centuries. Genghis Khan unified the Mongols under a feudal state in 1206 and the Mongolian territory subsequently expanded to cover most of modern-day China, Korea, and as far as Central Europe. By the mid-1300s, however, the Mongol Empire had disintegrated and was followed by a sustained period of internecine strife. Under the terms of the Convention of Dolonnor of 1691, Mongolia ceased to exist as a political entity and became a frontier province of China. The next two centuries were characterized by tribal dispersion, colonization by foreign powers—especially of the southern lands (known as Inner Mongolia)—and the consolidation of theocratic power in the northern territories (Outer Mongolia).[3]

The 1911 Chinese Revolution afforded the northern territories the opportunity to claim independence; however, international recognition was not achieved. By 1915, independence had been scaled back to autonomy under Chinese suzerainty, and in 1919 Mongolia was reincorporated into China. Independence was reasserted in March 1921 and, following the July revolution, a constitutional monarchy was established, but this system was abandoned following the ruler's death. In 1924 the People's Republic was founded. Over the next decade, political stability remained elusive; this period was marked by sudden shifts to the right and

[2] Dennis Sinor, ed., *The Cambridge History of Early Inner Asia* (Cambridge University Press, 1987), pp. 85–91.

[3] For an account of Mongolia's recent history, see C.R. Bawden, *The Modern History of Mongolia* (London: Kegan Paul International Ltd., 1989).

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A Profile of Mongolia

Geography and Natural Resources

Mongolia, with a vast but sparsely populated territory, is a landlocked country located in Central Asia, bordered by the U.S.S.R. to the north and China to the east, west, and south. It has a total area of 605,000 square miles (1.6 million square kilometers), about one half the size of India and four times that of Japan. The country is divided into three main topographical zones: mountains, with the three largest ranges located in the north and west; the intermountain basins; and the steppe (including the semidesert and desert areas of the Gobi), which covers three fourths of the national territory. The high altitude, about 1,600 meters above sea level on average, exacerbates the semiarid continental climate, resulting in long, cold winters, with average temperatures falling below freezing for six months of the year (October–March). January temperatures average about –25°C, but lows exceeding –40°C are often recorded. Mongolia is prone to seismic movements that can be extremely severe. These elements, climate and earthquakes, add substantial costs to the development of socioeconomic infrastructure.

Mongolia has abundant agricultural land and great potential for mineral and hydrocarbon exploitation. About 80 percent of the country's land is suitable for extensive animal husbandry; traditional herds include cattle, horses, camels, goats, and sheep. Intensive crop cultivation is limited by the short growing season and sharp fluctuations in temperature, which can vary as much as 30°C in one day. Mongolia is rich in mineral resources, including coal, iron, tin, copper, gold, silver, tungsten, zinc, fluorspar, and molybdenum, as well as semiprecious stones. Thermal power, produced from indigenous coal and imported diesel oil, and traditional biomass sources of fuel are supplemented by electricity imports from the Soviet grid. About 20 percent of the population, mainly in the rural areas, remains without electricity. However, the sizable potential for hydro- and wind-generated electricity has not yet been tapped, and petroleum exploration is just being initiated.

Demographic Characteristics

Mongolia has one of Asia's highest natural rates of population growth, and the population has more than doubled since 1960. Nevertheless, average population density remains low, at about 1.3 persons per square kilometer. At the end of 1989, the total population was estimated at 2.1 million, of which one half was under 20 years of age. The population is homogeneous, with Mongol-speaking people constituting 95 percent of the total; the largest subgroup is the Khalkha-Mongols, accounting for over 75 percent of the total population. During the last two decades, migration from rural areas has accelerated, with the proportion of the population living in urban areas rising to 58 percent in 1990 from 44 percent in 1969. Although the capital city accounts for about one fourth of the total population and about one half of national production, internal markets remain thin and fragmented.

Table 1. Social Indicators

	1989
GDP per capita (current U.S. dollars)[1]	522
Population and vital statistics	
Total population (in thousands; end of year)	2,095.6
Population growth (annual growth; in percent)	2.5
Population by sex (percent of total)	
Male	49.9
Female	50.1
Crude birth rate (per thousand)	36.0[2]
Crude death rate (per thousand)	9.3[2]
Life expectancy at birth (years)	
Male	62[2]
Female	66[2]
Public health	
Number of physicians	5,715
Physicians per thousand population	27
Hospital beds per thousand population	118
Percent of required daily calories	117[3]
Labor force	
Total labor force (in thousands)	633.2
Industry (percent of total)	18.9
Agriculture (percent of total)	29.4
Male (percent of total)	48.8
Female (percent of total)	51.2
Education	
Enrollment (in thousands)	
Primary	446.7
Secondary	34.1
Colleges, specialized schools, and universities	40.0

Sources: Mongolian authorities; and IMF staff calculations.
[1] GDP in U.S. dollar terms calculated using rate of exchange between the togrik and the transferable ruble adjusted for taxes and subsidies applicable to CMEA trade. The transferable ruble/U.S. dollar rate of exchange used is derived from Bulgaria's commercial rates of exchange as a proxy to adjust for the overvalued official rate maintained by Mongolia.
[2] Data for 1985.
[3] Average for 1984–87.

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e 2. Main Economic Indicators

	1980	1985	1986	1987	1988	1989
tput and prices			(Percent change)			
P						
Nominal		4.2	−0.7	4.3	6.1	4.2
Real		5.7	8.2	4.4	5.1	4.3
IP						
Nominal	...	3.5	−5.1	3.2	5.5	9.6
Real	...	5.4	5.6	3.3	4.2	9.8
Of which:						
Agriculture	...	9.4	5.8	−6.3	2.3	13.9
Industry	...	5.4	2.2	2.8	3.7	11.4
Distribution and warehousing	...	1.9	5.3	9.2	4.6	9.3
es						
Consumer	...	0.6	−1.0	—	—	—
Wholesale	...	4.1	5.0	3.6	4.9	5.1
xport	1.7[1]	5.9	−6.4	4.3	4.1	5.1
mport	10.0[1]	2.1	5.5	3.2	1.9	...
rms of trade	−8.3[1]	3.8	−11.9	1.1	−2.2	...
get, credit, and money			(Percent of GDP)			
enue	51.1	52.5	46.8	46.8	45.4	48.9
endture	−59.0	−59.3	−64.5	−65.5	−65.0	−65.3
erall deficit	−7.9	−6.9	−17.7	−18.7	−19.5	−16.4
ad money	38.4	51.8	52.1	50.5	49.2	47.8
Of which:						
Currency in circulation	(5.6)	(4.4)	(4.7)	(5.0)	(5.1)	(5.4)
			(Percent change)			
enue		5.1	−11.3	4.1	3.1	12.0
penditure		6.0	8.0	5.9	5.2	4.7
mestic credit			6.9	−0.5	1.7	−0.5
ad money			−0.2	1.2	3.4	1.1
Of which:						
Currency in circulation	(...)	(...)	(7.8)	(11.4)	(7.4)	(10.5)
ernal accounts			(In millions of U.S. dollars,[2] unless otherwise specified)			
ance of payments						
xports, f.o.b.	402.7	567.1	741.3	816.7	829.2	793.2
mports[3]	−677.1	−1,003.8	−1,329.1	−1,358.6	−1,458.1	−1,202.4
Current account deficit	−344.2	−813.4	−1,061.5	−990.2	−1,033.4	−858.3
Overall balance	−0.1	29.7	22.0	73.9	−2.6	−24.4
oss international reserves[4]	9.1	51.8	93.8	147.7	145.1	120.8
ernal debt[4]						
(In billions of transferable rubles)	3.41	6.39	7.15	7.90	8.58	9.82
bt-service ratio[5]	12.1	13.0	2.2	3.1	5.6	8.3
			(Percent of GDP)[2]			
ports, f.o.b.	17.3	22.4	25.3	24.3	23.2	22.2
ports[3]	−29.1	−39.8	−45.4	−40.5	−40.9	−33.6
rrent account deficit	−14.8	−32.2	−36.2	−29.5	−29.0	−24.0

ources: Mongolian authorities; and IMF staff estimates.
Average annual percent change for 1975–80.
Data maintained in transferable rubles or tugriks are converted into U.S. dollars at the official rates of exchange.
Most contracts are specified in c.i.f. terms, although some with the convertible currency area are on an f.o.b. basis.
Outstanding, end of period.
Percent of exports of goods and services.

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left, and by civil unrest as well as by increasing political, economic, and military alignment with the U.S.S.R.

Two major political figures dominated the period from the mid-1930s through 1984. Choibalsang consolidated his control of the Mongolian People's Revolutionary Party (MPRP) by the mid-1930s, mainly through political and religious purges, and remained in power until his death in 1952. Under his leadership, the aim of developing a centrally planned state was reinstated and theocratic power destroyed. Tsedenbal, who assumed Party leadership in 1952, was the architect of Mongolia's command economy and, in 1974, he formally assumed the role of head of state. His tenure was marked by increasingly close relations with the U.S.S.R., with only limited international recognition of Mongolia's independence. By 1965, Mongolia maintained diplomatic relations with 35 countries. The deterioration in Sino-Soviet relations in the late 1960s led to a return of Soviet troops in 1969, and the 1970s saw a further strengthening of economic and political links between Mongolia and the U.S.S.R. Tsedenbal was removed from office in August 1984 and a moderate government, headed by Batmönh—formerly Chairman of the Council of Ministers—was formed in December 1984.

Economic History

Feudal Period

The period following the collapse of the Mongol Empire and its incorporation into China was characterized by a strengthening of the feudal system and ascendancy of the Lamaist church. The Mongol nobility rendered service (*corvée*) and paid taxes to the Chinese Emperor and received service and taxes from the populace. Personal service was also due to the church, but the lamaseries and their lay workers were exempted from taxes, a system that contributed to the expansion of temple domains. The temples were also the principal providers of education and health care. Nomadic herding dominated economic activity, and processing of animal by-products was rudimentary. Crop cultivation, which would have reduced pasture acreage, was discouraged. Most retail and external trade was handled by foreign merchants, mainly Chinese, whose establishments near military garrisons and lamaseries accounted for the bulk of "urban" settlements. Traditionally, costs and prices were calculated in terms of a physical medium, generally sheep or bricks of tea. By the mid-1800s, however, foreign coins (mostly silver taels) had begun to circulate and limited numbers of bank notes were issued by Mongol nobles for use in their own territories.

By the beginning of the twentieth century, temple populations accounted for about 40 percent of the male population. The reduction in the productive population subject to taxation and the cost of servicing large debts to foreign merchants resulted in a sharp increase in the rates of taxation and interest. Between 1900 and 1920, tax rates rose by 2,000 percent,[4] and interest rates averaged 200 percent a year. At the same time, individuals were compelled to extend loans at interest rates of 40–60 percent a year to the temples to cover their debt obligations. The increasing impoverishment of the population contributed to rising unemployment and vagrancy as privately held herds were forfeited. The socioeconomic relationships were not altered during the brief period of autonomy under the theocratic monarch, although the wealth and power of the church are reported to have increased.

Post-Revolutionary Period: 1921–48

The years from independence through the end of World War II have been divided into five distinct periods: initiation of reform under a constitutional monarchy (1921–24); the Rightist Deviation (1925–28); the Leftist Deviation (1928–32); the New Turn Policy (1932–34); and the restoration of socialist development (from 1934). These years were marked by sudden shifts from a market-oriented economy, in which the private sector played a predominant role, to one where all productive assets were nationalized, and then to a reversal of this policy. Coincidentally, the church was sequentially tolerated, persecuted, encouraged, and finally eliminated.

During 1921–24, before the founding of the People's Republic, the authorities took only limited measures to restructure the feudal economic system since domestic pacification had not yet been achieved. While feudal ranks and tax exemptions for the nobility were eliminated in 1921, in practice there was little change. Only two years later did the authorities abolish the system of personal retainers and corvée and permit commoners to participate in government. Nomadic herding continued to be the mainstay of the economy, and the lamaseries retained their central role. Nevertheless, a few small factories, each employing fewer than ten workers, were established in the capital city.

Following the establishment of the Republic in 1924 until 1928, private sector activities and the development of a market economy were encouraged. As a first step, a national bank, a joint venture with the U.S.S.R., was formed in 1924 and a national currency (the tugrik, meaning disc) was introduced. A postal system was set up. Privately held herds expanded and small handicraft shops developed. While the Government established a state trading company—also a joint Soviet

[4] In 1900, a tax unit of tea was set at the equivalent of $0.05–0.10, but by 1921, this had risen to $2. A sheep was taxed at 2 tea units, a horse at 6–8 tea units, and a camel at 8–10 tea units (Bawden, *op. cit.*).

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Energy Sources and Uses

Mongolian industrialization has been supported by the development of domestic energy sources, particularly coal. Nevertheless, the country remains dependent on imported petroleum products. Traditional fuels (wood and animal dung) continue to be used in rural areas, and about one fourth of the population—mainly in the rural areas—remains without electricity.

Coal is an important source of energy, particularly for heating and electricity production. It is used by industry, railroads, and households, and a small amount is exported. Virtually all of domestic demand is met by brown coal produced by local mines, although small amounts of anthracite coal are imported. New production capacity was developed during the last half of the 1980s, with output increasing by almost 50 percent between 1985 and 1989. Thermal power stations are the largest users of coal, accounting for about half of total coal distributed; the shares of the industrial and construction sectors and communal housing and public services are about 15 percent each. Petroleum products are used for both electricity generation and transportation. Industries in 12 of the 18 districts use imported diesel to run electricity generators. Mongolia imports only petroleum products since there is no domestic refining capacity, and these are presently supplied by the U.S.S.R.; by 1989, petroleum products accounted for about one fourth of total imports.

Electricity, produced with domestically mined coal and imported diesel fuel, is the principal source of energy. In the mid-1980s, new electricity production capacity came on stream to meet Ulaanbaatar's needs, and output rose to 3.6 billion kilowatt hours from about 2.3 billion kilowatt hours in 1989. Mongolia is also linked to the Soviet grid, and, therefore, imports as well as exports electricity depending on domestic demand. In 1989, about half of the electricity distributed (the combined electricity generated and imports) was consumed by the industrial and construction sectors, while the power stations themselves, in the generation process, consumed about 15 percent of the total produced. Transmission losses, amounting to 8–10 percent of production, are relatively high.

venture—virtually all trade and domestic commerce remained in private hands. External trade with the U.S.S.R. accounted for about 15 percent of total imports and 20 percent of exports at this time and efforts were initiated to expand trade with European countries. Mongolia, until 1928, was considered to be progressing steadily from a feudal to a market economy.

From 1928, following the Seventh Party Congress, a precipitous shift to state ownership occurred and, except for relations with the U.S.S.R., Mongolia entered a period of isolationism. Properties belonging to nobles and lamaseries were confiscated; sliding-scale and high taxation of lamas and temples were introduced to impede the recruitment of monks and to redistribute church herds; private ownership was abolished and agriculture collectivized; and transportation and retail distribution were nationalized. The result of the rapid implementation of these policies was disastrous. The disbanding of the temple herds and destruction of temples left thousands of lay workers and monks unemployed. The number of livestock declined by one third as high taxation encouraged slaughter. Collectives effectively collapsed, with mass emigration of herders (estimated, at a minimum, at one tenth of the population) and their livestock. Widespread shortages of consumer goods occurred because no alternative to the traditional distribution networks had been developed. At the same time, government spending jumped, primarily to subsidize inefficient state cooperatives and farms and for social infrastructure that was not complemented by human capital formation. Prices rose sharply and the tugrik effectively lost value as a currency. The armed uprisings that resulted were suppressed, with significant loss of life and economic infrastructure.

Faced with the collapse of the economy, the authorities in 1932 rescinded nationalization measures, abolished collectivization of agriculture, fostered private enterprises, and encouraged the formation of new lamaseries—although their former wealth was not restored. The economy responded rapidly, with herds increasing to pre-1928 levels. Prices of basic commodities fell as private retail trade recovered. By 1934, the shift toward a market economy was almost complete; however, this phase was short lived.

By the mid-1930s, Choibalsang had gained control of the Party and acted to re-establish a centrally planned economy. As a first step, all tax payments had to be made in cash, and taxes on lamas were sharply increased: from Tug 120 a year in 1933 to Tug 1,000 in 1938 for a monk of military age. Religious persecution followed and by 1939 the church had been destroyed. Given widespread popular resistance, however, only limited steps were taken to reintroduce state ownership,

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and all herds remained under private ownership. Economic development from the late 1930s to the early 1940s was slow as budget resources were directed to the prewar military buildup. Direct economic assistance from the U.S.S.R. was curtailed; all foreign trade was reserved for the state; and domestic food rationing was introduced to ensure exports to the U.S.S.R. In 1941, a system of quotas was established for delivery of agricultural products to the state, although production in excess of the quota continued to be freely marketed.

Development of the Command Economy: 1948–84

The history of the Tsedenbal period (1952–84) is just now being revisited. The measures taken to enforce the collectivization of herds and private properties have not been fully discussed publicly. Most economic data, until recently, were treated as state secrets.

First and Second Five-Year Plans: 1948–60[5]

After World War II, the shift toward a command economy intensified, central control tightened, and development proceeded on the basis of five-year plans starting from 1948. In the early 1950s measures were introduced to prepare the private herdsmen for the eventual collectivization of livestock; these included the establishment of regional offices of the MPRP and the introduction of accounting methods, management training, and preferential loans and tax rates for state cooperatives. The system of compulsory delivery was revised to place a larger burden on private herders. Despite these incentives, private herding families continued to account for over three fifths of the population in 1955. New regulations and direct coercion resulted in the formation of over seven hundred collectives by 1958, although, through consolidation, the number was reduced to 289 by the mid-1960s. The number of private herding families declined during this period but still remained at about one fourth of the population. The 1960 Constitution formally restricted private ownership of livestock and reserved all production for the state. In addition, the number of work days required to be allotted to state cooperatives was doubled to 150 for men and set at 100 for women. By 1963, the proportion of families outside the state cooperative system had fallen to less than ½ of 1 percent.

Third to Seventh Five-Year Plans: 1961–85

The period from 1961 to 1985, covered by the Third to Seventh Five-Year Plans, was dedicated to the development of a modern industrial economy. The earlier plans gave greater priority to meeting domestic consumption needs, while later plans focused on large-scale industrial development for export. These efforts were facilitated by Soviet technical and financial assistance. Links to the U.S.S.R. had already been strengthened by the completion of the trans-Mongolian railway in 1955. By 1960, trade with members of the Council for Mutual Economic Assistance (CMEA)[6] accounted for 94 percent of Mongolia's exports and 76 percent of imports, with the latter rising to 97 percent by 1970. By the end of the 1970s, large joint ventures in the mining sector had been formed and Soviet advisors were present in virtually all ministries and state committees.

The Third and Fourth Plans (1961–70) focused on raising domestic production of consumer goods and improving domestic distribution. Attention was also given to the mechanization of agriculture and the expansion of winter shelter for animals and fodder supplies. To encourage monetization of the rural areas, payment for labor supplied to cooperatives was shifted from in-kind to cash. Fixed prices were set at the beginning of the decade for basic consumer goods at the retail and farmgate level, and were subsequently adjusted only infrequently. Large state enterprises were established to process food and animal by-products (wool, hides, skins, and so forth). Construction of social infrastructure, especially in the capital city, commanded one fifth of total investment during the third plan, double that of the first two plans. Efforts were directed at raising literacy rates, in order to meet future labor requirements, with compulsory schooling raised to eight years from four. In addition, special incentives were given to encourage faster population growth.

In the Fifth, Sixth, and Seventh Plans (1971–85), an increasing share of investment spending was directed toward industry, while investment in agriculture was reduced. New investments in mining, mainly as joint ventures with the U.S.S.R., helped accelerate the growth of industrial output. A price institute was created in 1971; in 1975, wholesale prices, which had been established at different levels depending on factory-specific criteria, were set uniformly for comparable goods. Industrial activity was assisted by Mongolia's insulation from the impact of the first and the second world oil price increases. Under a bilateral agreement, the U.S.S.R. distinguished between trade imbalances arising from a deterioration in Mongolia's terms of trade relative to 1974 prices and those stemming from other elements. Financing for the former was provided on a grant basis until 1981.

[5] The Third Five-Year Plan covered 1961–65, with the 1958–60 period covered by a three-year plan. While there had been attempts to develop five-year plans before World War II, these were only partly implemented and considered largely unsuccessful. For these reasons, numbering was reset from 1948.

[6] The CMEA, formed in 1961, includes Bulgaria, Cuba, the Czech and Slovak Federal Republic, Hungary, Mongolia, Poland, Romania, the U.S.S.R., and Viet Nam; before October 1990, the (former) German Democratic Republic was a member.

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The new joint-venture mines helped to develop Erdenet as an urban center, further boosting demand for permanent housing, education, and health facilities. This, combined with faster population growth in the capital, led the Government to sustain a high level of investment in housing, about 20 percent of the total. Nevertheless, demand for housing outpaced supply and traditional *ghers* continued to be used in urban areas.

Structural Change and Mounting Imbalances

The implementation of these plans had a profound effect on the structure of the Mongolian economy. By 1970, industry accounted for over one fifth of net material product (NMP), compared with only 8 percent in 1940, and the share of distribution and warehousing had risen from less than one tenth to more than one third. The share of agriculture in NMP had fallen from over three fifths to one fourth over the same period. By 1985, the share of industry had risen further to 30 percent, while that of agriculture had declined to 15 percent.

Economic growth accelerated sharply during the 1960s and 1970s, although it moderated toward the mid-1980s (Table 3). Gross industrial production rose almost sixfold between 1960 and 1980, reflecting the coming on stream of new enterprises, but it began to decelerate in the early 1980s. Agricultural production recorded only modest growth throughout the period and failed to keep pace with the rate of

Key Economic and Structural Reforms

1986

- Increase in domestic wholesale prices.
- Limited autonomy granted to public sector enterprises for investment.
- Introduction of long-term bank loans for investment.

1987

- Modification of investment planning system for setting overall targets.
- Expansion of investment autonomy of public sector enterprises.
- Rationalization of number of government ministries.

1988

- Reduction in five-year plan performance indices.
- Further decentralization of budgetary operations to local level.
- Limited liberalization of agricultural pricing and marketing in excess of state orders.
- Promotion of private sector cooperatives under new Law on Cooperatives.
- Introduction of more depreciated noncommercial tugrik/U.S. dollar exchange rate.

1989

- Liberalization of intra-public-sector-enterprise pricing and expansion of operating autonomy.
- Modest easing of restrictions on private herd ownership.
- Elimination of monopoly of state trading corporations.
- Increases in selected administered retail prices.
- Easing of foreign exchange surrender requirements.
- Introduction of preferential domestic prices for exported goods.

1990

- Elimination of restrictions on private ownership of herds.
- Freeing of selected retail prices.
- Legalization of two-tiered banking system and establishment of two commercial banks.
- Rationalization of government ministries; elimination of State Planning Committee.
- Establishment of Customs Affairs Department and Tax Service Department.
- Promulgation of new Foreign Investment Law.
- Devaluation of tugrik vis-à-vis U.S. dollar for commercial transactions.
- Introduction of foreign exchange auction system.
- Negotiation of most-favored-nation trade agreements with countries in the convertible currency area.

January 1991

- Increases in retail prices of most goods to world market levels.
- Lengthened maturity structure of term deposits and increased interest rates.
- Substantial reduction of budgetary subsidy for imported goods and to loss-making enterprises.
- Devaluation of tugrik vis-à-vis U.S. dollar for noncommercial transactions.
- Adjustments to wages, pension benefits, and private savings deposits to ameliorate impact of price increase.

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Table 3. Summary of Selected Output, Employment, and Price and Wage Indicators

	1970–75	1975–80	1980–85	1986	1987	1988	1989
				(Percent change)[1]			
NMP	7.6	4.3	6.5	−5.1	3.2	5.5	9.6
Personal consumption	6.7	5.2	4.8	4.3	4.9	4.6	5.6
Social consumption	11.6	9.2	9.0	10.9	3.6	7.6	1.3
Accumulation[2]	13.3	5.0	9.4	−2.0	−15.8	−2.3	5.7
Balance on external trade[3]	21.8	10.6	9.6	23.5	−17.2	−4.0	−8.7
GDP	...	...	6.8	−0.7	4.3	6.1	4.2
Real GDP	...	...	6.8	8.2	4.4	5.1	4.3
				(Percent share in NMP)			
Personal consumption	60.1[4]	62.8[5]	58.0[6]	63.7	64.8	64.2	61.9
Social consumption	16.1[4]	20.2[5]	22.8[6]	26.6	26.7	27.2	25.2
Accumulation[2]	48.3[4]	49.8[5]	57.1[6]	58.9	48.1	44.5	43.0
Balance on external trade[3]	−24.5[4]	−32.8[5]	−37.8[6]	−49.3	−39.5	−36.0	−30.0
				(Percent change)[1]			
Wholesale prices	...	4.3[7]	4.9	5.0	3.6	4.9	5.1
Consumer prices	...	0.1[7]	0.6	−1.0	—	—	—
Export prices[8]	8.9	1.7	4.5	−6.4	4.3	4.1	...
Import prices[8]	0.7	10.0	7.8	5.5	3.2	1.9	...
Nominal wages	1.7	1.1	0.9	0.4	0.6	0.4	1.5
Employment	2.9	2.7	1.9	3.4	3.0	3.0	2.8

Sources: Mongolian authorities; and IMF staff calculations.
[1] Average annual rates for 1970–75, 1975–80, 1980–85.
[2] Includes net fixed investment, changes in stocks, unfinished construction, and losses on fixed capital and stocks.
[3] Includes statistical discrepancies.
[4] 1975.
[5] 1980.
[6] 1985.
[7] 1978–80.
[8] Based on trade data recorded on a shipment basis.

population increase. Measured inflation remained low as controlled retail and wholesale prices were adjusted infrequently, although consumer goods remained in short supply.

The rapid rate of industrialization in the 1970s and early 1980s contributed to mounting internal and external imbalances. Domestic prices, in particular those of petroleum products, were not adjusted to reflect higher costs of imported inputs, resulting in a distorted structure of investment and output. Budgetary subsidies rose but were not matched by domestic revenue increases. This, combined with increasing capital outlays, led to expanding budget deficits that were financed entirely from abroad. While the Government made no direct use of bank credit, it had indirect access to credit through the enterprises. Although new copper exports from 1979 resulted in a doubling of earnings from CMEA trade by 1984, imports also rose and the trade deficit with the CMEA countries in 1984 was six times that recorded in 1970. Moreover, the composition of Soviet financing changed, with grant financing replaced by loans beginning in 1981, and large external debts were accumulated; outstanding external debt at the end of 1984 amounted to 5.8 billion transferable rubles, 98 percent of which was owed to the U.S.S.R. The ratio of debt service to exports of goods and services rose to 12 percent in 1984 from 7 percent in 1975. During this period, some easing of restrictions permitted an increase in consumer durable imports from the convertible area. In 1984, with foreign exchange reserves declining to $7 million, the authorities began redirecting selected export products from the CMEA to the convertible currency area while tightening control over imports.

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II Initiation of Reform: 1985–90

Background

In 1985, Batmönh's government instituted modest steps to improve economic management and reduce central control, while permitting some internal political dialogue. These changes were assisted by a similar restructuring taking place within the U.S.S.R. In 1987, the policy of political openness (*il tod*) was formally established. Senior government officials were replaced by more moderate MPRP members, although extensive restructuring of government ministries and committees concerned with the economy took place only in 1988–89. Mongolia continued to expand its international connections during this period and, by the end of 1988, maintained diplomatic relations with over one hundred countries. In 1989, the U.S.S.R. began a phased withdrawal of its forces and technicians. Notwithstanding these developments, political change in the U.S.S.R. and economic reforms in China during the 1980s outpaced Mongolian restructuring, and domestic socioeconomic tensions intensified.

A new reformist government, headed by P. Orchirbat, was established in March 1990. The new Government was formed following student protests and a threatened national work stoppage, and its purpose was to lead the country into its first multiparty elections. By midyear, freedom of religious expression had been restored. The elections, contested by six political parties, were finalized on July 29; the ruling MPRP retained a majority in both parliamentary bodies, winning 84 percent of the deputies to the upper house (People's Great *Khural*)[7] and 60 percent of those to the lower house (*Baga Khural*). In September, P. Orchirbat was elected President for a five-year term, and the leader of one of the main opposition parties was appointed Vice-President and Chairman of the lower house. Members of opposition parties have also been appointed to senior positions in the new government.

Economic Restructuring: The First Phase

The Government that took office in December 1984 had, as its first task, the revision of the Eighth Five-Year Plan (1986–90). The plan sought to expand agricultural production, improve food supplies, extend electrification, and create a metalworking sector. Investment spending was redirected toward the social sectors and small industrial projects, while that for large-scale projects was lowered. Initially, reforms were aimed mainly at reducing the bureaucracy, the size of which was seen as an impediment to efficient economic management. Local authorities were given increased control over spending, and a larger proportion of spending was directed to local levels.

During 1986 modest steps were taken to strengthen public sector finances and to increase trade with the convertible currency area. Wholesale prices were raised by 12 percent on average to reflect past increases in production costs and higher import prices, and to maintain budget revenues from the import price differential tax. However, retail prices remained unchanged—although preferential pricing of petroleum products for the public sector was eliminated. The adverse effect of the price reform on selected industries was ameliorated by a reduction of domestic turnover taxes and an increase in selected production subsidies. Profit taxes were reduced so that a larger share of enterprise investment could be financed from retained earnings, and direct investment by state enterprises was encouraged by the introduction of long-term state bank loans at a low interest rate. The budget presentation was revised to incorporate export tax revenues and foreign financing previously channeled through an off-budget account. Exports of selected goods continued to be directed to the convertible currency area, notwithstanding export bonuses[8] paid by the U.S.S.R. A new state foreign trade enterprise (Mongolimpex) was created to facilitate trade with the convertible currency area.

In 1987, a new strategy of economic restructuring (*oorchlon shinechel*), framed on the Soviet policy of *perestroika*, was implemented. Under this policy, the role of state planning was limited to setting overall investment policy, while the ministries and state committees were responsible for its implementation.

[7] A description of the legislative process appears in Appendix 1.

[8] Previously, bonuses were included in contract prices and had represented a reduction in contract prices if export volume targets were missed. The new system allowed for fixed contract prices with explicit bonuses if export targets were met or exceeded.

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Similarly, state enterprises were accorded increased autonomy, although production, profits, and distribution remained centrally planned. The number of ministries was further rationalized during this period.

In 1988–89, the pace of reform quickened, although measures continued to aim principally at improving the efficiency of the command economy. The 1988 annual plan reduced the number of indices for achieving economic targets. Beginning in 1988 the decentralization of revenue collection and expenditure decisions to the local level intensified; local authorities' control over revenues and expenditures rose to almost one half of the total by 1989. Although farmgate prices remained unchanged, agricultural production (except for meat) that exceeded state orders (delivery quotas) could be marketed freely. A new Law on Cooperatives permitted the formation of cooperatives, with private sector participation. To encourage surrender of convertible currencies to the State Bank, the authorities introduced a preferential rate of Tug 20 per U.S. dollar, compared with a commercial rate of Tug 3 per U.S. dollar.

From 1989, the budget result was to be reflected accurately, without recourse to temporary financing provided by state enterprises. State enterprises were granted greater operational autonomy. Until 1987–88, production, distribution, and profits of state enterprises and cooperatives had been centrally planned and administered. Production, distribution, and profits had been targeted without taking into account consumer needs, with each enterprise guided by 2,000–3,000 indicators. Starting with the new Law of Enterprises (enacted in 1988 and implemented in 1989), the Government sharply reduced the number of indices under which the enterprises had to operate. The number of operating norms[9] was also modified to allow for more flexible management of the enterprises. The autonomy of enterprises was also increased with regard to production and distribution, and, for those industries making a profit, with regard to wages. Intra-enterprise sales could take place at negotiated prices, subject to general guidelines. Selected retail prices were raised and limited flexibility introduced. Limits on privately held livestock were eased slightly (increased by 25 head of livestock per household). Monopolies enjoyed by state foreign trade companies were eliminated, and trade licenses were issued directly to state enterprises. The amount of foreign exchange that could be retained by state enterprises and cooperatives was increased. Differential price incentives for domestic producers were introduced to promote exports to the convertible currency area.

From March 1990 on, the authorities embarked upon a comprehensive program of economic transformation toward a market economy. The three-year program aims at expanding the role of the private sector; diversifying the economic base; promoting exports to, and increasing trade with, the convertible currency area; and introducing new, and strengthening existing, institutions of indirect economic management. Domestic reforms were accelerated from mid-1990 in order to address the major changes taking place in traditional relationships with other CMEA members. These included the agreement to value trade and to effect settlement in convertible currencies from the beginning of 1991.

As a first step, the Government eliminated all restrictions on private ownership of herds and announced increases in farmgate prices effective January 1991. Selected retail prices were to be freely determined within a set range. In January 1991, most retail prices were doubled; civil service wages, pensions, and other benefits were raised to compensate partly for the higher prices. The authorities actively promoted development of private sector enterprises and cooperatives and eased their access to domestic bank credit. To encourage foreign investment in the private sector, including for the exploitation of mineral resources, a Foreign Investment Law was promulgated, coming into effect in May 1990.

Reforms were initiated in both the banking and budgetary systems. In August, the Council of Ministers approved the development of two-tiered banking and, in September, two commercial banks were formed. In early February 1991, the maturity structure of term deposits was lengthened and interest rates increased. The 1991 government budget takes into account the revenue impact of changes in the CMEA trading system, as well as the transformation of the structure of the domestic economy. To this end, the Government established a Customs Affairs Department in November 1990 with a view to introducing a tariff system. Changes in the system of taxation of corporations and individuals to reflect the expanding role of private sector activity are expected to be introduced. A new Tax Service Department, focusing on tax administration, was set up at the end of 1990. Budgetary subsidies for imports and to loss-making state enterprises were reduced following the January price adjustments.

The authorities acted to strengthen Mongolia's external position and began to use the exchange rate to influence the allocation of resources. In July 1990, the tugrik was devalued from Tug 3—a rate that had remained virtually unchanged for two decades—to Tug 5.63 per U.S. dollar for commercial transactions; it was adjusted thereafter on a monthly basis. In August the authorities held the first foreign exchange auction, and in subsequent auctions the rate fluctuated around Tug 40 per U.S. dollar. In early February 1991, the tugrik was devalued for noncommercial transactions to Tug 40 per U.S. dollar from Tug 20. Negotiations for most-favored-nation status were concluded with Japan during the year, and with the United States in January 1991.

[9] These norms include, among other things, wage funds, profit distribution, average wages and productivity, use of material resources, investment through centralized funds, and limits on convertible currencies.

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III Impact of Reform

Overview

The impact on economic performance of the reforms initiated in 1985 was masked by a sustained period of dry weather during 1988–89, and by a deterioration in Mongolia's external terms of trade. The CMEA trade arrangement, covering 1986–90, shifted traded goods pricing from a five-year moving average of world market prices to fixing prices at the end-1985 level of world market prices; this contributed to a 12 percent decline in Mongolia's terms of trade in 1986. Moreover, the fixed CMEA contract prices thereafter prevented Mongolia from benefiting from the subsequent increase in world prices for copper (which accounts for 40 percent of total exports) and, until 1989, from the decline in world prices for petroleum (25 percent of total imports). In 1989, however, agreement was reached with the U.S.S.R. to reduce prices on petroleum products to world market levels.

Despite these external shocks, real economic growth averaged above 5 percent annually during 1986–89. Strong growth was recorded by the trade and distribution and construction sectors, while agricultural production responded to the easing of restrictions. A few new private cooperatives, mainly in the services sector, were formed in 1989. The reform measures adopted also helped to stem the deterioration in the external sector. The current account deficit declined from its 1986 peak of 36 percent of GDP to 24 percent of GDP in 1989. This improvement reflected mainly a reordering of investment priorities and the concomitant decline in imports associated with turnkey projects; constrained growth of other imports; and, in 1989, lower petroleum product prices. Trade with the convertible currency area expanded, with exports amounting to $52 million in 1989, compared with one tenth that level only six years earlier. Imports from the convertible currency area continued to be tightly controlled, and Mongolia recorded sizable current account surpluses with this area. At the end of 1989, foreign exchange reserves amounted to $121 million, equivalent to five weeks of total imports and three and a half years of imports from the convertible currency area.

The last half of the 1980s, however, saw the intensification of socioeconomic tensions, a further weakening of the budgetary position, and mounting foreign indebtedness. Civil service employment opportunities declined coincidentally with the rise in new entrants to the labor force, and unemployment became a recognized problem. The failure to adjust farmgate prices in the face of rising input prices and fluctuations in selected retail prices for consumer goods resulted in the virtual bankruptcy of many agricultural cooperatives, which worsened migration from rural areas. The budget revenue base was eroded as import prices rose while domestic prices remained fixed. Spending was not curtailed sufficiently and the overall budget deficit, although fully financed with foreign loans, rose to almost 20 percent of GDP. The decision to reflect accurately the budget position in 1989 (without resort to temporary financing from the enterprises) required the Government to draw on its contingency reserve deposits held with the State Bank. This contributed to a 10½ percent increase in currency in circulation, although cautious credit policies kept the growth of broad money below that of nominal output. Efforts were made in 1988–89 to cut foreign-financed investment projects, and lower petroleum prices in 1989 helped narrow the trade deficit. Nevertheless, the external current account deficits with CMEA trading partners continued to be large, although these were fully financed with concessional loans. By the end of 1989, the stock of debt outstanding amounted to 9.9 billion transferable rubles. Debt service as a percent of exports of goods and services declined sharply, averaging less than 5 percent a year, since a portion of the amortization owed to the U.S.S.R. was deferred.

The situation deteriorated further in 1990 and early 1991, and growth in real economic activity is estimated to have turned negative.[10] Although 1990 trade with the CMEA countries was covered by the 1986–90 arrangements, the rapid political and economic changes taking place in many trading partners interrupted the flow of imports from this area. Notwithstanding long-term pricing agreements, actual contract prices increased. Moreover, following the announcement of changes in CMEA trade to world market prices with

[10] Economic data were available only through 1989 and, hence, developments during 1990 are based on qualitative assessments.

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settlement effected in convertible currencies beginning in 1991, there was a growing reluctance to supply goods for payment in transferable rubles, particularly petroleum. Imports from the U.S.S.R. were also constrained because of the breakdown in the Soviet distribution system. Moreover, under the 1991 protocol with the U.S.S.R., trade financing is to be limited to less than one third that provided earlier.

Reduced supplies of diesel for agricultural machinery compounded the adverse effect of excessive rainfall on the fall crop harvest. Petroleum products and other basic necessities continued to be in short supply in early 1991. Lower domestic grain supplies and inadequate fuel for distribution have led to food shortages in urban areas. Key imported inputs remain scarce and electricity outages—caused by the lack of fuel and spare parts—have become more frequent, reducing industrial production and, hence, employment. Construction employment has also fallen as government investment outlays were cut partly to compensate for declining budgetary revenue and foreign aid. By the end of 1990, unemployment was estimated at 15 percent of the labor force.

To ease supply bottlenecks, imports from the convertible area are being increased, contributing to some loss of foreign exchange reserves. The authorities also decided in early 1991 to draw down the state buffer stock of basic necessities. As a first step toward price liberalization, administered retail prices of a wide range of goods, including fuel, were doubled in January 1991, raising prices of most goods to world market levels. This step was also taken virtually to eliminate budgetary subsidies on imported goods and those to selected state enterprises. Budgetary allocations, however, were raised to ameliorate the impact of price adjustments on the most vulnerable groups and civil service employees. These increases, combined with domestic revenue shortfalls and cuts in foreign aid, have further exacerbated the budgetary situation. The authorities are revising the 1991 budget to address these difficulties.

The reforms, nevertheless, are contributing to structural changes that, over the longer term, should strengthen the economic base. Privately held herds have increased sharply and are now estimated to exceed their pre-1960 nationalization level. The number of private cooperatives, mainly in the service sector, is increasing rapidly. Finally, foreign investment from the convertible currency area—particularly in the processing of animal by-products—has expanded, and negotiations for oil exploration are being finalized.

Output, Income, and Expenditure

Growth of real activity of the material sector, as measured by NMP deflated by an index of comparative prices,[11] averaged 6½ percent during the first half of the 1980s. The rate slowed to 4½ percent in 1986–88, however, as copper production and new electricity-generating capacity developed in the early 1980s came on stream. Agricultural output was adversely affected by poor weather and animal disease. The 10 percent recovery of real NMP in 1989 was led by a 14 percent increase in net product recorded by the agricultural sector, compared with an average of 4 percent a year in 1980–88. Agriculture's recovery was due in part to the easing of restrictions on this sector.

GDP growth, in both real and nominal terms, during 1980–88 paralleled that of NMP, although at a slightly higher level. In 1989, however, the trends in NMP and GDP diverged: the growth of GDP in real terms declined to 4 percent from 5 percent in 1988, while nominal GDP growth moderated to 4 percent from 6 percent. The slower growth of GDP relative to NMP reflected a slower growth in nonmaterial services, owing mainly to the scaling back of civil service employment.

Cash income of the population comprises wages and salaries, income from agricultural cooperatives, income from self-employment, subsidies and allowances, and scholarships. Reflecting the ongoing shift from a rural to an industrial-based economy, the share of wages and salaries increased gradually from 57 percent of total income in 1980 to 61 percent in 1985. This share increased only marginally during the last half of the decade as the growth of industrial production slowed.

The household savings ratio (savings in relation to total income of the population) was small and relatively stable throughout the 1980s, ranging from 0.6 percent to 1 percent. This reflects Mongolia's relatively low per capita income, estimated at $522 in 1989. The growth of private financial savings, which had increased sixfold between 1970 and 1985, moderated to an average annual rate of 5 percent during 1986–89. By the end of 1989, financial savings per capita were about Tug 360, or $65 at the August 1990 tugrik/U.S. dollar exchange rate. This trend parallels the deceleration in industrial employment and reflects the greater availability of imported consumer goods.

Personal and social consumption accounted for about 85 percent of NMP through 1989. Data on personal consumption expenditures show that, since 1980, the relative shares of products and services in total household expenditures have been quite stable, with about 80 percent of expenditures for products and the remainder for services. The Government's main social

[11] National accounts are compiled on the basis of material balances and converted into the United Nations System of National Accounts (SNA) in accordance with the standard methodology. Nevertheless, national income data should be interpreted cautiously. Procedural differences are discussed in the United Nations, "Comparison of the System of National Accounts and the System of Balance of the National Economy," *Studies in Methods*, Series F, No. 20, Parts I and II (New York: 1981).

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and cultural expenditures[12] have increased, on average, by about 6 percent a year since 1980. The share of social consumption increased from 20 percent of NMP in 1980 to 27 percent in 1988, before falling to 25 percent in 1989. This trend was mainly the result of changes in government spending priorities.

Sectoral Developments and Organization

Agriculture

The share of agriculture in net material product declined steadily from over 60 percent in 1940 to about 16 percent in the mid-1980s before recovering to 20 percent by 1989. Employment also declined, although at the end of 1989 agriculture still directly accounted for two fifths of total employment.

After growing by about 11 percent a year during 1980–83, the growth rate of the value of gross agricultural output fluctuated widely thereafter. Animal husbandry accounts for about 70 percent of the value of gross agricultural output; the remaining share is accounted for by crop production. Poor weather reduced cereal production in 1984; strong growth in crops the following year was offset by reduced meat production as the herds were affected by disease. Failure to adjust farmgate prices and a sustained period of dry weather were the principal causes of the poor performance in 1988. In 1989, following the easing of restrictions on marketing agricultural output, the value of gross agricultural output recovered notwithstanding persistent drought.

The strongest growth during 1980–89 was recorded by cereals, potatoes, and other vegetables, reflecting the importance assigned in the Seventh and Eighth Five-Year Plans to diversifying the agricultural base and expanding supplies of winter fodder. Meat output, however, remained virtually stagnant.

In 1990, abundant rainfall combined with the elimination of restrictions on private ownership of livestock contributed to a further expansion of herds. By the end of 1990, livestock numbers reached a record 25 million; about 7 million of these were held privately, slightly more than the number held prior to the 1960 nationalization. However, the early onset of cold weather, continued rainfall through the short harvesting period, and a shortage of diesel fuel for farm equipment reportedly hindered the production of crops, particularly wheat, rice, and animal fodder. To restore agricultural profitability, effective January 1991 farmgate prices were raised by between 30 percent and 70 percent for five types of skins, three types of wool, and butter. State orders were reduced to cover only 50 percent of meat output, 80 percent of wool, and 10 percent of hides. Farmgate prices on goods to meet state orders remain subject to central control, although production exceeding state orders may be sold at freely negotiated prices.

All lands, most livestock, and virtually all farm equipment currently remain under state ownership, although draft legislation includes provision for private ownership. Only pasturage and mineral resources will continue to be held in common. Agriculture continues to be based on three types of organizations: state-owned farms; the production cooperatives, which are supervised by the Council of Cooperatives Union; and private individuals, who are engaged in small-scale land cultivation and animal husbandry. The main animals bred and cared for in the traditional nomadic manner are sheep, goats, cattle (including cows, buffalo, and yaks), horses, and camels. In 1989, there were 24.8 million head of livestock, comprising 14.3 million sheep, 5 million goats, 2.7 million cattle, 2.2 million horses, and 0.6 million camels. Crops cultivated include cereals and pulses, potatoes and other vegetables, and crops for animal fodder. The share of cereals (mostly wheat) and pulse crops accounts for slightly less than 80 percent of the total area under cultivation. In the cooperative unions, livestock is owned jointly by all members, who may also hold personal livestock. Private ownership was strictly limited from the late 1950s until early 1990, when all restrictions on the size and composition of private herds were removed.

The main production units in agriculture continue to be state farms and agricultural cooperatives. At the end of 1989, there were 52 state farms and 255 agricultural cooperatives. The combined total area under cultivation by the state farms and cooperatives is a small proportion of arable land, amounting to 827,000 hectares. The state farms comprise about 75 percent of cultivated land and account for 70 percent of main crop output. In contrast, the agricultural cooperatives, which are based on production associations, control about 25 percent of the cultivated land but account for about 90 percent of meat output and 70 percent of milk produced.

Industry

Mongolia's industry is concentrated in the processing of livestock and other animal products. Industrial development has focused on extending the processing industry to increase the domestic value added of agricultural raw materials for export and to meet domestic consumption needs. To promote industrial production, electrical capacity has been expanded. Through 1990, selected industries (milk, bread, meat, glass products, felt footwear, children's clothing, timber, and coal mining) received budgetary subsidies to

[12] Social consumption reported in NMP includes only consumption in the material sector, and excludes government expenditures in the nonmaterial sector; included are wages and salaries, free food and medicine, pensions, allowances, and material expenditures.

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offset losses incurred for sales at low, fixed retail prices. Most industries, however, have shown a profit—at least on an accounting basis—and pay profit taxes to the central government, or provinces (*aimaks*).

The share of industry in NMP rose steadily between 1940 and 1985, to one third from less than one tenth, but it remained virtually unchanged thereafter. Industry accounted for about one fifth of total employment during the 1980s. Industrial production grew at an average annual rate of about 9 percent during 1980–86, but growth moderated thereafter; it was only 3 percent in 1989. The strong growth in the first half of the decade reflected the use of new production capacity in copper mining, electricity generation, and carpet manufacturing. As production neared capacity, the growth in gross industrial output moderated. Food processing throughout the 1980s increased at a slower rate than that of the population, reflecting the impact of restrictions on the agricultural sector and, from 1984, herd disease and drought. These elements also affected output of agricultural raw materials, and, in turn, light industrial activity, which depends on such materials as inputs. Moreover, changes in investment priorities reduced the number of large new projects, and the demand for construction materials fell.

In 1990, industrial output is estimated to have fallen. Cuts in government investment spending further reduced construction activity and, hence, demand for materials and supplies. Shortages of imported spare parts and raw materials—which owed to the rapid changes in CMEA trading relationships—were aggravated toward the end of the year by reduced shipments of petroleum products from the U.S.S.R. The agricultural sector was given priority access to spare parts and diesel fuel, reducing supplies for other sectors. Electricity outages and internal distribution problems intensified toward the end of the year.

Industries are organized primarily as state-owned enterprises and cooperatives or as joint ventures, mainly with other CMEA countries. Joint ventures, in addition to those with the U.S.S.R. in mining, are found in most economic activities: metallurgy (Bulgaria, the U.S.S.R., and Czechoslovakia); brick manufacture (Bulgaria); garments (Hungary); leather and footwear (Czechoslovakia); and wood and furniture (Romania). During 1989–90, a number of joint ventures were established with companies from the convertible currency area, consistent with the Government's policy to expand trade with this area. These companies are concentrating on processing animal by-products for export. The domestic private sector is modest and consists of a few small artisans' shops and of individual handicrafts. Heavy industry accounted for about half of gross industrial output in 1989 and includes enterprises in five areas: electricity, minerals, forestry products, construction materials, and metallurgy and machinery (mainly the production of spare parts). The mining sector—accounting for about 12 percent of gross industrial output—is dominated by a large joint Soviet-Mongolian enterprise producing copper concentrate and molybdenum,[13] which started production in the late 1970s. The light industries (other than the food industry) contribute about one fourth of gross industrial output and include leather, shoes, shoe soles, soap, matches, textiles (including woolen fabrics), garments, carpets, and printing products. The food industries, the third most important subgroup, account for about one fifth of gross output; they are dominated by firms producing milk, flour, meat, and bakery products. These industries are fully supplied with domestically produced agricultural raw material inputs, but need to import such inputs as chemicals.

Construction

Construction is undertaken mainly by state enterprises. Prior to 1986, most projects were financed through the state budget, which covered all forms of building expenses, including wages, construction materials, administrative costs, and the purchase of construction technology. Since then, long-term loans have been available from the State Bank to finance investment. Enterprises were also allowed to retain a larger proportion of their earnings to fund their own investments. Since 1989, a few private cooperatives have begun to engage in construction projects on a self-financing basis.

The slowdown in construction activity since 1986 is largely attributable to the change in government investment priorities. Shortages of building materials have also contributed. Budgetary constraints during 1990 led to a halt to some projects, including the construction of 800 new homes. In addition, ten large industrial projects were stopped in line with the authorities' intention to reorient investment to smaller, more efficient, and technologically modern production units.

Communications, Transportation, and Distribution

Communications and transportation remain principal bottlenecks in the development of internal markets. Much of Mongolian territory lacks railroads and roads. Distribution is concentrated in large state enterprises located in the major cities and aimak centers.

Both internal and external communications networks are undeveloped. By 1989, there were 429 such networks, although postal service, particularly in rural areas, remains irregular. Domestic telephone service expanded sharply in the 1980s, with the number of

[13] For national accounts purposes, these products have been treated as industrial goods; for trade purposes, they are treated as raw materials.

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telephones doubling between 1980 and 1989; however, the number remains low (62,600) and few households have private telephones. Telephone and telegraph lines cover only a small fraction of Mongolia's territory. Until 1990, the country had only one external telecommunications link through Moscow. In late 1990, however, a number of connections were established through Hong Kong, and contracts are being negotiated with other Asian countries for the development of a modern telecommunications network.

Mongolia's transportation system consists of roads, rail, air, and waterways. A large proportion of freight consists of livestock and animal by-products, building materials, wood, machinery, petroleum products, grain, coal, and ores. In 1989, 72 percent of total freight was carried by road transport. While the length of roads is impressive (49,000 km) relative to the population, only about 3 percent of the distance covered is paved. The remainder is largely rudimentary and, at times, impassable. Moreover, the lack of established road networks has contributed to soil erosion in the steppes as nomadic herdsmen, using motorized vehicles, create informal routes; some sixty thousand hectares of pasture land are estimated to have been destroyed in this manner. The combined air and water transportation system is a minor part of the country's transportation network, carrying only 0.1 percent of total freight during 1980–89. The railway, a joint Soviet-Mongolian venture, is the second most important transport system; it carried about 27 percent of total freight in 1989. The Trans-Mongolian Railway connects Irkutsk and Beijing through Ulaanbaatar, and Mongolia has benefited from fees charged to transship goods.

The formal distribution system remains subject to central control. Products such as furs, wool, and hides are collected by trade agents at local offices throughout the country and transported to depots in the *aimak* centers. Products chosen for export are then sent to transshipping bases for further shipment by either rail or road. The distribution of other products (for example, canned foodstuffs) is similar—from the *aimaks* to the transshipping bases for distribution throughout the country or for export. At the end of 1990, there were ten specialized public sector trading companies, including five large foreign trading enterprises. Five regional distributors—the largest in Ulaanbaatar—distribute domestically all imported and domestically produced goods. Since 1989, import and export licenses have been granted to enterprises and cooperatives, thereby eliminating the monopoly enjoyed by the state foreign trade corporations. The functions of foreign trade companies have also been broadened to include more distribution and warehousing responsibilities. Distributors sell on a retail, as well as on a wholesale, basis. Sales take place on a "resale price" basis; this is based on the wholesale producer price and on the wholesale price of imported goods charged by the foreign trade enterprises, plus a profit margin and allowance for domestic transportation costs. Given the large distances, distributors have found it more efficient to discount their prices to those consumers who accept delivery at the distribution center. Regional suppliers generally maintain large inventories.

Investment

Virtually all investment is undertaken by the Government and state enterprises and cooperatives. Investment by the private sector has remained small and is concentrated in dwellings and livestock. Capital accumulation (including fixed investment net of depreciation, changes in stocks, unfinished construction, and capital losses) averaged about 55 percent of NMP through 1986; it declined as a proportion of NMP thereafter, however, amounting to 43 percent in 1989. Investment has been financed mainly by foreign loans channeled through the budget, with a smaller amount financed by long-term bank loans or retained earnings of state enterprises.[14]

Under the five-year development plans that covered the 1980s, investment focused on expanding electricity production, construction, and food processing capabilities, and on creating a metalworking sector. Gross fixed capital formation grew at an average annual rate of 8 percent from 1980 to 1985, but its growth slowed to only about 1 percent annually in the following four years, with modest declines in 1987 and 1988. The sharply decelerating trend mainly reflected the impact of the 1986 partial price reform on enterprise profitability, as well as a change in government investment priorities to reduce the importance of large-scale projects. By 1989, gross capital formation by the material sector had fallen to 64 percent of the total—compared with about 70 percent in the first half of the decade—and the share of industry in the total declined by 11 percentage points. Electricity production accounted for about 30 percent of industrial fixed assets, while construction and food processing each accounted for about 10 percent. During the last half of the 1980s, the development of socioeconomic infrastructure expanded, and fixed capital formation in housing, schools, and hospitals (nonmaterial sector) grew.

Gross fixed capital formation undertaken by the industrial sector declined sharply in 1987–88. The decline followed the 1986 price reform under which input prices for both domestic and imported goods rose sharply. In 1989, however, industrial fixed capital formation expanded by 13 percent. The recovery reflected the impact of modest increases in some retail prices on sector profitability, as well as increased

[14] National income accounts and budgetary data are not reconcilable. Budget figures for capital investment exclude, among other things, spending on some types of equipment treated as current spending.

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autonomy in intra-industry pricing and production decisions accorded to the enterprises.

Agricultural gross fixed capital formation fell steadily from its 1984 peak until 1988. Farmgate prices remained unchanged while input prices rose, reducing the ability of cooperatives to finance their own investment as well as to service their existing bank debt. From 1988 on, however, the financial position of selected cooperatives improved in response to reform measures, and self-financed investment recovered. Budgetary support for irrigation and imported agricultural machinery also increased. Fixed gross capital formation grew by 14.4 percent in 1988 and by 6.4 percent in 1989.

Gross fixed capital formation in the construction sector fluctuated widely over the decade, partly because of the phasing of large public works. In 1987–88, construction of housing increased in line with a reordering of budget priorities. A weakening of the Government's budget position in 1989–90 showed up in a scaling-down of public works and housing; fixed capital formation by the construction sector fell by one third.

Employment, Wages, and Pensions

Total employment in both the material and nonmaterial sectors increased by about 1–2 percent annually from 1980 to 1985. Since then, the number of persons employed has increased by about 3 percent a year, led by a 5 percent average annual increase in employment in the nonmaterial sector, mainly education and health services. The share of employment in the material sector declined gradually from 76 percent of the total number of workers in 1980 to 71 percent in 1989. Over the past decade, the movement of population from the rural to urban areas has shown up in a decline in the number of agricultural workers. The share of agriculture in total employment fell from 40 percent in 1980 to 29 percent in 1989. In contrast, the shares of the material sector (industry, construction, communication, and trade) in total employment rose steadily. Sustained increases in employment from 1980 to 1987 were recorded by the textile, clothing, leather and fur product, shoe, and food industries.

Employment growth is estimated to have decelerated sharply beginning in 1989. The decline reflected the slowdown in industrial and construction activity and the government reorganization, which led to the elimination of some three thousand administrative posts. A job creation rate of 5–6 percent a year, moreover, is required just to accommodate new entrants into the labor force as the population matures. By mid-1990, sixty thousand to seventy thousand people—about 7–8 percent of the labor force—were reported to be unemployed. The continued production difficulties during the last half of the year led to further job losses and, by the end of 1990, the unemployment rate reached an estimated 15 percent.

Wages have been centrally controlled since 1960, and rates remained virtually unchanged until early 1991. Recorded increases in average wages reflect promotions, productivity increases, and job reclassification. During 1980–88, wage increases averaged about 1 percent annually for workers in the material sectors, and slightly less for the nonmaterial sector; in 1989, average wage increases were 1.5 percent and 1.7 percent, respectively. Within the material sector, workers in industry, construction, and transportation receive higher wages than those in agriculture, communication, and trade and procurement. For the nonmaterial sectors, workers in such sectors as science, research and development, and administration receive higher wages than others. Minimum wages are set on the basis of, among other criteria, the age of employees and the location of employment. The 1988–89 reforms have allowed profit-making enterprises to make their own wage decisions. This new policy is designed to provide incentives for workers. In early 1990, paid leave for maternity and child care was introduced. At the end of 1990, the minimum wage for agricultural cooperative workers was Tug 134 a month, while that for rural employees in the state sector was Tug 231 a month; urban minimum wages ranged between Tug 200 and Tug 250 a month. The lower agricultural wages reflect the fact that rural workers have access to agricultural products at low or no cost. Average wages of civil service employees were raised in January 1991, in line with increases in retail prices.

Pensions are paid to retirees of the Government, and state enterprises and cooperatives; however, pensions of rural workers are traditionally lower than those of urban workers. Employees of private cooperatives are not covered by the current government pension system. In 1990, rural pensions were raised and provisions for early retirement enhanced. In January 1991, pensions of former government employees were increased by 100 percent to compensate for selected price increases.

Prices

Historically, the Mongolian price system sought to maintain stable domestic prices for consumer goods and production inputs. Farmgate, retail, and wholesale prices were adjusted infrequently; they were isolated from each other, and, except for a small adjustment in 1986, were fully insulated from changes in trade prices. Until recently, the pricing system had little effect on resource allocation; production and distribution decisions were centrally directed, with government taxation and subsidies compensating for price distortions.

Farmgate prices have traditionally been set low to support low prices of basic foodstuffs at the retail level and of agricultural raw material inputs at the wholesale level; until early 1991, such prices remained virtually unchanged from the 1960s. State orders for delivery

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to procurement centers and state enterprises ensured adequate supplies. Direct budget subsidies, such as for the cultivation of winter fodder, helped compensate for selected production costs. In September 1990, the Government began organizing permanent markets—where prices are freely determined—in aimak centers for agricultural products (including meat) that exceed state orders. Farmgate price increases of 30–70 percent were also announced and took effect from the beginning of 1991; moreover, the proportion of goods subject to state orders was reduced.

Retail prices were set for most consumer goods in 1959, although central monitoring did not begin until 1971. Limited changes were made in 1967 and 1974. Retail prices for basic necessities (food, clothing, and shelter) were set uniformly throughout the country and according to population welfare criteria; hence, prices usually fell below costs of production and distribution. Prices for other items, such as luxury imported goods, were set high in order to generate budgetary revenues. Prices for a limited number of domestically produced goods (for example, vodka) included the pass-through of a turnover tax. Privately produced agricultural products were sold at market-determined prices, although the volume of such transactions was small (accounting for less than 5 percent of retail turnover). Private sector cooperatives, which have operated mainly in the services sector since March 1990, have not been subjected to price control. In 1990, some retail price flexibility was introduced for a few commodities (such as milk), whose prices were permitted to fluctuate within a band to better reflect market conditions. In January 1991, prices of a wide range of commodities—including gasoline and other fuels—were doubled, while those of coal and electricity were increased by 75 percent and 94 percent, respectively.

Wholesale prices apply mainly to transactions between state enterprises; these were uniformly established for comparable products only in 1975.[15] Domestic and imported goods were sold, on a wholesale and a retail basis, mainly through state regional distribution centers. The distributors' wholesale prices included provision for the cost of internal transportation, although, in practice, price discounts are given to consumers taking delivery of their merchandise at the centers. Wholesale prices of domestically produced goods were calculated as the sum of the average cost of production plus a margin for profit and included provision for a targeted budgetary contribution through the turnover tax. Prices of some processed agricultural raw materials, however, were set below the cost of production, to take into account welfare considerations and to support those industries engaged in further processing. Certain enterprises (for example, those producing milk, bread, meat, glass, timber, unwashed wool, and coal) were compensated through budgetary subsidies linked to production. Prices of imported goods were also subject to administered control, although trade arrangements with other CMEA countries that fixed prices at their end-1985 level limited the impact of fluctuations in foreign prices.

Beginning in 1988, the authorities introduced tentative first steps toward market pricing at the wholesale level. Prices of domestically produced goods sold as inputs to other public enterprises could be determined by negotiation, although these prices remained subject to broad guidelines. To promote exports, domestic wholesale prices of a limited number of semiprocessed and processed agricultural products were adjusted according to a set of coefficients. These coefficients, applied when the product was procured by the foreign trade enterprise, raised the producer price by 23–230 percent, depending on the degree of processing and direction of trade. Higher coefficients were generally associated with exports to the convertible currency area and were established to compensate exporters for the more appreciated dollar vis-à-vis the tugrik, compared with the tugrik rate of exchange for the transferable ruble. The monopoly of the foreign trade companies was eliminated, and state enterprises and cooperatives were permitted to import directly.

Measured inflation remained low throughout the 1980–89 period primarily because of administrative controls and underrecording by the official indices of changes in transaction prices. Retail prices, according to official statistics, have remained unchanged since 1981 except for an increase of ½ of 1 percent in 1985 and a 1 percent decline in 1986. In contrast, the wholesale price index, including both domestic and imported goods, increased by about 5 percent a year between 1975 and 1986; the rate of increase slowed to 3.6 percent in 1987 but averaged 5 percent annually thereafter. Foreign contract prices for exports rose at an average annual rate of about 3 percent over the course of the decade; those for imports also increased rapidly, averaging more than 6 percent a year and rising by 16 percent and 12½ percent in 1982 and 1984, respectively. Thus, the movements of trade and domestic wholesale price indices during this period do not appear to have reflected the underlying CMEA trade price agreements and fixed domestic pricing policies. Retail unit prices, notwithstanding the official price data, have changed considerably for a wide range of consumer goods. Prices of most goods[16] rose by between 4 percent and 125 percent between 1980 and

[15] Previously, central authorities set prices for individual items produced by different factories, resulting in comparable goods commanding different prices.

[16] While movements in individual product prices must be interpreted cautiously because of changes in quality and a lack of information about their importance in the consumption basket, these data suggest that the official retail price index has understated inflation.

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1988, while prices of some goods declined by 25 percent on average. The doubling of petroleum product prices in 1986 owed to the elimination of preferential pricing for the public sector and was not treated as a price increase in the official price index.

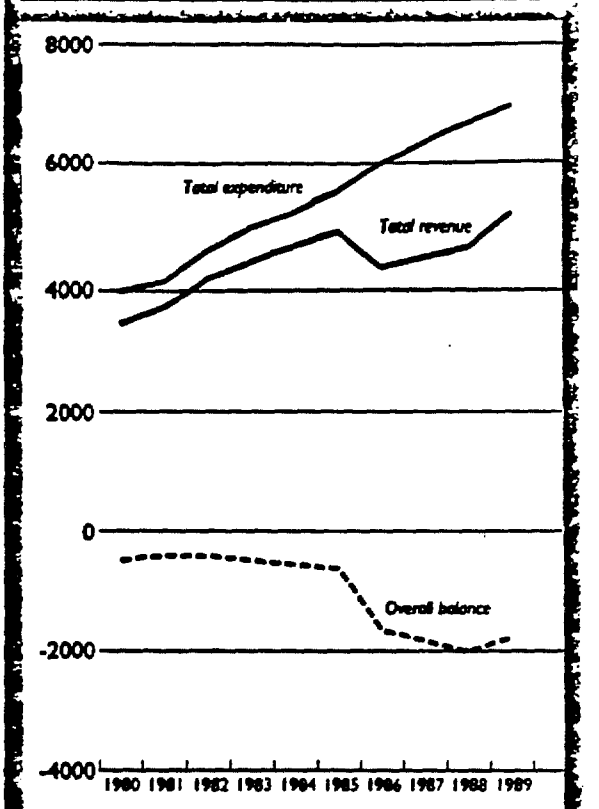
Budgetary Trends[17]

The state has played an overwhelmingly dominant role in economic activity. During the 1980s, budget revenue averaged about one half of GDP, while spending exceeded 60 percent of GDP (Table 4). The resulting deficits were financed entirely with foreign grants and loans until 1989. However, the Government had access to bank credit indirectly through the state enterprises since domestic financing needs could be met by the temporary suspension of subsidy payments or by advancing tax payments. Enterprises would then meet operating expenses by drawing on balances held with the State Bank or with short-term bank loans. In 1989, the authorities decided to reflect accurately the budget position at the end of the year, and direct recourse was made to domestic financing on the order of 1.5 percent of GDP.

In 1986, the recorded budget position deteriorated sharply; the overall deficit rose by about 11 percentage points, but this was attributable mainly to a change in budget presentation (Chart 1). Between 1976 and 1985, revenue from export taxes on goods shipped to the U.S.S.R. and some Soviet trade financing was channeled through an off-budget "compensation" account. In 1986, however, this aid and related expenditures—as well as domestic revenues—were reflected in the budget. If adjustments had been made to the budget accounts for 1976–85 to include off-budget financing,[18] the overall deficit would have been higher by 6–8 percentage points of GDP; the deterioration in the underlying budget deficit in 1986 was only 3 percentage points. On the revenue side, receipts from the price differential tax on imports fell by 11 percent because increases in domestic wholesale prices were not sufficient to compensate for increases in foreign contract prices. In addition, a number of firms were squeezed by the increase in wholesale prices for inputs at the same time that retail prices remained largely unchanged, thereby undermining profits and profit tax yields. To provide some relief to the affected firms, domestic turnover taxes were substantially reduced and a number of these taxes were eliminated; domestic turnover tax receipts declined by 28 percent. On the expenditure side, the price adjustments permitted a reduction in total trade subsidies; in addition, the export subsidies paid to producers through the system of coefficients were eliminated and budgetary subsidies were reduced. However, some production subsidies for loss-making enterprises were raised to offset partly the impact of higher input costs. Investment outlays also rose, mainly because of higher import prices as well as adjustments to prices of domestically produced inputs.

In 1987–88, the budget position deteriorated further. Revenue from turnover taxes remained stagnant and declined relative to GDP. Fixed wholesale prices and rising import prices resulted in reduced margins between revenues and costs, and largely offset the impact on tax receipts of higher import volumes. By 1988, the overall deficit had risen to 19½ percent of GDP. In 1989, measures were instituted to reverse this trend and the overall budget deficit declined to 16½ percent of GDP. Agreement was reached with the U.S.S.R. to

Chart 1. Trends in Budget Aggregates
(In millions of tugriks)



Source: Mongolian authorities.

[17] Appendix I describes the budgetary process, as well as the structure of revenues and expenditures.

[18] Data on capital inflows (commodity assistance and investment, exclusive of turnkey projects) presented in the balance of payments for CMEA transactions closely match data on external financing presented in the budget for 1981–89 once adjustment is made for Soviet aid channeled through the compensation account. Budgetary data do not provide foreign interest and amortization payments separately; the disaggregation was estimated on the basis of data provided on external debt service.

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le 4. Summary Operations of State Budget

	1975	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990 Budget
						(In millions of tugriks)						
ɔtal revenue	2,457.5	3,452.6	3,720.2	4,182.3	4,477.7	4,680.4	4,918.0	4,360.4	4,540.4	4,680.7	5,243.3	5,807.3
Tax	2,262.7	3,125.3	3,397.7	3,818.3	4,120.0	4,296.8	4,486.3	3,939.5	4,073.6	4,242.0	4,765.6	5,399.4
Nontax	194.8	327.3	322.5	364.0	357.7	383.6	431.7	420.9	466.8	438.7	477.7	407.9
ɔtal expenditure	2,566.4	3,988.6	4,145.6	4,622.2	4,991.5	5,244.6	5,560.6	6,005.4	6,359.6	6,690.6	7,008.0	7,320.6
Current[1]	2,103.4	3,337.0	3,572.1	3,960.2	4,195.6	4,467.8	4,625.1	4,874.0	5,067.0	5,175.8	5,378.5	5,790.6
ɪvestment[2]	463.0	651.6	573.5	662.0	795.9	776.8	935.5	1,131.4	1,292.6	1,514.8	1,629.5	1,530.0
Material sector	144.7	225.1	168.6	197.3	252.1	252.9	318.4	473.9	530.1	696.6	785.5	678.6
Nonmaterial sector	318.3	426.5	404.9	464.7	543.8	523.9	617.1	657.5	762.5	818.2	844.0	851.4
ɜrall balance	−108.9	−536.0	−425.4	−439.9	−513.8	−564.2	−642.6	−1,645.0	−1,819.2	−2,009.9	−1,764.7	−1,513.3
ɜncing	108.9	536.0	425.4	439.9	513.8	564.2	642.6	1,645.0	1,819.2	2,009.9	1,764.7	1,513.3
ɔreign	278.2	565.6	524.8	512.5	543.8	612.0	682.7	1,699.7	1,852.3	2,015.7	1,603.9	1,513.3
Disbursements	295.4	620.7	649.1	647.0	678.3	750.5	823.0	1,750.5	1,901.3	2,066.8	1,658.3	1,567.7
Commodity lending	123.3	240.0	306.7	222.2	244.4	311.1	360.0	1,200.0	1,266.7	1,200.0	912.9	768.9
Investment lending	172.1	380.7	342.4	424.8	433.9	439.4	463.0	550.5	634.6	866.8	745.4	798.8
Amortization[1]	17.2	55.1	124.3	134.5	134.5	138.5	140.3	50.8	49.0	51.1	54.4	54.4
ɔomestic	−169.3	−29.6	−99.4	−72.6	−30.0	−47.8	−40.1	−54.7	−33.1	−5.8	160.8	—
						(Percent of GDP)						
ɔal revenue	...	51.1	50.1	51.0	51.1	52.0	52.5	46.8	46.8	45.4	48.9	...
Tax	...	46.3	45.8	46.5	47.0	47.8	47.9	42.3	42.0	41.2	44.4	...
Nontax	...	4.8	4.3	4.4	4.1	4.3	4.6	4.5	4.8	4.3	4.5	...
ɔal expenditure		59.0	55.8	56.3	57.0	58.3	59.3	64.5	65.5	65.0	65.3	...
Current[1]	...	49.4	48.1	48.3	47.9	49.7	49.4	52.4	42.2	50.2	50.1	...
ɪvestment[2]	...	9.6	7.7	8.1	9.1	8.6	10.0	12.2	13.3	14.7	15.2	...
Material sector		3.3	2.3	2.4	2.9	2.8	3.4	5.1	5.5	6.8	7.3	...
Nonmaterial sector		6.3	5.5	5.7	6.2	5.8	6.6	7.1	7.9	7.9	7.9	...
ɜrall deficit	...	−7.9	−5.7	−5.4	−5.9	−6.3	−6.9	−17.7	−18.7	−19.5	−16.4	...
ɜncing	...	7.9	5.7	5.4	5.9	6.3	6.9	17.7	18.7	19.5	16.4	...
ɔreign	...	8.4	7.1	6.2	6.2	6.8	7.3	18.3	19.1	19.6	14.9	...
Disbursements		9.2	8.7	7.9	7.7	8.3	8.8	18.8	19.6	20.1	15.5	...
Commodity lending	...	3.6	4.1	2.7	2.8	3.5	3.8	12.9	13.0	11.6	8.5	...
Investment lending	...	5.6	4.6	5.2	5.0	4.9	4.9	5.9	6.5	8.4	6.9	...
Amortization[1]	...	0.8	1.7	1.6	1.5	1.5	1.5	0.5	0.5	0.5	0.5	...
ɔomestic	...	−0.4	−1.3	−0.9	−0.3	−0.5	−0.4	−0.6	−0.3	−0.1	1.5	...
ɜmorandum item:												
Adjusted overall deficit	...	−14.2	−12.9	−12.9	−13.5	−14.2	−14.9	−17.7	−18.7	−19.5	−16.4	...
						(In millions of tugriks)						
ɜpensation account[3]	—	488.3	654.2	815.9	929.8	1,022.6	1,063.8	—	—	—	—	—
oviet aid	—	424.4	533.3	622.2	666.7	711.1	755.6	—	—	—	—	—
xport price differential	—	63.9	120.9	193.7	263.1	311.5	308.2	—	—	—	—	—

ɔurces: Mongolian authorities; and IMF staff estimates.
The disaggregation of debt service between interest and amortization is partially estimated.
Excludes geological feasibility studies and some purchases of equipment, treated as current spending in the Mongolian accounts.
Includes the Soviet loans and grants channeled through the compensation account and remittances from the export price differential on goods shipped to the U.S.S.R. ɔugh 1986.

reduce petroleum product prices to mirror the drop in world oil prices from 1985, but this reduction was not passed through to retail prices. As a result, revenue from the import price differentials rose by 1 percentage point of GDP. In addition, reforms granting increased operating autonomy to enterprises showed up in improved profits and larger budgetary contributions. Finally, foreign-financed investment was curtailed.

The budget position is estimated to have weakened considerably in 1990, although the overall budget deficit is estimated to have been reduced further. Initially investment outlays were cut to offset foreign aid

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shortfalls. By the end of 1990, however, industrial production difficulties and rising import prices had reduced industry profits and budget revenue, as well as the tax yield from import price differentials.

Revenues

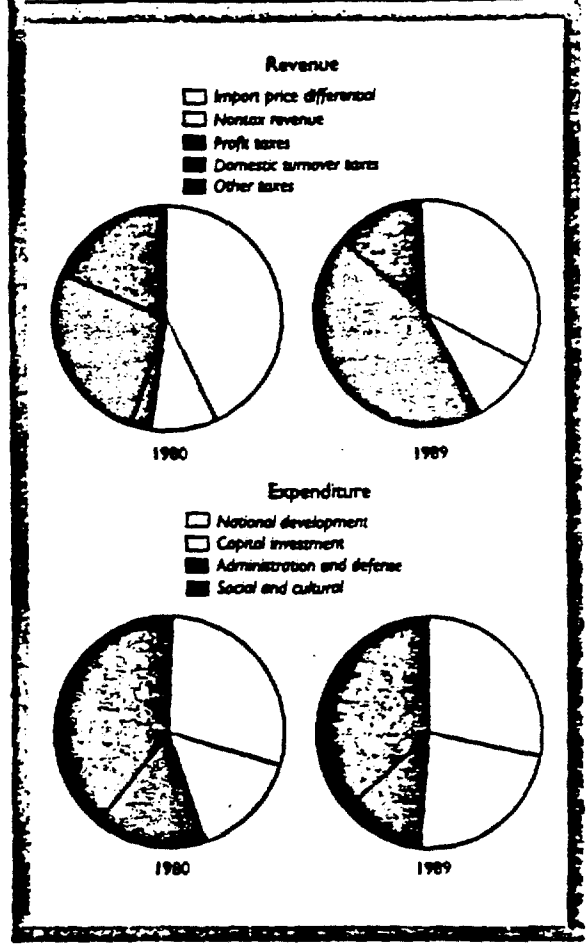
The relative shares of tax and nontax revenues in the state budget have remained stable since 1980 (Chart 2). Tax revenues, which account for over 90 percent of total budget revenues, were derived through 1990 principally from profit taxes on state enterprises and cooperatives, net of price differentials on imports and domestic turnover taxes. Profit taxes, which accounted for less than 30 percent of budget revenue in 1980, became increasingly important during the decade, accounting for 43 percent of the total in 1989. The relative share of revenue from net import price differentials fell gradually from 44 percent of the total in 1980 to 33 percent in 1989. Similarly, the share of revenue derived from domestic turnover taxes declined to one sixth of total revenue from about one fifth over the same period. Social security premia have consistently accounted for more than one half of nontax revenue.

While the ratio of revenues to GDP has remained relatively stable over time, the share of revenues received by local governments has increased substantially. The share of the latter was constant (at almost 30 percent of total revenue) in the first half of the 1980s but it began to increase in 1986, reaching nearly 50 percent in 1989; the 1990 budget anticipated a further large increase to 58 percent. The rising share of local government revenues since 1986 results from efforts to decentralize economic activity and permit more decision making at the local level. Consistent with these efforts, local governments were given greater access to taxes generated in their jurisdictions; some state enterprises and cooperatives now pay taxes only to local governments. Local governments also receive a share of taxes paid by other enterprises within their jurisdiction to the central government.

Expenditures

Total budgetary expenditures have remained large relative to GDP, and their level and composition have undergone significant change, especially during the transition between the end of one five-year plan and the beginning of another. For example, total expenditures dropped by 3 percentage points of GDP to 56 percent at the initiation of the 1981–85 plan, recovering to 59 percent of GDP by 1985. The trend of expenditures relative to GDP from 1980 through 1985 mainly paralleled that of capital outlays as current expenditures moved within a narrow margin of about 1.5 percentage points of GDP. Partly owing to the impact of the 1986 price reforms and the change in budget coverage,

Chart 2. Budget Revenue and Expenditure, 1980 and 1989
(In percent of total)



expenditures rose to 65 percent of GDP, remaining at a fairly constant percent of GDP thereafter.

Current spending accounted for over four fifths of total expenditures through 1986 but gradually declined to about three fourths by 1989, reflecting civil service retrenchment and strict controls over other administration and defense spending. Budgetary investment outlays, however, rose sharply relative to GDP from 1986 onward, in part because of the emphasis placed on augmenting expenditures for housing and for education and medical facilities at the local level. As a result, investment in the nonmaterial sector rose by about 1.5 percentage points between 1985 and 1989, to some 8 percent of GDP. Investment in the material sector increased more rapidly although the jump in 1986 partly reflected higher prices of domestic construction and imported capital goods. The subsequent increases in material investment in 1988 and 1989 resulted mainly

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from higher import prices of goods from the convertible currency area. In the 1990 budget, material investment outlays were cut back while investment in the nonmaterial sector was held virtually unchanged; however, both categories are estimated to have recorded reductions. These cutbacks reflected a policy decision to reduce spending in view of anticipated weakened domestic revenue performance; constraints on foreign credits to finance investment and external current account deficits; an expectation that enterprises would finance more investment out of their own resources; and supply shortages facing the construction industry from both domestic (for example, bricks) and foreign (for example, metallic rods) sources.

The share of local government expenditures in budgetary outlays has shifted sharply. This share declined steadily from about 46 percent in 1975 to about 35 percent by 1985. However, in 1986 local government expenditures jumped substantially and rose rapidly through 1989, when their share of budgetary outlays reached 49 percent of the total. This marked increase in local government spending was associated with reforms granting greater scope for economic decision making to local entities. These reforms led to large increases in outlays to meet local social needs, in particular for schools and hospitals. At the end of 1989, social and cultural programs accounted for about 55 percent of local government expenditures.

Financing

Historically, the budget was elaborated by limiting spending to available financing—including domestic revenues and foreign aid—with the central government not making systematic use of domestic bank credit. Revenue shortfalls led to cuts in expenditures, while end-of-year financing needs were met by advancing tax payments from state enterprises or by delaying subsidy transfers.

In 1989, foreign loan disbursements—paralleling the reduction in foreign-financed investment—fell by about 4½ percentage points of GDP, to 15½ percent. However, the authorities decided to discontinue disguised financing of the budget through the enterprises, and the shortfall in revenue was financed by drawing down the Government's contingency reserve held on deposit with the State Bank.

Monetary Developments

Monetary policy in Mongolia has traditionally been passive. The monopoly State Bank, which performs central banking and commercial banking functions, has accommodated credit demands to ensure that the output and investment objectives specified in the annual plan are met. Nevertheless, between 1985 and 1989 domestic credit expansion was modest—less than 2 percent a year on average—while broad money (M2) growth averaged about 1 percent a year during this period[19] (Table 5). Currency in circulation, however, rose at an average annual rate of 9 percent. This shift to liquid assets coincided with a reduction in 1986 of deposit interest rates, from 6–8 percent a year to 3–4 percent. Nevertheless, at the end of 1989, currency continued to account for only about 10 percent of total monetary liabilities. In January 1991, the structure of term deposits was revised, and deposits with maturities of three and five years were introduced. Interest rates on term deposits were set at 4, 5, or 8 percent, depending on maturity.

Credit

The structure and destination of credit changed significantly during the 1970s and 1980s (Chart 3). In 1970, short-term credit accounted for 93 percent of credit outstanding. However, new longer-term loans were introduced in 1986 for capital investment, and the share of short-term credit in the total declined thereafter, to three fourths by 1989. Outstanding short- and long-term credit to trade and warehousing enterprises accounted for over 60 percent of total credit in 1970; that to industry, for 18 percent; and to agriculture, for 8 percent. By 1989, credit expanded to the construction, transportation, and communications sectors, owing to their increasing importance in the five-year plan. Credit outstanding to trade and warehousing enterprises declined by 20 percentage points, while that to agriculture—mainly for state farms—increased by 10 percentage points; the share directed to industry remained stable.

Year-end credit outstanding remained virtually unchanged at about Tug 7.9 billion between 1986 and 1989. However, the composition changed slightly, with credit extended to state enterprises falling and recourse to bank credit by state cooperatives and the private sector expanding. At the end of 1989, nevertheless, credit to the state enterprises continued to account for about 95 percent of total credit outstanding; credit to state cooperatives accounted for 4 percent and credit to the private sector, 1 percent. State enterprises had greater self-financing capacity, in part because of the 1986 wholesale price reform and the modification in tax policy to allow enterprises to retain a larger share of their pretax profits. One element responsible for the increase in recourse to bank credit by the state cooperatives—which are concentrated in the agricultural sector—was the wholesale price reform of 1986 and

[19] Monetary accounts data were first consolidated according to residency criteria and by type of economic unit in August 1990. These accounts, however, include some balancing items in "other items, net" that do not correspond to cash transactions. Further improvements in account classification are needed if monetary data are to be used to guide economic policy.

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Table 5. Monetary Survey
(In millions of tugriks)

	1970	1975	1980	1985	1986	1987	1988	1989
Net international reserves[1]	21.0	923.0	68.0	233.6	283.1	476.0	491.8	418.4
Assets	21.0	23.0	68.0	233.6	283.1	476.0	491.8	418.4
Liabilities	—	—	—	—	—	—	—	—
Other foreign assets, net[2]	−216.5	−102.6	41.8	−44.4	−49.4	−24.0	−53.8	−67.7
Net domestic assets	1,901.3	2,954.4	4,270.0	6,368.9	6,612.0	6,628.5	6,682.2	6,627.6
Domestic credit	2,155.7	3,397.3	5,358.6	7,392.0	7,905.6	7,864.6	7,995.1	7,953.1
Government	—	—	—	—	—	—	—	—
Public enterprises	1,810.5	3,130.8	4,975.5	7,109.4	7,608.5	7,558.7	7,606.2	7,562.4
Cooperatives	345.2	265.5	380.3	279.5	292.5	294.5	353.1	324.7
Private	—	1.0	2.8	3.1	4.6	11.4	35.8	66.0
Other items, net	−254.4	−442.9	−1,088.6	−1,023.1	−1,293.6	−1,236.1	−1,312.9	−1,325.5
Liabilities	1,705.8	2,874.8	4,379.8	6,557.6	6,845.6	7,080.1	7,120.2	6,978.3
Of which: broad money (M2)	(1,107.6)	(1,789.5)	(2,592.9)	(4,852.6)	(4,844.4)	(4,902.1)	(5,070.7)	(5,124.2)
Money (M1)	967.5	1,447.3	2,113.6	3,951.5	3,754.5	3,758.8	4,027.9	4,222.4
Currency in circulation	214.9	279.5	377.0	408.0	439.9	490.0	526.1	581.1
Current accounts	752.6	1,167.8	1,736.6	3,543.5	3,314.6	3,268.8	3,501.8	3,641.3
Quasi-money	140.1	342.2	479.3	901.1	1,089.9	1,143.3	1,042.8	901.8
Other liabilities	598.2	1,085.3	1,786.9	1,705.0	2,001.2	2,178.0	2,049.5	1,854.1
				(Annual percent change)				
Domestic credit	...	...	...	...	6.9	−0.5	1.7	−0.5
Public enterprises	...	...	...	...	7.0	−0.7	0.6	−0.6
Cooperatives	...	...	...	...	4.7	0.7	19.9	−8.0
Private	...	...	...	...	48.4	147.8	214.0	84.4
Broad money (M2)	...	...	...	...	−0.2	1.2	3.4	1.1
Of which: Currency in circulation	(...)	(...)	(...)	(...)	(7.8)	11.4)	(7.4)	(10.5)

Sources: State Bank of the Mongolian People's Republic; and IMF staff calculations.
[1] Including convertible currency and gold.
[2] Includes net balances held at the International Bank for Economic Cooperation (IBEC) and tugrik deposits of foreign embassies, primarily from the CMEA area.

the introduction of limited price flexibility for retail goods in 1988–89, with no changes made to farmgate prices. By the end of 1989, some cooperatives were clearly bankrupt. In April 1990, the Council of Ministers acted to cancel Tug 45 million of outstanding credit (about 13 percent of the total) and rescheduled at zero interest an additional Tug 90 million for payment in the year 2000. Credit to the private sector, although remaining a small proportion of the total, has grown strongly since 1988, reflecting the shift in government policy to encourage private cooperatives.

Deposits

Current account balances account for about 70 percent of the State Bank's monetary (defined as money plus quasi-money) liabilities. Almost 90 percent of outstanding balances are held by state enterprises, with the remainder held by state agricultural cooperatives. Outstanding current account balances increased marginally between 1985 and 1989, although the improved financial position of some agricultural cooperatives in 1989 spurred an increase of 7 percent in balances held by state cooperatives in that year.

Savings and term deposits of the private sector account for about 15 percent of broad money. The growth of private financial savings has slowed since 1985 to less than 5 percent a year, on average, from more than 8½ percent annually in the first half of the decade. This trend reflects three principal influences: greater availability of imported consumer goods since 1985 because of a change in government policy; the halving of interest rates paid on savings in 1986; and increases in selected retail prices since 1988 without a concomitant adjustment to average wages.

Foreign currency deposits peaked at Tug 427 million in 1987 but fell sharply thereafter; at the end of 1989 they amounted to only Tug 137 million. The decline stemmed from the elimination of the trading monopoly of the foreign trade companies; permission given to state enterprises to import on a self-financed basis; and a modest easing of restrictions on imports of consumer goods.

Interest Rates

Interest rates on both loans and deposits in Mongolia are low, and rates have not been used for allocating

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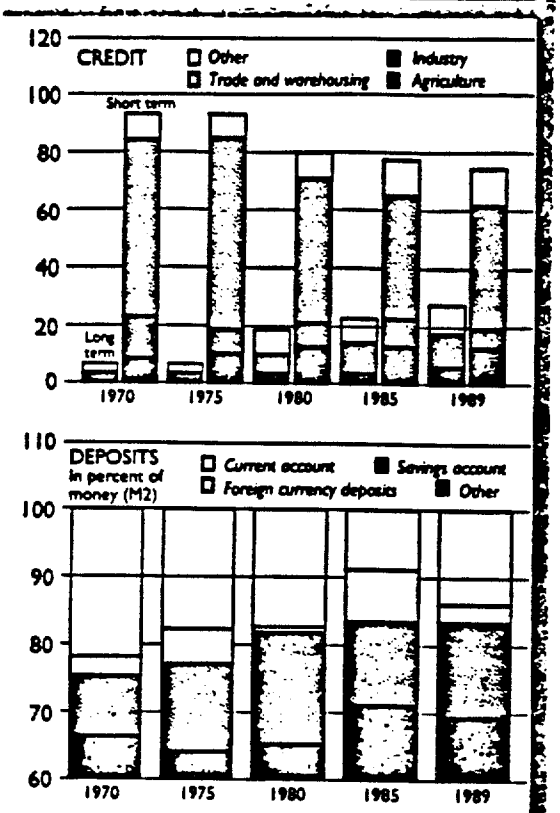
Chart 3. Composition of State Bank Credit and Deposits
(In percent of total)



Source: Mongolian authorities.

credit or for mobilizing financial resources. Indeed, key loan interest rates are lower than deposit rates.

The highest lending rates, 6–10 percent a year, serve a punitive function and are associated with delays and defaults on loan payments, loans for "current asset shortfalls" of state enterprises, and loans to clear intrapublic sector payments arrears.[20] Loans to the agricultural sector for all types of credit are made at preferential rates, with interest on short-term loans set at either 0.5 percent (for financing of the state fodder reserve), or 1 percent (for crop financing). Industries engaged in producing and processing agricultural raw materials also receive a preferential rate of 1 percent, while all other short-term and long-term lending rates carry a 2 percent rate of interest.

Interest is paid on savings deposits and foreign currency deposits based on the maturity of the deposit. Prior to 1986, deposits without a specified maturity—in either domestic or foreign currency—earned 6 percent a year, while term deposits earned 8 percent. In 1986, long-term loans with 2 percent interest were introduced to encourage state enterprises to undertake investment without receiving government transfers. The financing for such loans was directly linked to the amount of household savings that could be mobilized. To minimize the impact of the negative differential between lending and deposit rates on state bank finances, savings deposit rates were lowered to 3–4 percent. Rates on foreign currency deposits were reduced in tandem. Losses incurred by the State Bank from the remaining negative spread have been offset by financial intermediation of funds held in non-interest-bearing accounts and, since 1988, by profits realized from a small foreign exchange dealing operation.

In January 1991, the structure of term deposits was modified to introduce financial instruments of varying maturities. Deposits carrying a one-year maturity will continue to earn 4 percent interest, while those with three, and five and more years will earn interest at 5 percent and 8 percent, respectively.

Balance of Payments

Recent Developments

The structure of Mongolia's external transactions has changed considerably since the mid-1980s (Chart 4). Key changes have been the increasing proportion of exports directed to the convertible currency area and the reduction in imports of goods and services and financing under turnkey projects from the CMEA area. As a result, the consolidated external current account deficit, which peaked at 36 percent of GDP in 1986, narrowed gradually to 24 percent of GDP in 1989.[21] Foreign exchange holdings increased from $52 million at the end of 1985 to $121 million at the end of 1989 (Table 6).

Export earnings rose by 30 percent in 1986, despite a 6 percent drop in unit prices, in line with agreements reached under the 1986–90 arrangement to reduce the trade deficit with the U.S.S.R. Construction materials and agricultural raw materials, mainly food, were redirected from the domestic market to the foreign sector. This more than offset the drop in earnings from

[20] The role of the State Bank in facilitating payments between economic units and the limitations on the use of such credits are described in Appendix II.

[21] While a consolidated balance of payments has been prepared, trends should be interpreted cautiously. Transactions with other CMEA members, before 1991, were valued in terms of transferable rubles. Conversion into U.S. dollars at the official Mongolian rates of exchange are thought to significantly overstate the value of such transactions. Nevertheless, if alternative transferable ruble/dollar rates—such as the implicit cross rates maintained by Bulgaria—are used as a proxy to adjust for the overvaluation, similar trends are observed: the current account deficit is estimated to have declined by 15 percentage points to 29 percent of GDP between 1986 and 1989.

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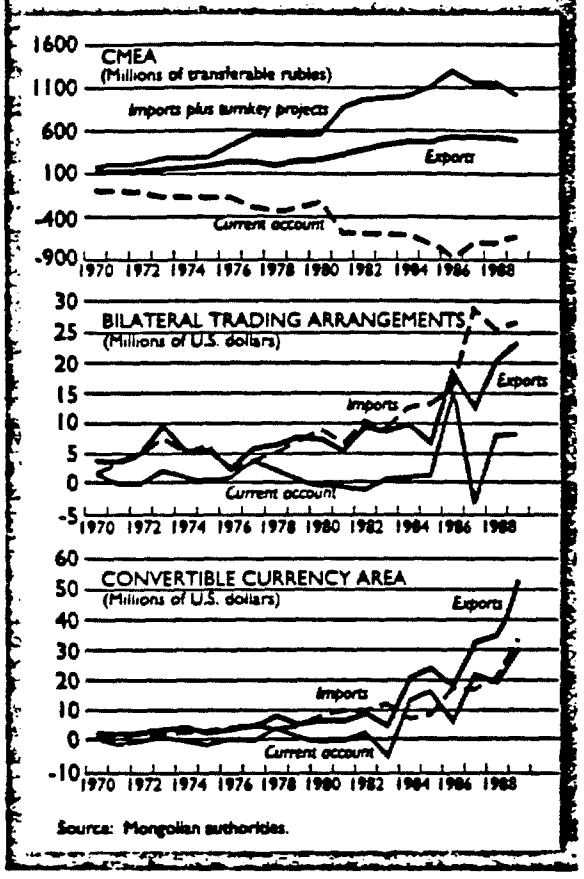
Chart 4. Trends in External Balance



Source: Mongolian authorities.

some agricultural raw materials, particularly leather, for which supplies had been reduced as herds were being rebuilt. Exports continued to expand in 1987–88 as animal slaughter returned to normal and as new capacity for processing cashmere, principally for export to the convertible currency area, came on stream. In 1989, however, export earnings declined by 4 percent, mainly because of the impact of drought on agricultural output. Exports appear to have remained depressed in 1990, in part because of uncertainties surrounding the future of CMEA trade and payments arrangements. Nevertheless, exports to the convertible currency area have continued to expand. They grew by over 50 percent in 1989, buoyed by the introduction of export subsidies that raised selected domestic producer prices for those goods shipped to the convertible currency area above those shipped to the CMEA area. In 1990, these exports are estimated to have increased further, in part because of the devaluation of the tugrik against the U.S. dollar from Tug 3 to Tug 5.63 in July 1990, while the tugrik/transferable ruble rate has remained unchanged at Tug 4.44.

Imports rose by 32 percent in 1986 partly because of higher prices stipulated in the 1986–90 CMEA trade arrangements. In addition, imports of machinery and equipment rose by 8 percent in 1986 as the five-year plan commenced and payments associated with turnkey projects grew sharply. Total payments for goods and services remained constant in 1987–88 but fell in 1989. This reduction reflected the renegotiated lower import price for petroleum products and the reordering of investment priorities to reduce the importance of large-scale projects, as well as a government decision to constrain equipment imports from the CMEA area. At the same time, imports—particularly of consumer goods from the convertible currency area—rose by 50 percent. In late 1989 and early 1990, Mongolia imported, on a self-financing basis, goods associated with the construction of a hotel that is being jointly developed with Yugoslavia.

These import trends appear to have been sustained in 1990. CMEA trading partners reportedly were increasingly reluctant to supply goods for settlement in transferable rubles, and shortages of key imported inputs (such as chemicals, petroleum products, and construction goods) were recorded. The growth in imports from the convertible currency area continued to be constrained, although consumer goods imports expanded. Foreign currency reserves remained above $100 million as of the end of August 1990.

Structure of Current Transactions

Direction of Trade

Mongolia's external trade has traditionally been directed to the CMEA area, which accounted for about 97 percent of trade turnover during 1970–83. Since 1984, trade patterns have shifted, and by 1989 the CMEA area accounted for 90 percent of exports and 93 percent of imports.[22] The U.S.S.R. has remained Mongolia's main trading partner, accounting for 90 percent of the trade turnover with the CMEA area. Other CMEA trade partners are, in order of importance, Czechoslovakia, Bulgaria, and Poland. Trade under bilateral clearing arrangements accounted for about 2 percent of total trade transactions during 1980–88 but increased to 3 percent in 1989. Of the three countries with which such arrangements were maintained, Yugoslavia was the principal market for Mongolian exports, while China was the main source of imports; trade with the Democratic People's Republic of Korea constitutes less than 1 percent of the total. In early 1991, bilateral arrangements with Yugoslavia and

[22] When adjusted for the overvaluation of the transferable ruble implied by the Bulgarian commercial exchange rates, the share of CMEA exports and imports in the total in 1989 would fall to 79 percent and 88 percent, respectively.

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6. Consolidated Balance of Payments[1]

	1975	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
						(In millions of U.S. dollars)					
rent account	−220.0	−344.2	−806.1	−846.8	−824.1	−739.2	−813.4	−1,061.5	−990.2	−1,033.4	−858.3
de balance	−110.1	−274.4	−330.6	−370.6	−450.6	−341.9	−436.7	−587.8	−541.9	−628.9	−409.2
xports, f.o.b.	218.3	402.7	437.4	518.8	556.4	595.7	567.1	741.3	816.7	829.2	793.2
CMEA	210.5	388.3	425.6	500.6	542.7	565.5	537.0	705.2	772.7	774.3	717.6
Bilateral arrangements	5.4	7.7	5.5	9.5	8.7	9.9	7.0	18.4	12.5	20.8	23.4
Convertible currency area	2.4	6.7	6.3	8.7	5.0	20.3	23.1	17.7	31.5	34.1	52.2
nports	−328.4	−677.1	−768.0	−889.4	−1,007.0	−937.6	−1,003.8	−1,329.1	−1,358.6	−1,458.1	−1,202.4
CMEA	−317.8	−658.8	−750.7	−868.8	−984.7	−916.6	−981.1	−1,294.9	−1,311.9	−1,411.0	−1,141.7
Bilateral arrangements	−6.7	−9.4	−7.1	−10.6	−9.8	−13.0	−13.5	−16.4	−29.2	−25.6	−26.9
Convertible currency area	−3.9	−8.9	−10.2	−10.0	−12.5	−8.0	−9.2	−17.8	−17.5	−21.5	−33.8
key projects[2]	−81.1	−185.2	−470.2	−463.7	−354.4	−369.9	−362.4	−511.1	−468.2	−392.0	−399.1
ices balance and t transfers[3]	−28.8	115.2	−5.3	−12.5	−19.1	−27.4	−14.3	37.4	19.8	−12.5	−50.0
tal account	219.0	344.1	806.0	850.4	821.2	755.5	844.5	1,083.5	1,123.3	995.0	812.7
edium-/long-term capital, net	173.0	418.2	805.6	859.6	740.0	745.2	754.2	1,051.9	1,112.8	1,103.0	950.6
Disbursements[3]	173.0	437.2	844.5	901.3	780.7	784.3	792.0	1,068.0	1,129.7	1,120.3	967.1
Repayments	—	−19.0	−38.9	−41.6	−40.7	−39.1	−37.8	−16.1	−16.9	−17.3	−16.5
onresidents' bank deposits[4]	—	—	0.7	7.7	0.9	−0.2	3.6	−3.8	13.8	−5.0	−4.0
EC balances	—	—	—	—	—	—	—	−9.9	29.6	−17.9	−10.6
rors and omissions	46.0	−74.1	−0.3	−17.0	80.3	10.4	86.8	25.6	−33.0	−85.1	−123.3
all balance	−1.0	−0.1	—	3.5	−3.1	16.1	30.8	22.0	73.9	−2.6	−24.4
cing											
ate bank, net (−increase)[5]	1.0	0.1	—	−3.5	3.1	−16.1	−30.8	−22.0	−73.9	2.6	24.4
						(Percent of GDP, unless otherwise specified)					
orts	...	17.3	18.8	20.5	21.0	23.5	22.4	25.3	24.3	23.2	22.2
orts	...	29.1	33.0	35.1	38.0	36.9	39.8	45.4	40.5	40.9	33.6
rent account balance	...	−14.8	−34.7	−33.4	−31.1	−29.1	−32.2	−36.2	−29.5	−29.0	−24.0
norandum items:											
ternal debt, end of period	...	223.8	240.7	25.17	264.2	286.6	304.8	343.6	363.1	371.7	407.8
ebt-service ratio[6]	6.8	12.1	10.5	11.0	11.7	12.0	13.0	2.2	3.1	5.6	8.3
ross foreign exchange reserves											
(in millions of U.S. dollars)	1.3	9.1	8.6	11.4	7.3	22.1	51.8	73.8	147.7	145.1	120.8
(in weeks of imports)	0.2	0.7	0.6	0.7	0.4	1.2	2.7	2.9	5.7	5.2	5.2
djusted ratios[7]											
Exports	...	23.9	23.8	25.7	25.5	28.3	26.9	32.0	31.5	31.1	32.6
Imports	...	40.0	41.7	43.8	46.2	44.0	47.1	56.3	51.5	52.2	46.4
Current account balance	...	−20.1	−43.3	−41.1	−37.4	−34.0	−37.4	−43.2	−35.7	−34.0	−28.5
are of convertible currency area (in percent of total)											
Exports	1.7	2.5	2.1	2.5	1.6	4.9	5.7	4.3	7.0	9.2	14.7
Imports	1.9	2.0	1.9	1.7	1.9	1.2	1.3	2.5	2.4	3.4	6.7

urces: Mongolian authorities; and IMF staff calculations.

Calculations based on an exchange rate of the transferable ruble vis-à-vis the U.S. dollar derived from the official rates of exchange of the tugrik vis-à-vis the transferable and the U.S. dollar.

ncludes both goods and labor services; disaggregate data are not available.

igures for 1975–85 adjusted to include Soviet assistance channeled through a compensation account until 1986, on a grant basis through 1980 and a loan basis thereafter.

Deposits by nonresidents, chiefly foreign embassies, at the State Bank.

Convertible currency deposits and gold.

n percent of exports of goods and services.

valuated using the implicit commercial exchange rate (dollar/transferable ruble) of Bulgaria and the implicit commercial rate (tugrik/dollar) adjusted for taxes and subsidies.

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China were dissolved and replaced by trade in convertible currencies.

The share of trade with the convertible currency area expanded during the last half of the 1980s. By 1989, exports to this area accounted for 7 percent of the total (compared with less than 2 percent in 1980–83), while imports from this area rose to 4½ percent of total. The major export markets are Japan (51 percent of total convertible currency exports in 1989), Switzerland (16 percent), the Netherlands (12 percent), and the United Kingdom (10 percent). The most important sources of imports are Austria (24 percent of convertible currency imports in 1989), Japan (17 percent), Germany (15 percent), and the Netherlands (10 percent).

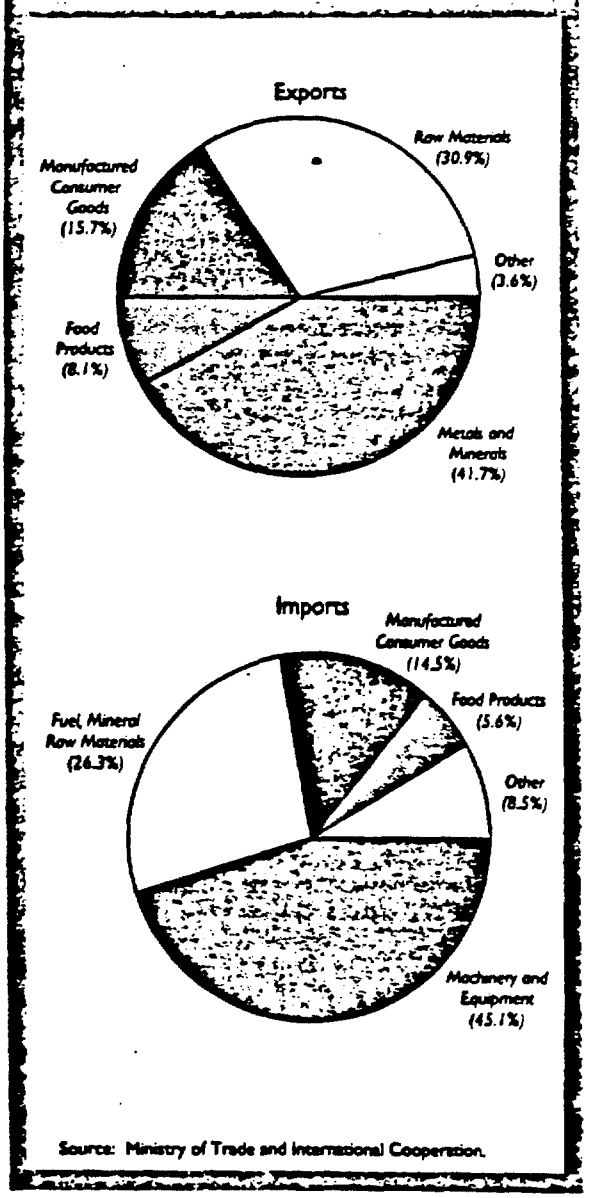
Commodity Composition[23]

Exports consist mainly of minerals, light manufactures, and animal by-products (Chart 5). Starting in the late 1970s, mineral exports (principally copper concentrates and molybdenum) rose sharply; by 1982, these accounted for almost 40 percent of total export earnings. This reflected the entry into production of new mines and processing plants at Erdenet. Mongolia also exports a small amount of brown coal, tin, and gold. The major nonmineral exports are meat and livestock (8 percent of exports), ready-made garments (8 percent), wool (7 percent), and cashmere (2 percent). Cashmere exports are directed mainly to the convertible currency area, and the cashmere industry was an early beneficiary of direct foreign investment from this area.

Imports of machinery, equipment, motor vehicles, and petroleum products account for about 70 percent of total imports. The value of imported petroleum products, obtained solely from the U.S.S.R., rose from 10 percent of the total in 1970 to 14 percent in 1980 and further to 20 percent in 1988. This rise reflected the expansion of industrial activity and the increase in world oil prices in the late 1970s and early 1980s. Machinery imports during the 1980s accounted for about 45 percent of the total, although their share rose temporarily in 1982 because of imports of mining and electrical generating and transmitting equipment associated with expanded production capacity in these sectors. Major subcomponents of machinery imports in 1988 were mining equipment, engineering equipment related to irrigation and electric power projects, agricultural machinery, and motor vehicles. Other categories of imports include manufactured consumer goods (15 percent of imports in 1988), food products (6 percent), and minerals (6 percent).

Turnkey projects rose steadily through the 1970s and 1980s, and accounted for about 40 percent of current payments in 1986; thereafter their share declined gradually, to 23 percent in 1989. The steady increase from 64 million transferable rubles in 1973 to 207 million transferable rubles in 1977 owed largely to the rapid expansion in industry and mining—particularly of joint ventures—during this period. In 1981, inflows of goods and payments for services under these projects jumped, peaking at 365 million transferable rubles in 1986, as the composition of project financing changed. The subsequent reduction mirrored the shift in government investment priorities away from large-scale industrial

Chart 5. Commodity Composition of Exports and Imports, 1988
(In percent of total)



Source: Ministry of Trade and International Cooperation.

[23] Data on the composition of traded goods are available only through 1988.

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projects; in 1989, payments for turnkey projects were one fourth below their peak.

Terms of Trade

Prior to 1991, virtually all traded-goods contract prices were determined by government-to-government negotiation and, until 1989, all foreign trade was channeled through state foreign trading enterprises. In the case of trade with the convertible currency area, the foreign company negotiated with the Mongolian state foreign trading enterprise. Contracts specified shipment to Mongolia both on an f.o.b. and a c.i.f. basis. Notionally, from 1972 to 1985, trade among CMEA members was conducted at market-related prices; that is, the contract price was set equal to a five-year moving average of world market reference prices. This procedure, however, did not produce clear guidelines on pricing for goods other than raw materials. Semi-processed and processed products accounted for about three fourths of Mongolia's imports and, hence, contract prices for most CMEA trade were also determined through bilateral negotiations.[24] In 1986, CMEA traded goods prices were rebased to reflect prevailing world market prices and were fixed thereafter.

Mongolia's terms of trade with the convertible currency area followed an erratic path during 1980–88, without establishing any trend for the period as a whole. The small number of products and the limited coverage of the traded goods price indices are the main reasons. During 1980–85, Mongolia's terms of trade with the CMEA area deteriorated by 14 percent as import prices (measured in transferable rubles) rose by 46 percent and export prices by 25 percent. The sharp increase in import prices was due to higher prices for petroleum and heavy machinery. The rebasing of prices in 1986 resulted in a further 12 percent deterioration in Mongolia's terms of trade; import prices were raised by 6 percent, and export prices fell by 6 percent. The application of fixed prices thereafter prevented Mongolia from benefiting from the decline in world petroleum prices or from the doubling of world copper prices during 1986–89. In 1989, the petroleum price was renegotiated downward, contributing to a substantial fall in the value of imports for that year.

Services and Transfers

Mongolia has traditionally recorded deficits in service transactions, mainly because of the high cost of shipping (owing to its landlocked position) and because of interest payments associated with the rapidly increasing debt to the U.S.S.R. CMEA loans carry a 1.5–2 percent annual interest rate. Interest is due only on debt accumulated under the five-year arrangement in force; interest on debt accumulated prior to this five-year arrangement is capitalized. No interest is charged on deferred amortization of principal. In practice, however, the amount of interest due during the five-year arrangement has been subject to annual negotiation.

Interest payments to the CMEA area more than doubled to 63 million transferable rubles during the five years ending in 1980, compared with payments made under the previous five-year arrangement; they almost doubled again, to 115 million transferable rubles, during 1981–85. This increase reflected interest payments on loans for large-scale investments, and for trade financing (as this aid shifted from a grant to a loan basis in 1981). However, agreement was reached with the U.S.S.R. to reduce interest payments during 1986–90, and interest payments during this period totaled 69 million transferable rubles.

From the mid-1980s, earnings from the transshipment of goods between the U.S.S.R. and China rose in line with the easing of Sino-Soviet tensions and the expansion of trade between these countries.

Mongolia has generally received only negligible transfers from official sources or from the private sector. The sole exception was during 1976–80, when some Soviet financing was provided on a grant basis; cumulatively, these grants amounted to 300 million transferable rubles.

Capital Account

Capital transactions have been limited, until recently, to project loans and trade financing provided by other CMEA countries, particularly the U.S.S.R. Loans generally carry a 15-year maturity, although actual amortization payments are determined through bilateral negotiation in the context of the five-year arrangements. Technical assistance loans—including those for turnkey projects and equipment—accounted for about two thirds of capital inflows on average during the last two decades, but the proportion rose to over 80 percent during 1975–80. This temporary increase was attributable to the shift in a portion of Soviet trade financing to a grant basis during this period. In addition, this increase paralleled the rise in large joint-venture projects in the mining sector. In accordance with the Government's reordering of investment priorities, the share of financing for turnkey projects declined by 7 percentage points between 1986 and 1989, to 41 percent of the total.

Debt and Debt Service

Mongolia's outstanding external indebtedness is to other centrally planned economies, and, except for a

[24] Foreign trade prices were negotiated using the world market price only as a reference. The actual contract price took into account such elements as a perceived transitory fluctuation in world market prices, alleged effects of imperfect competition, and the relative bargaining power of the CMEA trading partners. See Thomas A. Wolf, "On the Conversion of Ruble Trade Flows into Dollars," *Journal of Comparative Economics*, 1987, pp. 558–71.

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small loan outstanding to China, is denominated in transferable rubles and is on concessional terms. About 98 percent of total debt is owed to the U.S.S.R., with the remainder held by, in order of importance, Czechoslovakia, Hungary, Germany,[25] Poland, Bulgaria, and Romania.

Outstanding external debt rose sharply during the 1980s, from 3.4 billion transferable rubles at the end of 1980 to 9.9 billion transferable rubles at the end of 1989. Technical assistance loans accounted for two thirds of Soviet debt outstanding at the end of 1989. The increase in the stock of debt reflected, in part, the return of Soviet financing to a loan basis in 1981; it was also the result of the sustained large current account deficits with the U.S.S.R. and the rising importance of turnkey projects during the first half of the 1980s. Under the 1986–90 bilateral arrangement, agreement was reached for partial payment of debt service falling due to the U.S.S.R. Principal falling due on loans related to joint-venture financing has been paid, while that due on direct government-to-government loans has been deferred.

Since early 1990, government-to-government discussions have taken place, and a bilateral committee formed, to address the large Soviet debt. Agreement has been reached, in principle, that the solution will not place an undue burden on Mongolia or impede its economic development. Remaining outstanding issues include the size of the debt outstanding, which is linked to the appropriateness of the earlier valuation of trade; the currency in which the debt is to be valued; the appropriate conversion rate between the transferable ruble and convertible currencies; and repayment terms.

Exchange System[26]

Historically, the exchange rate has not played an important allocative role in Mongolia, since prices have traditionally been set administratively and resources have been allocated according to centralized plans. Rates served to re-express prices, foreign contracts, and other obligations in alternative units of account. Price distortions exist at every level of production and distribution and are partially compensated for by the complex system of budgetary subsidies and taxes. Subsidies and taxes applied to traded goods have had the additional effect of delinking foreign contract prices, converted into tugriks at the commercial exchange rate, from the corresponding domestic wholesale and producer prices. Moreover, the fixing of CMEA-traded goods prices from 1986 limited the extent to which changes in international prices affected domestic allocative decisions at the central planning level.

Since 1988, the role of the exchange rate as an allocative instrument has expanded. A noncommercial rate of exchange between the tugrik and the U.S. dollar was introduced in 1988 with the intention of encouraging foreign exchange surrender; accordingly, the applicable rate was substantially more depreciated than that used for commercial transactions. In June 1990, the tugrik was devalued against the dollar for commercial transactions as a first step toward changing relative prices and encouraging exports to the convertible currency area.

Convertible Currencies

Before 1973, the rate of exchange was fixed at Tug 4 per U.S. dollar, equal to the ratio of the gold contents of the respective currencies. From 1973 to July 1990, the commercial rate of exchange for the dollar was based on the cross-rate between the official rate for the transferable ruble, to which the tugrik was pegged, and the International Bank for Economic Cooperation's (IBEC) transferable ruble/dollar rate. However, adjustments to changes in the transferable ruble/dollar rate were not automatically adopted. The tugrik/dollar rate was adjusted in line with the IBEC rate only when this would raise the tugrik value of convertible currency reserve holdings; otherwise, the rate remained unchanged. Since July 1990, the tugrik has been pegged to the U.S. dollar. In July 1990, a "base rate" was calculated and set at Tug 5.63 per dollar.[27] Since then, the base exchange rate has been adjusted monthly, based on movements in the U.S. dollar exchange rates vis-à-vis other major currencies.[28] The commercial rate was adjusted in this way for the first time in August.[29]

From 1988, Mongolia has also maintained a noncommercial exchange rate, of Tug 20 per U.S. dollar; in early 1991 the tugrik was devalued to Tug 40 per

[25] Formerly, the German Democratic Republic.

[26] The currency of Mongolia is the tugrik (100 mongo = Tug 1). Mongolia maintains a complex system of exchange rates vis-à-vis convertible and nonconvertible currencies and maintains multiple exchange rates. The historical valuation of the tugrik is outlined in Appendix III. There are no spreads between buying and selling rates and no forward exchange transactions.

[27] The base rate was calculated on the basis of a subset of semi-processed and manufactured export products valued at domestic wholesale prices, compared with the value based on foreign contract prices, in 1988.

[28] The monthly adjustment is calculated by multiplying the base rate by an adjustment factor equal to the percentage appreciation of the U.S. dollar against a basket of eight major convertible currencies during the last five days of the previous month. The currencies are the Austrian schilling, the Canadian dollar, the deutsche mark, the French franc, the Italian lira, the Japanese yen, the pound sterling, and the Swiss franc. The basket is weighted by trade turnover. An adjustment of the exchange rate can also be triggered before the beginning of a new month if the adjustment factor changes by more than 2 percent; to date, this option has not been used.

[29] During the last five days of July, the dollar depreciated against the basket by 1.25 percent; thus, on August 2 the commercial rate was set at Tug 5.5596 per dollar, representing a 1.25 percent appreciation of the tugrik relative to the base rate.

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U.S. dollar for noncommercial transactions. This rate is available only to Mongolian nationals, who may sell foreign exchange to the State Bank and who may also purchase foreign exchange from the State Bank for tourism purposes. On August 30, 1990, an officially sanctioned exchange auction among state enterprises and cooperatives (excluding budget-supported or loss-making enterprises) and private cooperatives was held; individuals could not participate. The State Bank acted as broker as well as participating as a seller. Initial clearing bids ranged from Tug 45 to Tug 90 per U.S. dollar. This result, however, must be interpreted cautiously. A very small amount of foreign exchange was available, and the State Bank did not supply foreign exchange in the first auction. Although loss-making state enterprises were prevented from participating, many of the new private sector cooperatives and state agricultural cooperatives were unable to supply financial accounts but were permitted to participate. Subsequently, some bidders were unable to complete the purchase because of the lack of domestic currency. Clearing bids at subsequent auctions through year-end were reported to have settled around Tug 45 per U.S. dollar. The volume of transactions also increased, but—at about $1 million—still remains relatively small.

Nonconvertible Currencies

Mongolia, as a CMEA member, conducted transactions through the end of 1990 with other member countries in transferable rubles through the IBEC. The exchange rate for commercial transactions had been fixed since 1961 at Tug 4.444 per transferable ruble.[30] Since the beginning of 1991, transactions among CMEA members have shifted to world market pricing with settlement in convertible currencies. The tugrik/transferable ruble rate will thus no longer apply, except for historical purposes.

Prior to 1991, a noncommercial exchange rate was used for a modest amount of international transactions at the retail level (for example, the costs of embassies of CMEA members; living expenses of students; and tourism). Exchange rates for retail transactions were set according to 1963 and 1971 agreements[31] among CMEA members on noncommercial payments; these specified a retail markup coefficient equal to the ratio of retail prices to wholesale prices in the U.S.S.R. This coefficient[32] was applied to the tugrik/U.S.S.R. ruble rate[33] when balances in transferable rubles at the IBEC were exchanged for U.S.S.R. rubles and transferred into correspondent accounts held in the respective central banks. Based on the last coefficient, the implied noncommercial exchange rate was Tug 6.69 per transferable ruble during 1990.

[30] This rate reflects the historical gold parities of the U.S.S.R. ruble and the tugrik, as well as the currency reform in the U.S.S.R. From 1927 to 1960 the tugrik/U.S.S.R. ruble exchange rate was at par, and both currencies had a gold content of 222.168 milligrams of fine gold. On January 1, 1961, when the U.S.S.R. introduced the new "hard" ruble and set its gold content equal to 987.412 milligrams of fine gold, the gold content of the tugrik was not changed.

[31] These agreements were entitled "The Agreement on the Use of a List of Noncommercial Payments and a Factor for Converting Amounts of Noncommercial Payments into Transferable Rubles."

[32] The retail markup coefficient was set equal to the ratio of the value of a basket of 750 consumer goods at retail prices to the value of the same basket at wholesale prices. The basket weights were specified in the multilateral Agreement on Noncommercial Payments. Before 1971, the coefficient was equal to 3.4. In 1971, it was set at 2.3; it was subsequently adjusted to 1.9 in 1976, to 1.7 in 1980, and to 1.6 in 1986.

[33] Retail transactions took place at the noncommercial rate of Tug 4.18 per U.S.S.R. ruble, a rate established in 1963 on the basis of purchasing power parity calculations. This exchange rate equaled the ratio of the value in tugriks of a basket of consumer goods (the same basket used to calculate the U.S.S.R. ruble/transferable ruble exchange rate) to the value of the basket in U.S.S.R. rubles, both measured at retail prices.

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IV Toward a Market Economy

The Medium-Term Path of Reform

The new Government intends to sustain and deepen the process of transformation, and it expects to complete the introduction of key reforms during the next three years. The main priorities are to improve rural living standards and reduce unemployment. Privatization measures under consideration include the return of state herds, and the sale or lease of some state enterprises and private sector equity participation in others. Laws to protect private ownership rights and facilitate the transfer of property are being drafted and are expected to be introduced by mid-1991.

Following the increase in administered prices in January 1991, a phased program of price liberalization is expected to be implemented so that most commodity prices would be freely determined by the market. Prices of goods remaining subject to government intervention are estimated to account for only one fifth of all prices by the end of 1991 and to cover meat, milk, flour, eggs, children's clothing, coal, and public utilities (such as electricity and water). Preliminary plans envisage the early decontrol of prices of luxury consumer goods. At the same time, imports of consumer goods are to be increased to dampen the potential inflationary impact of price liberalization measures. Prices of selected raw material inputs, mainly of agricultural raw materials, will be allowed to fluctuate within a range. However, production of agricultural goods in excess of state orders can continue to be freely marketed.

Wage policy will increasingly be determined at the enterprise level, in accordance with the policy of granting greater operating autonomy to state enterprises. A new pension law has been drafted and is expected to be passed by the *Baga Khural* during 1991. Currently, pensions are based on documented average earnings in the most recent 5 years preceding retirement. However, because herdsmen often cannot fully document their income, and yearly income can fluctuate widely, pensions have inadvertently been reduced. Proposed pension revisions would enable herdsmen to make pension claims based on an average of any 5 years within the most recent 15-year period before retirement. Workers with over 25 years of service would also be able to claim higher pension payments. The proposed revision will also enable enterprises to set up supplementary pension funds for their workers.

Consistent with ongoing political reforms and a commitment to shifting to a market-based economic system, the Mongolian authorities are planning substantial changes in budgetary operations. The elimination of the State Planning Committee in September 1990 is consistent with this intention. A major objective is to reduce the role of government in the economy; indeed, budgetary expenditures are expected to fall from the current 65 percent of GDP to below 50 percent during 1991–95. Expenditure cutbacks are planned for various categories. Increases in prices of agricultural raw materials eliminated the need for most existing production subsidies to the agricultural sector, and subsidies for most loss-making state enterprises have been eliminated as a result of the January 1991 retail price adjustments. Subsidies for imports have also been largely eliminated, and domestic prices are expected to continue to be realigned with international prices to prevent their re-emergence. Consideration is also being given to introducing selected user fees to cut the considerable budget outlays on free education and health care, while retaining protection for low-income families. The rationalization of the number of ministries in late 1990 is expected to lead to further cuts in administrative costs as additional workers are let go. While new job opportunities are expected to be generated by the private sector, the authorities are considering measures to ameliorate the impact on workers during the transition period. Finally, enterprises will also be expected to cover a much higher percentage of their investment needs out of their own resources or with borrowed funds, reducing budget outlays for this purpose and, concomitantly, reducing the need for tax revenues.

Changes in budgetary practices are required to reflect the expected liberalization of domestic prices as well as the change in CMEA trade pricing and settlement practices. A direct result of these measures is expected to be a drop in domestic and foreign revenues in 1991. Tax reform aims at expanding the tax base and improving the elasticity of the tax system; the authorities have initiated efforts to strengthen tax administration. These goals are to be achieved by introducing personal

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income and customs taxation and by expanding the coverage of taxes on corporate profits. Custom duties were introduced in early 1991, although some imports continue to be taxed on the basis of "price differentials" as a transitional measure. Reform proposals also seek to restructure the domestic turnover tax from its current form—which is similar to an "excess profits tax"—to one that more closely resembles a sales tax. Enterprises earning above-average profits may also be subject to new assessments to finance remaining outlays on education and social security. Price and enterprise reforms are expected to result in greater efficiency and profits over the medium term, thereby boosting budgetary revenue.

Financial sector reform will concentrate on separating the commercial and central banking functions of the State Bank, introducing independent bank supervision and developing indirect monetary policy instruments. To this end, a central banking law is expected to be considered by the *Baga Khural* in March 1991. As a first step, the selected assets and liabilities of the State Bank will be separated when three new commercial banks are formed. Recent proposals for banking reform include the development of money and stock markets, expansion and improvement of the system of check clearing, development of instruments of indirect monetary management, and establishment of a separate entity for bank supervision.

Reforms will also be taken in the areas of tariffs and the exchange and payments system. Given the limited administrative capacity, the authorities are considering the introduction of a six-level tariff employing the Harmonize System nomenclature, thereby limiting the number of tariff positions to about five thousand. As a transitional measure, however, a simplified interim schedule covering five hundred tariff positions will be implemented. New commercial arrangements, including most-favored-nation agreements with countries of the convertible currency area, are expected to increase trade with this region; moreover, the new Foreign Investment Law is expected to stimulate further direct investment from the convertible currency area. New free economic zones are to be established in mineral-rich areas with adequate transportation infrastructure.

Challenges and Outlook

The implementation of Mongolia's ambitious and wide-ranging reform program, in the context of a stable economic environment, will require improvement in the timeliness and presentation of economic data, increased familiarity with indirect tools of macroeconomic management, and enhanced administrative and management capabilities. To this end, the authorities are seeking foreign technical assistance, including from the IMF. Nevertheless, over the short term, price liberalization can be expected to boost inflation rates well above historical levels, in view of supply shortages and pent-up demand for consumer durables. Furthermore, substantial efforts are required to reduce the large budgetary and external current account deficits, which are not sustainable over the medium term. The unresolved overhang of external debt could impede foreign investment.

The current economic structure also constitutes a formidable obstacle to transformation. Competition in all economic spheres is limited. State enterprises maintain monopoly control over key production activities, and virtually all financial intermediation is through the State Bank, the staff of which has had limited exposure to assessing lending risk. Almost all capital assets, including the housing stock, are owned by the Government. While plans for privatization are being elaborated, its pace will be hampered by the low levels of income and financial savings of the population. Production is dependent on imported inputs, and exports are concentrated in raw materials; semi-processed and manufactured goods would require substantial quality improvements to compete internationally.

The difficulties inherent in Mongolia's economic transformation are being compounded by external shocks. The new CMEA trading arrangements have led to a reduction in the volume of trade and a deterioration in Mongolia's terms of trade. The extent of the latter, however, depends crucially on developments in world petroleum markets. Estimates, before the Middle East crisis, suggested that Mongolia's terms of trade would improve marginally once CMEA trade shifted to world market pricing. Because of Mongolia's historically close links with the U.S.S.R.—including the integration of production and transportation and electricity systems—the current economic difficulties of the U.S.S.R. are expected to have an important economic impact over the medium term. The breakdown of Soviet central planning and distribution has already worsened production bottlenecks arising from shortages of spare parts and raw materials. The accelerated withdrawal of Soviet technicians can be expected to place additional strains on management capabilities. The reduction in Soviet aid has further aggravated the budget position, which was already weakened by the loss of traditional revenue sources.

Despite these considerations, Mongolia's longer-term prospects remain positive. The nascent private sector has responded quickly to the easing of central controls, as have investors from the convertible currency area. The reforms, expected to be implemented rapidly, are likely to improve the allocation of scarce resources and the efficiency of production. Further measures, including cuts in government subsidies and spending for large scale projects, have been introduced to help the domestic economy adjust to the prevailing external situation. Moreover, the population, half of

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which continues to reside in rural areas, has exhibited the resiliency needed to absorb the initial economic adjustments. With a small number of inhabitants and vast natural resources combined with its concentration of production in agriculture and agro-industries—in which it has a comparative advantage—Mongolia is well positioned to reactivate its economy quickly and to translate growth into higher living standards.

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Appendix I Government and Budget Structure

The Constitution

Under Mongolia's 1960 Constitution, which established the central role of the public sector and the MPRP, all land, natural resources, factories, transportation, and banking organizations were designated state property. Individuals had the right of cooperative ownership of public enterprises, including livestock. Limited private ownership of herds (10 per individual and 50 per household nationally, adjusted to 15 and 75, respectively, for herders in the Gobi) and of traditional tent dwellings (*ghers*) was permitted.

Supreme power resided in the upper house, or People's Great *Khural*, whose chairman was also a member of the MPRP politburo; the MPRP was designated the sole political party. The election of 370 deputies to the Great Khural took place once every five years (1981 amendment to the Constitution) by universal suffrage of the adult population over 18 years of age; however, it met infrequently. The *Baga Khural*, the lower house or presidium forming the legislative body, was elected by the Great Khural, and its chairman was head of state. A similar legislative structure existed at the *aimak* (provincial) and *somon* (county) levels.

In April 1990, a transitional arrangement was put into place when selected amendments to the Constitution were passed to legalize other political parties, eliminate references to the central role of the MPRP, remove restrictions on private ownership, and restructure the Great Khural and the Baga Khural. Under these amendments, the legislative branch of the Government continues to be divided into two bodies. Direct, secret balloting is two-tiered: first for the deputies to the Great Khural, and second, for the party, to determine the proportional representation in the Baga Khural. A new constitution, which is expected to provide for direct presidential elections, is being drafted for consideration in 1991.

Four hundred thirty deputies are elected to the Great Khural and serve for five years. Representation is based on one deputy per ten thousand people in the urban areas plus one deputy per somon, whose average population in rural areas is five thousand. Sessions are held only four times during the term unless an extraordinary session is convened by the majority of deputies, the President, or the Baga Khural. The Great Khural has the power to adopt or amend the Constitution, elect the President of the Republic, and appoint, upon recommendation of the President, the Vice-President who is also chairman of the Baga Khural, the Prime Minister, the General Public Prosecutor, and the Chief Justice of the Supreme Court.

The Baga Khural, the Government's legislative arm, functioning on a daily basis and exercising powers of law-making, supervision, and oversight, and has administrative authority over the Government. It comprises 50 deputies, of whom 75 percent must be chosen from the elected deputies of the Great Khural, and the rest are appointed technical specialists. Each party elects deputies in proportion to the votes that it received in the general elections. The Baga Khural's powers include enacting or amending laws, convoking the Great Khural, approving Cabinet appointments of the President, approving Supreme Court appointments of the Chief Justice, and ratifying international agreements and treaties.

Structure of Government

The role and size of government began to expand rapidly in the late 1950s, reflecting the greater role of central planning and the growth of urban centers and industry. By the 1970s, there were more than 50 ministries and state committees. Their functions were gradually combined so that, by 1988, the number of ministries and state committees had been reduced to 20 and 8, respectively.

In 1989, the number of ministries was again reduced through consolidation of those dealing with economic matters, and some three thousand administrative positions were abolished. After elections were held in 1990, a new government structure was adopted in late September, reducing the number of ministries to 11 and establishing a state committee for environmental protection (Chart 6). The State Committee for Social and Economic Development,[34] which was responsible for developing the five-year plan, setting and monitoring prices, and maintaining economic statistics, was

[34] Before 1989, this committee was called the State Committee for Planning and Economy. For brevity, it is referred to subsequently as the State Planning Committee.

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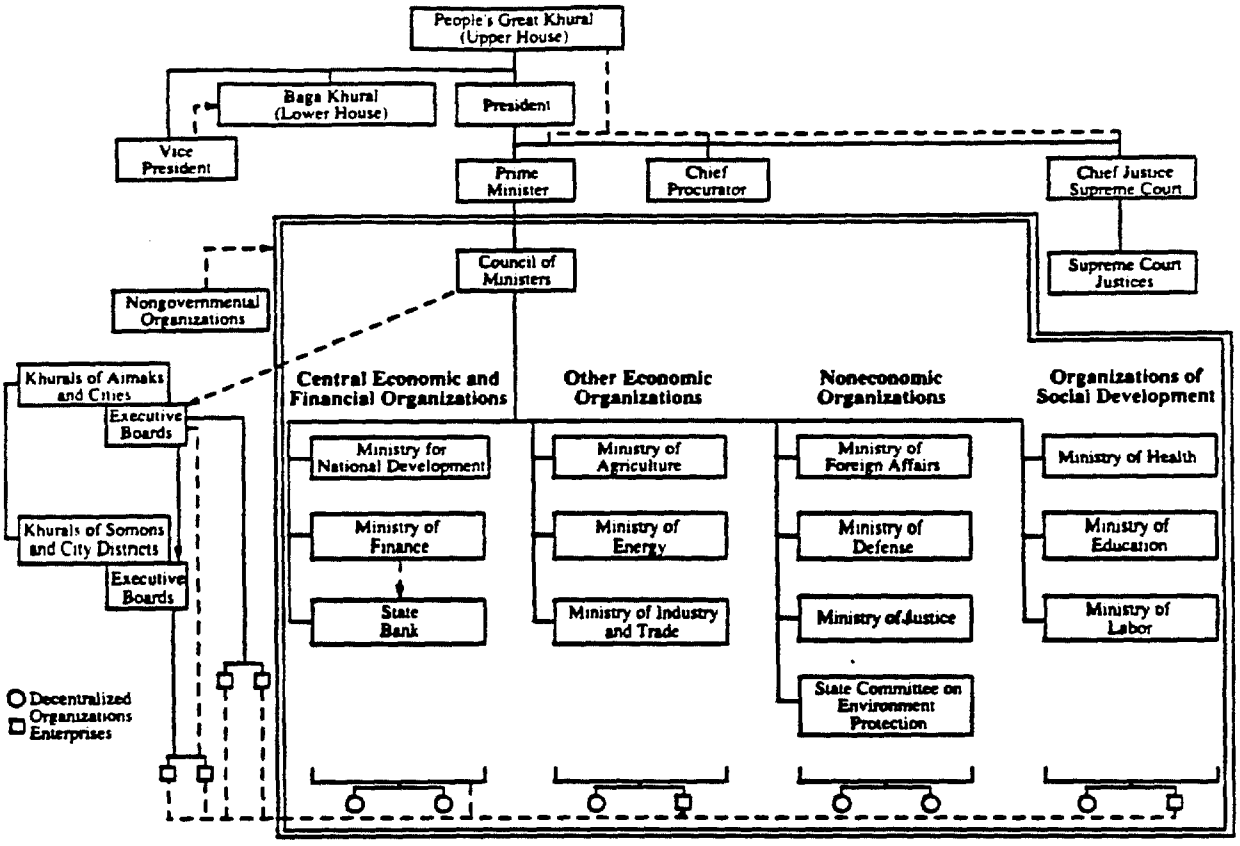
Chart 6. Structure of Government, October 1990



Source: Ministry of Finance.

abolished. Its functions have been assumed by the Ministry of Finance, the new Ministry of Industry and Trade (price regulations), and the Baga Khural (economic statistics). The new Ministry for National Development has assumed the functions of the State Committee for Science, Technology, and Higher Education.

The state enterprise sector, which includes joint ventures with foreign countries, encompasses a wide variety of goods-producing activities, and transportation and distribution services. State enterprises are owned and supervised by the central government (ministries), aimaks, or somons. Since 1989, enterprises have more autonomy to make production and sales decisions. Before September 1990, the Ministry of Heavy Industry[35] was responsible for enterprises that produce coal and other minerals, electricity, forest products, and metal and machine products (mostly spare parts). These enterprises account for about one third of national income, 45 percent of exports, and employ fifty thousand workers, about 8 percent of the labor force. The Ministry of Agriculture, and Light and Food Industries oversaw enterprises that produce agricultural raw materials, process agricultural raw materials (food, textiles and clothing, and footwear and leather goods), and produce basic consumer items (plastic and metal goods, soap, matches, ceramics, and printed materials). The Ministry of Construction was responsible for enterprises involved in building houses, paving city streets, and construction in agriculture and industry. The Ministry of Transportation was responsible for enterprises that construct roads and bridges and that provide all forms of transportation services. The Ministry of Trade and International Cooperation was responsible for foreign trade enterprises and domestic wholesale and retail distribution establishments.

[35] As of September 1990, the functions of the Ministries of Heavy Industry; Agriculture, and Light and Food Industries; Transportation; Construction; and Trade and International Cooperation were assumed by the Ministries of Industry and Trade; Agriculture; Energy; and Foreign Affairs. At the time of this paper's preparation, the distribution of functions was not yet known.

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Until the new Law on Cooperatives was passed in 1988, ministries also had control over state cooperatives (for example, animal husbandry and construction) in their sectors, but since 1989 these organizations have gained substantial autonomy, while remaining under the supervision of their respective ministries. Nevertheless, cooperatives must still satisfy state orders for delivery of goods at fixed prices and, in turn, receive inputs at low fixed prices and budgetary subsidies to offset specific production costs (for example, of winter fodder) or for welfare considerations (low-income cooperatives). Since 1989, state cooperatives have been taxed in a manner similar to state enterprises.

Budget Coverage, Process, and Structure Through 1990

Coverage

The state budget consolidates the operations of the central government, 3 cities, 18 aimaks, and 351 somons. The city of Ulaanbaatar is included in the budget of the central government. The aimak and somon budgets are administered by local boards in conjunction with representatives from the Ministry of Finance. The aimaks finance expenditure from tax revenues collected directly from some state enterprises and cooperatives within their jurisdictions and from transfers from the central government. The somons have similar financing patterns except that transfers are received from the aimaks. The operations of state enterprises are not consolidated in the state budget, although they receive loans and transfers from the budget and account for over two fifths of budgetary revenue in the form of profit taxes. A substantial portion of enterprise investment is financed by budgetary outlays. Expenditures and the associated financing for turnkey projects (that is, those projects constructed solely with foreign labor and material inputs) are not included in the budget.

Budgetary Process

The budgetary process has been closely linked to the planning process; however, both are in a period of transition as political and economic reforms are being instituted. Through the 1989 budget exercise, the central plan, prepared by the State Planning Committee, set physical production targets and other parameters as the basis for allocating physical resources. The budget, prepared under the supervision of the Ministry of Finance, provided and allocated financial resources for government operations consistent with plan targets.

Through the 1989 budget, the Ministry of Finance prepared, on the basis of annual plan parameters, control figures by June of each year and distributed them to ministries, state committees, cities, and aimaks. These entities, in turn, distributed control figures to the local governments and local agencies under their respective jurisdictions. Budget proposals were then formulated at the local levels, with the approval of the local khurals, for consolidation with the aimak or city budget and approval of the khurals at that level of government. The Ministry of Finance checked the aimak, city, and ministry budget proposals for consistency with the central plan, made adjustments, and consolidated them for review by the Council of Ministers the following October. Once the consolidated budget was approved, it was reviewed by the Central Committee of the MPRP before receiving final approval by the Great Khural. The Ministry of Finance communicated the overall budget limits approved for each aimak and ministry, leaving the final composition of aimak budgetary expenditures to be determined at the local level. The Ministry of Finance maintained control over the execution of the budget, including the consolidation of revenues of budgetary units in the state budget account and the disbursement of such funds on the basis of approved budget figures. The Ministry of Finance also made necessary adjustments in the budget throughout the fiscal year (January through December).

For the 1990 and 1991 annual plans, only indicative targets have been set and the Ninth Five-Year Plan (1991–95) has not been elaborated. In September 1990 the State Planning Committee was abolished. The new process, which was implemented in connection with the preparation of the 1991 budget, is still experimental and is expected to undergo further modification. Budget proposals were independently prepared by aimaks, cities, and ministries under general guidelines, and were then forwarded to the Ministry of Finance to be finalized in accordance with overall constraints and submitted to the Baga Khural for approval. The Ministry of Finance communicated the approved expenditure limits to the individual budgetary units.

Revenue Structure

The structure of revenue and expenditure is expected to change markedly in the next few years, largely as a result of the shift to a market economy and the shift in CMEA trade relations. The information presented below reflects the budgetary structure in existence until the end of 1990.

Tax Revenues

The single most important source of revenues is turnover taxes, currently equivalent to nearly 23 percent of GDP. Turnover tax revenues have two components: those derived from price differentials on imports and those derived from domestic turnover taxes. Import price differentials constitute a tax paid by state foreign

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trading enterprises and warehousing firms (regional distributors as well as subsidiaries of the trade enterprises) on their sales of imported goods.[36] The tax consists of the difference between the domestic wholesale price[37] of the imported good and the foreign trade contract price of the good, converted into local currency at the official exchange rate, less a commission. Funds are remitted to the budget on a net basis, with losses resulting from the importation of some goods covered by profits from others. Domestic turnover taxes, in effect single-stage sales taxes, are imposed on a variety of goods, with rates varying according to industry. These taxes are normally paid by producers and are thus embedded in wholesale prices. The most important domestically produced goods subject to this tax are vodka, beer, adult footwear, and carpets. In addition, taxes arising from the differential between foreign export prices and domestic wholesale prices are remitted by the state foreign trade enterprises.[38] In 1989, the turnover tax on vodka, first imposed in 1981, accounted for about 70 percent of total revenue generated from taxes in domestically produced goods.

Profit taxes, levied on the earnings of state enterprises and cooperatives, gradually rose relative to GDP throughout the 1980s, reaching over 21 percent of GDP in 1989. Profits are defined as gross sales income minus production costs (including turnover taxes on inputs, production taxes, and depreciation allowances); if a firm incurs a loss and receives budgetary support, it is exempted from profits tax liability.[39] Until 1990, profits were targeted each year in the annual economic plan and provided the basis for budgetary remittances by enterprises. The profits tax has three components. The first, imposed at rates varying between 4 and 6 percent of gross profits (agricultural enterprises are exempted), goes to a producers' fund, essentially a special reserve for investment administered within the overall budgetary framework. The second component, a tax for science and development, is imposed at a rate of 4 percent of the enterprise's salary fund. Profits remaining after these two types of charges are deducted are then subject to a budgetary "commission," which averages about 60 percent of the total. The rates for this commission are fixed every three to five years. Firms that generate substantial profits may also be required to pay assessments to a labor reserve fund. Agricultural enterprises contribute to a security fund for disaster relief. Some firms have also been required to pay a fee for the exploitation of a natural resource. Net profits remaining after these taxes are available for the enterprise's disposal. These retained earnings are normally allocated to the enterprise development fund (that is, the enterprise's discretionary surplus for investment) and an enterprise social fund (to subsidize housing, fuel, meals, and other expenditures of its workers), or distributed as bonuses to workers.

Revenues from remaining taxes are minor, accounting for the equivalent of less than 1 percent of GDP. Production taxes are special levies on the production of certain commodities, such as timber, hunting licenses, and salt. Taxes on individuals consist of five types of schedular taxes: (1) a tax on salaries; (2) a tax on privately held livestock in urban areas; (3) a tax on privately held livestock in rural areas; (4) fees on privately held automobiles; and (5) fees for selling goods on private markets. A surtax imposed on excises of unmarried or married persons without children was eliminated on November 1, 1990. Individual income tax rates are low and barely progressive, ranging from 2.6 percent to 2.9 percent of incomes above Tug 1,200 a month. In addition, numerous exemptions are granted.

Nontax Revenue

The most important source of nontax revenue consists of social security fees paid by enterprises and cooperatives. (Individuals do not pay such fees since private employment was not legally recognized until recently.) Enterprises and cooperatives are assessed fees equal to 9 percent of their respective wage bills, whereas budgetary institutions are assessed fees at a rate equal to 4 percent of the wage bill. The fees generated by these assessments go into a budgetary fund that finances various types of social expenditures, such as disability and unemployment. Before 1985, this fund was also used to finance pension payments. Other nontax revenues consist of a variety of income from permits and fees and other miscellaneous revenue from enterprises, cooperatives, and other organizations.

[36] Losses incurred by the foreign trade enterprises for sales of some imported products were netted against profits obtained from others. The net amount was remitted to the budget. Taxes from import differentials rose steadily, reaching Tug 1.7 billion in 1985, reflecting the strong growth of import volumes.

[37] Since the wholesale price—which is the delivered price of the good including transport costs—is uniform throughout the country, the foreign trade warehouse gives discounts when buyers absorb transportation costs by accepting delivery at warehouse sites.

[38] For exports to countries other than the U.S.S.R., the profits arising from a positive differential (called an export price differential) between the domestic wholesale price and the contract price converted into tugriks were remitted to the budget; if the difference was negative, a subsidy was obtained from the budget. For exports to the U.S.S.R., the differential, if positive, was remitted to an off-budget "compensation" account before 1986; if negative, the foreign trade enterprise received a subsidy from the budget. These off-budget accounts were eliminated after 1986. Export subsidies were substantially higher than export tax receipts, and, in general, exports of raw materials were taxed while industrial products were subsidized. A comparison, by commodity group, of the exports valued at current contract prices with those valued at wholesale prices indicates that exports of livestock were taxed throughout 1976–85. Processed livestock products, construction materials, cereals, fluorspar, and copper received subsidies.

[39] Interest payments are not treated as a cost of production and therefore must be paid out of after-tax profits.

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xpenditure Structure

urrent Expenditures

Outlays on wages and salaries are included in each ajor spending category. In aggregate, the wage bill ccounts for about one fifth of current expenditures. bout two thirds of wage and salary expenditures are oncentrated in support of social and cultural activities, ith most of the remainder in public administration nd defense expenditures. The wage bill has remained able relative to GDP, drifting down from 10 percent 1980 to 9 percent in 1989.

Expenditure on social and cultural programs constites the most important category of budgetary outlays, presenting about 23 percent of GDP in recent years. hese outlays cover expenditures for a wide variety of tivities in the nonmaterial sector, including health re, education, arts, sports, scientific activities, pens, and social security payments. Pensions and social curity payments account for nearly one third of penditures in this category, or about 7 percent of DP. Social security outlays (which provide benefits r disability, unemployment, and similar purposes) e more than covered by the fees earmarked for these rposes but, in recent years, the excess coverage has nded to narrow. Pensions are paid to government mployees and employees of public enterprises and operatives, but not to private employees. Rural orkers receive lower pensions than urban workers.

Expenditures on national economic development, quivalent to about 20 percent of GDP in recent years, onstitute the second largest category of current exenditures. These expenditures are related to output nd consumption in the material sector (goods and ertain services related to their production) and include utlays for geographical surveys and related research, nancing of intangible start-up costs of enterprises, bsidies, and interest on external debt. Over half the xpenditures in this category consist of various types f subsidies, the most important of which are subsidies r exports, equivalent to some 4 percent of GDP. In 989, subsidies were increased through a system of rice adjustments based on coefficients for selected oods. In contrast to the system of coefficients that as in effect before 1986, these adjustments were pplied uniformly to comparable goods and were aimed t promoting exports to the convertible currency area; rice adjustments were also larger for processed goods. n July 1990, subsidies on exports to the convertible urrency area were discontinued following the devalation of the tugrik against the dollar. Subsidies for griculture represent the second most important type f transfer; the bulk of these outlays is for production nd transportation of fodder, but smaller amounts are sed to support low-income farmers through the proision of veterinary and other services. Other production subsidies are paid to enterprises that produce heating energy, coal, glass, and timber.[40] The remaining subsidies comprise, for the most part, price support for consumption of basic goods and services, mainly staple foods and clothing, heat, hot water, public transportation, and waste disposal. During the last decade, interest payments, due only on foreign debt, did not exceed the equivalent of 2 percentage points of GDP. There is no domestic debt because any potential budgetary shortfall has been financed indirectly by the state enterprises.

Outlays on public administration (central and local governments) and security (police, border patrol, and the armed forces) account for most of the remainder of current expenditures, of which somewhat over 60 percent comprise wages and salaries; they rose by about 1 percentage point of GDP in 1986 to 8.5 percent, after having fallen in the early 1980s. Efforts were initiated in the late 1980s to improve administrative efficiency through governmental reorganization, and these steps have resulted in a substantial reduction in administrative posts. As a result, outlays in this category were reduced by the equivalent of over 1 percentage point of GDP between 1986 and 1989. A reduction in nominal terms was registered in 1989, and further reductions were contemplated in the 1990 budget in conjunction with additional reorganizations and cuts in government employment.

Capital Expenditures

Investment expenditures in the budget consist of direct payments to the Ministry of Construction to cover construction costs and to foreign trade enterprises to cover costs of imported capital goods. Almost half of budgetary investment outlays are financed directly through foreign loans. The budget does not distinguish between investment outlays for public works and outlays for enterprise investment. In recent years, enterprises have also financed an increasing portion of their investment from retained earnings or through loans from the State Bank, which are not included in budgetary outlays.

Financing

In the formulation of the annual budget, expenditures have generally been set equal to the planned level of domestic budgeted revenues plus foreign grants and loans, a substantial portion of which directly finances investment outlays. The State Bank acts as a conduit

[40] These subsidies typically involve transfers to marginal producers of a product to compensate for higher operating costs. Thus, instead of raising wholesale prices enough to cover costs of less efficient producers, a subsidy is granted to such enterprises in accordance with the loss incurred at the prevailing wholesale price.

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for foreign loans. If domestic budget revenues or foreign loan disbursements fall short of projections, the budget expenditures are reduced accordingly. In practice, subsidies to state enterprises are often withheld at the end of the fiscal year or tax payments arbitrarily advanced to avoid direct bank borrowing, and adjustments are made in the following year's budget. Since enterprises can receive short-term credit from the State Bank to cover liquidity shortages resulting from these operations, the budget receives indirect domestic financing. The State Bank also finances, through short-term credits, unplanned losses of state enterprises. In the subsequent budget, transfers are made to the affected enterprises to repay these loans.

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Appendix II Structure of the Banking System

Banking System

Background and Structure Through August 1990

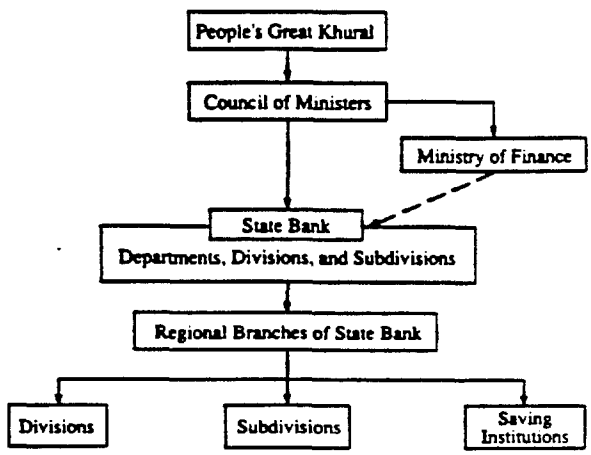
Mongolia has a monopolistic banking structure. The national bank was established in 1924 as a joint venture with the U.S.S.R., but in 1954 the Soviet shares passed to Mongolia, and the State Bank was formed. The State Bank is responsible for central banking functions, in addition to all commercial banking activities. It also acts as the State Treasury, and as such holds valuable objects and nonmonetary gold owned by the Government. The responsibilities and powers of the State Bank were established by Council of Ministers' decrees of 1954; at the end of 1990, there were no laws governing banking operations. Until the meeting of the new legislative session in September 1990, the State Bank had been responsible to the People's Great Khural, with operational review by the Council of Ministers; the Chairman of the State Bank had ministerial rank (Chart 7). In early 1991, new legislation covering the banking sector was presented to the Baga Khural for its consideration.

The State Bank issues notes and coins and is the depository for the country's international reserve assets. It is responsible for managing official holdings of foreign exchange and has sole power to carry out official foreign exchange operations. The Bank, in consultation with the Ministry of Finance, allocates foreign exchange to ministries, government institutions, and trading corporations according to an exchange budget. Foreign exchange is allotted at the beginning of the year, although the Council of Ministers may approve additional allocations. The Bank participates in decisions on monetary policy framed by the Council of Ministers and implements them in close collaboration with the Ministry of Finance.

Commercial banking operations are undertaken by the branches and by the divisions, subdivisions, and savings institutions (teller units) of these branches. There are 21 regional branches, 1 in each of the 18 aimaks and 1 in each of the 3 largest cities, Ulaanbaatar, Darkhan, and Erdenet. A department within the Bank oversees the branches' operations, while the branches have supervisory responsibility for the smaller banking units. The 19 regional divisions and 164 regional units, located in the aimaks and somons, respectively, provide full banking services, including accepting deposits and extending credit; the 260 teller units do not undertake credit operations. The principal commercial banking functions are to provide credit, facilitate orderly payments between economic units, promote investment within the guidelines of the annual plan, and act as depository for private sector savings.

At the end of August 1990, the Council of Ministers approved, in principle, the restructuring of Mongolia's banking system. The central and commercial banking functions of the State Bank will eventually be separated, and private sector participation in commercial banking will be permitted. In early September, two new commercial banks were formed: a joint-venture cooperative bank with equity participation from the Government and some state agricultural cooperatives, and an industrial bank solely owned by state enterprises.

Chart 7. Banking System, August 1990



Source: State Bank of MPR.

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Credit Operations

Access to bank credit has been restricted to economic units in the material sector and to a few enterprises in the nonmaterial sector, such as drug stores, cinemas, and book stores; central and local government and budget-supported organizations (for example, educational, health, or civic organizations) are not permitted to use bank credit. The Government, however, has indirect access to bank resources through the enterprises. By requiring enterprises to accelerate tax payments or by temporarily withholding subsidy transfers, the Government can, in effect, force enterprises to draw on their own deposits or seek loans to meet liquidity needs. Private sector lending has been restricted to the financing of housing, but in 1990 access was expanded to cover the purchase of selected consumer durables. All credit is extended without collateral, reflecting, in part, the lack of a legal framework for property transfer. Household loans, however, are guaranteed by the employer or MPRP local office. Decisions to reschedule or forgive loans, or to alter loan interest rates are made by the Council of Ministers, and the government budget absorbs any losses on principal; the State Bank absorbs any costs associated with reductions in interest rates. Such a rescheduling took place in early 1990 as a result of the large debts outstanding of some agricultural cooperatives.

Before 1988, an annual credit program was developed in the context of the annual economic plan. Each industry and cooperative would submit a projection of its credit needs; the State Planning Committee, together with the regional branches of the State Bank, would project the private sector's overall credit needs. Credit was extended by bank branches to economic units in accordance with limits set by the State Bank, as agreed in consultation with the Ministry of Finance and the State Planning Committee. These allocations were adjusted at midyear to reflect lower or higher credit needs. Since 1988, however, only the aggregate amount of credit that can be extended by the State Bank to economic units has been centrally determined. The State Bank allocates global amounts among its regional branches, and branch managers are empowered to distribute credit to economic units. There is no midyear adjustment, although credit in excess of that extended by the branch manager may be granted if requested by the economic unit, pending a case-by-case review by the Council of Ministers. Since 1988, the State Bank has been granting credit, on a priority basis, to new private cooperatives, in accordance with the policy aims outlined in the Law on Cooperatives.

Bank loans are divided into two categories: short-term (less than one year) and long-term, mainly for fixed capital investment. The household sector has access only to long-term credit. State enterprises and cooperatives may receive short-term credit primarily to meet seasonal liquidity needs as well as long-term credit for capital investment. Gross credit extended during the year is about five times the stock outstanding at the end of the period. Financing needs parallel the agricultural production cycle, with the highest requirements in the spring and summer to facilitate purchases of wool, camel hair, cashmere, and leather. In addition, short-term credit is extended to meet unanticipated operating losses of state cooperatives or enterprises, termed "current asset shortfalls." While disaggregated data are not available, loans for this purpose are estimated to be relatively small, averaging only about 6 percent of total short-term credit outstanding. Enterprises' reasons for requesting this type of financing are reviewed in the context of the subsequent year's state budget; remedial measures are taken, as necessary, or provision is made in the budget to repay the debt. Enterprises are responsible for interest they incur during the period that loans are outstanding. Finally, the State Bank extends credit for three to four years to clear intrapublic sector arrears, with the Government assuming final responsibility for these loans.

Deposit Structure[41]

The State Bank offers three broad types of deposit: current accounts, savings accounts, and foreign currency deposits. The latter are held mainly by Mongolian foreign trading companies and, more recently, by other state enterprises and some households. Until 1989, current accounts, with checking facilities, were available only to the general government and economic units in the material sector. Since 1989, private cooperatives have also been allowed to maintain current accounts. Foreign embassies hold non-interest-bearing accounts in domestic currency to meet local expenses. Savings deposits, including passbook and term deposits, are available only to households. Term deposits carry a maturity of one year but are not subject to any other type of restriction. Households do not have access to accounts with check cashing facilities, although their savings accounts may be automatically debited for mortgage payments and utility bills.

[41] Data on government contingency reserves are not provided separately. These deposits do not earn interest.

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Appendix III Structure of External Transactions and Payments

Balance of Payments

Historically, Mongolia conducted external transactions within the context of the five-year plan. During the 1970s and first half of the 1980s, the CMEA area accounted for about 98 percent of Mongolia's external current transactions and virtually all its capital inflows. Bilateral trade flows, as well as the corresponding financing operations and debt-service payments with other CMEA members, were articulated through five-year official agreements that specified government-to-government commitments. Details of trade and payments arrangements were set forth in annual protocols and implemented through legally binding contracts; settlement was effected through the IBEC. Trade was undertaken by state foreign trade enterprises that handled all transactions except project aid-in-kind assistance (turnkey and "other" technical assistance). Mongolia sustained large deficits in current transactions with the U.S.S.R. and considerably smaller deficits with other CMEA countries.

In 1972, CMEA trading partners adopted a convention that linked trade prices to world prices using a five-year moving average. In 1975, Mongolia concluded a bilateral agreement with the U.S.S.R. under which financing of the trade deficit was separated into a grant component, which financed changes in the trade balance resulting from changes in the terms of trade since 1974, and a loan component, which financed the remaining imbalances. In 1986, the CMEA abandoned the five-year moving average for trade prices, adjusting prices to prevailing world market levels and fixing prices thereafter. Explicit export bonuses, however, were granted to Mongolia by the U.S.S.R. for compliance with targeted export volumes. The distinction between financing for terms of trade reasons and other financing was eliminated; trade financing provided by the U.S.S.R. was consolidated and provided exclusively on a loan basis.

Mongolia's trade with the convertible currency area was also conducted by the foreign trade enterprises, although in 1986 such trade was concentrated in a specialized foreign trade enterprise that was established for this purpose. Trade flows were also targeted within the context of the annual plan. While country- or firm-specific guidelines do not now exist, and the foreign trade enterprise is permitted to negotiate with foreign suppliers, access to foreign exchange remains strictly controlled. The State Bank, together with the Ministry of Finance, elaborates the foreign exchange budget, which is approved by the Council of Ministers. Foreign exchange allocations are made to the foreign trade enterprises consistent with plan specifications. Since 1989, state enterprises and cooperatives, as well as private cooperatives, have been permitted to undertake trade without the intermediation of the state foreign trade enterprise, as long as they meet the foreign exchange requirements without using official foreign exchange and obtain the requisite licenses.

Mongolia's current transactions with the convertible currency area have generally been in balance or recorded a small surplus. However, in 1983 the current account shifted into deficit as earnings from exports declined because of falling world market prices for Mongolia's major products and imports continued to expand. The country's foreign currency reserves declined by $4 million to reach a level of $7 million, equivalent to seven weeks of imports from the convertible currency area. To boost foreign exchange reserves, the Mongolian authorities took steps in 1984 to redirect a number of export products to the convertible currency area, while constraining import growth. Economic reforms since 1988 have also expanded the volume of transactions with the convertible currency area. By 1989, convertible currency earnings from exports had risen to $52 million and, at the end of 1989, official foreign exchange holdings had increased to $121 million.

Exchange and Trade System

Foreign Exchange Allocation and Control

Mongolia's system of foreign exchange control is in transition. Until the new government was formed in September 1990, control over foreign exchange was exercised by the Great Khural, which approved the foreign exchange budget as part of the overall annual economic plan. The Ministry of Finance, the State Bank, and the State Planning Committee (the latter was abolished in September 1990) formulated the

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sectoral allocations of the foreign exchange budget. Foreign exchange continues to be allocated by the State Bank to state foreign trade enterprises and, since 1989, to selected state enterprises in accordance with the foreign exchange budget. Also since 1989, both state and private cooperatives have been allowed to utilize their own foreign currency balances held in the State Bank. Foreign exchange can be obtained from the State Bank, subject to availability and in compliance with the exchange budget, or, since August 1990, through the foreign exchange auction.

Prescription of Currency

Payments to and from countries with which Mongolia has multilateral and bilateral government-to-government agreements are made in the currencies and in accordance with the procedures set forth in those agreements. If there are no specific agreements, or if trade takes place outside the scope of the agreements, settlement is made in a convertible currency. Mongolia maintained bilateral clearing arrangements until the end of 1990 with China, the Democratic People's Republic of Korea, and Yugoslavia, and is part of the CMEA multilateral clearing system. Its accounts with China and the Democratic People's Republic of Korea were maintained in balance, but imbalances arose in its payments arrangement with Yugoslavia. Before 1991, bilateral imbalances with CMEA trading partners were not permitted to arise in commercial transactions except with the U.S.S.R. Mongolia maintained bilateral clearing arrangements with other CMEA countries for noncommercial transactions. In January 1991, all bilateral clearing arrangements, except that with the Democratic People's Republic of Korea, were terminated.

Foreign Exchange Retention Scheme

Foreign exchange surrender regulations represent a mix of a full-surrender requirement, which applies to foreign exchange earned by enterprises from exports up to the target amounts specified in the plan, and a variety of partial-surrender schemes. In all cases, the surrender is to the State Bank. Enterprises surrender at the commercial rate of exchange for the dollar, while receipts generated by tourism receive the more depreciated noncommercial rate. Retention schemes include the following: enterprises that surpass their targets may retain up to 70 percent of their excess foreign exchange; enterprises for which export targets are not set may retain up to 50 percent of export receipts; and cooperatives may retain up to 90 percent. The tourist agency, *Zhuulchin*, must surrender 40 percent of its foreign exchange receipts. Surrender ratios are higher for MIAT (the airline), which must surrender 90 percent of foreign exchange earnings. The exact amount to be surrendered is specified, on a case-by-case basis, by the Ministry of Finance subject to the ceilings listed above. There are no restrictions on access to retained foreign exchange, which may be deposited in foreign exchange accounts or used for any purpose, subject to compliance with appropriate regulations (for example, import licenses).

Resident and Nonresident Accounts

Residents and nonresidents may freely open and draw on accounts denominated in convertible currencies. Before 1990, foreign exchange accounts existed, but depositors had to provide evidence that the foreign exchange had been obtained legally, for example, while working abroad for an international organization. At present, no documentation is requested.

Official Reserves

Official reserves are composed of the State Bank's holdings of gold and convertible currencies, which currently amount to 102,000 troy ounces of monetary gold, compared with 74,000 troy ounces in 1980. Official foreign exchange holdings are in the form of cash and deposits and include all major convertible currencies. Since 1988, the State Bank has maintained a small but active foreign currency dealing operation. From 1980 to 1989, holdings of convertible foreign currencies increased thirteen fold, to $121 million from $9 million. The increase came mainly after 1984 as a result of a conscious policy of redirecting exports (particularly cashmere) to the convertible currency area while constraining import growth.

Trade System, Capital Transactions, and Gold

Imports and Exports

Traditionally, foreign trade has been closely regulated and highly centralized; however, the scope for decentralized initiatives has expanded since 1989. Until 1991, Mongolia had no system of customs duties. The authorities are introducing a new customs system under which tariffs are expected to be set relatively low and applied uniformly. Until recently, international trade was conducted exclusively through the intermediation of state foreign trade enterprises. Trade with other CMEA members, Yugoslavia, the Democratic People's Republic of Korea, and China was handled by four state-owned enterprises. These enterprises acted solely as purchasing agents to ensure, subject to oversight by the Ministry of Trade and International Cooperation, compliance with bilateral trade arrangements. Mongolexport was responsible for all exports, and three

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enterprises handled imports, by type of good: Teknikimport imported machinery and equipment; Rasnoimport imported consumer goods; and Avtoneftimport imported motor vehicles and petroleum products. With the growth of trade with the convertible currency area, a new company, Mongolimpex, was created in 1986 and placed in charge of such trade.

Since 1989, state enterprises and cooperatives have been permitted to engage in foreign trade independently of the state foreign trade enterprises. In order to do so, the enterprise or cooperative must obtain a license, which requires the approval of the Ministry of Finance and, in the case of enterprises, of the ministry responsible for the enterprise. Export licenses for specific goods are granted if the ministry judges that the enterprise has the ability to sell the product on international markets.

Invisibles

The foreign exchange budget also applies to invisible receipts and payments to and from the convertible currency area. Payments of dividends and interest to the convertible currency area are permitted under the Law of Foreign Investment (1990). In relations with the CMEA area, transactions for some categories of invisibles are arranged by government agreement (for example, freight charges on railways).

There are limits on the amount of foreign exchange that can be purchased by students, tourists, and business travelers. Foreign exchange for health care abroad is provided on the basis of "reasonable cost."

Capital

Traditionally, foreign direct investment was limited to joint ventures between Mongolian state enterprises and the state enterprises of other CMEA nations. More recently, foreign investment by private corporations has been encouraged. The Law on Foreign Investment is intended to attract foreign investment by codifying the procedures for establishing foreign companies in Mongolia and providing certain guarantees and privileges to foreign investors. Among the provisions of the law are that there will be no nationalization, and investors will have the right to dispose of their assets. The right to transfer profits abroad is protected. There is a 40 percent ceiling on profit taxes, as well as a three-year exemption. In addition, the law stipulates that entities with foreign participation will receive and make payments on the basis of world market or other agreed prices; they may import or export directly or in cooperation with the foreign trade enterprises. The law invites investment in all sectors of the economy unless legislation stipulates otherwise and, in particular, encourages investment in export promotion, in projects using advanced technology, and in the exploitation of natural resources.

Gold

The State Bank buys all gold mined in Mongolia and exerts monopolistic control over its exportation.

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Appendix IV Mongolian Statistics

Mongolia's statistical base is comprehensive, although it emphasizes information related to real sector activities. Until recently, economic and financial data were maintained primarily to measure performance relative to the five-year plan. Their coverage and consolidation are consistent with those of other command economies. To the extent possible, these data have been transformed to correspond with standard international presentations. For the most part, data management is computerized.

Real Sector

National income data are compiled on the basis of material balances. Gross material product (GMP) is calculated, using an input/output formulation, for goods and those services (for example, printing, publishing, and utilities) that are directly required for the production and distribution of goods in the material sector. Inputs of nonmaterial services (such as finance, insurance, housing, public administration, defense, education, and welfare) are excluded. Total GMP is the sum of the gross output of industry, construction, agriculture, forestry, passenger transport, communications, and other branches of material production valued, for the most part, at producer prices inclusive of turnover taxes. To calculate net material product (NMP), intermediate consumption of material goods and services, including capital depreciation, is subtracted from GMP. To convert NMP to GDP, the net value of nonmaterial services (that is, gross output of nonmaterial services less intermediate consumption in the nonmaterial sector) and capital depreciation, exclusive of capital repair, are added, while business travel expenses, and losses in stocks, are subtracted.

Data on physical output appear to be the most reliable, reflecting actual and not targeted output, whereas national income account data on an expenditure basis are less reliable. Nominal investment flows, which include current spending for ongoing projects, are based on a distorted and, until 1988, rigid price structure. Data on inventory accumulation are partial, and losses on fixed capital and inventories are estimated. National account deflators and official retail price indices appear to have considerably underestimated underlying inflation rates in Mongolia, causing an underestimation of nominal rates of growth of NMP, as well as an overestimation of real rates of growth.

Prices

Price data reflect changes in official prices. Prices of goods marketed outside official channels, such as agricultural markets, are neither monitored nor collated.

Fiscal Data

The elaboration of budgetary data as presented in this paper was undertaken for the first time in August 1990. It was not possible to classify all current and capital spending according to standard IMF methodology. Financial accounts for state enterprises, while available, are not considered reliable and, hence, are not included in this report.

Monetary Data

State Bank accounts were made available for the first time in August 1990.

Balance of Payments

For the purpose of balance of payments compilation, state bank data were used when available.

Current Transactions

Data on trade flows are compiled by the State Bank on a payments basis, and by the Ministry of Trade on a shipments basis. The latter reflect notifications of delivery by the state foreign trade enterprises. Discrepancies between trade statistics compiled on payments and shipments bases averaged 5 percentage points for exports and 2 percentage points for imports during 1980–89. These differences reflect leads and lags arising between shipment and payment as well as differences in coverage; the State Bank data are more comprehensive because they include gold sales and, since 1986,

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›nuses paid by the U.S.S.R. for Mongolia's compli- ıce with annual export volume targets.

Export data are reported on an f.o.b. basis; import ıta are primarily on a c.i.f. basis although some ›ntracts are specified f.o.b. Both the State Bank and e Ministry of Trade present trade statistics that stinguish between transactions with other CMEA ember countries, transactions with convertible cur- ›ncy area countries, and transactions under bilateral earing arrangements.[42] Data on CMEA trade were ›mpiled in units of transferable rubles, whereas data n trade with the other two regions were compiled ›imarily in U.S. dollars or other convertible currencies. ›isaggregated information on the commodity compo- tion of trade is maintained only by the Ministry of rade, on a shipments basis. Cross-border trade, con- sting mainly of barter trade with China, in which ongolian agricultural raw materials are exported in ›change for Chinese consumer goods, is not captured either set of official data.

Data on services receipts and payments were provided the State Bank. Interest payments and receipts are ›ailable on a cash basis. Dividends paid abroad on int ventures are not recorded. Data on current pay- ents financed by project loans, in the form of turnkey ›jects (where labor services and materials are im- ›rted) and "other" technical assistance (where only aterials are imported), are not available from either e State Bank or the Ministry of Trade. The Ministry of Finance maintains data on loans incurred for these projects, but information on the breakdown between goods and labor services is not available.

[42] Settlement of bilateral clearing agreements with China, the emocratic People's Republic of Korea, and Yugoslavia takes place clearing Swiss francs, clearing U.S. dollars, and clearing rubles, spectively.

Capital and Reserve Transactions

Data on foreign assistance are maintained by the Ministry of Finance and are considered to be comprehensive with respect to the CMEA area. Bilateral and multilateral aid that is not channeled through the budget is generally not recorded. Estimates of annual disbursements by United Nations agencies, obtained directly by the IMF staff, were included in the consolidated balance of payments. Changes in net foreign assets for the period for which data were not provided (before 1980) were estimated from movements in the current and capital accounts with the convertible currency area. Errors and omissions in the estimated balance of payments with the CMEA and convertible currency areas have fluctuated widely, partly reflecting statistical difficulties.

Exchange Rate Conversion

A consolidated balance of payments, combining external transactions with the CMEA and convertible currency areas and those that took place under bilateral arrangements, has been prepared by the staff. These data should be interpreted cautiously, however, since data denominated in transferable rubles were converted into U.S. dollars at a rate derived from official commercial rates, and the resulting cross rate is very close to the transferable ruble/dollar rate recorded by the IBEC, a rate that is considered to be highly overvalued.

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Table A1. Real NMP and Real GDP

(Constant prices; 1986 = 100)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989 Est.
					(In millions of tugriks)					
NMP	5,006.3	5,427.1	5,885.9	6,242.0	6,515.9	6,865.8	7,247.6	7,489.2	7,802.1	8,564.6
Industry	1,575.2	1,714.3	1,897.9	2,085.8	2,267.7	2,390.0	2,442.8	2,511.3	2,604.6	2,902.3
Agriculture	1,071.4	1,185.7	1,352.7	1,364.9	1,314.3	1,437.2	1,520.7	1,424.2	1,456.7	1,659.0
Construction	342.1	342.3	346.1	352.6	367.5	382.0	423.1	503.8	563.1	617.2
Transportation	480.7	508.0	541.9	572.6	605.9	658.5	740.8	750.8	786.3	774.3
Communications	52.5	63.5	71.3	82.6	89.2	93.6	104.4	110.3	119.6	129.5
Distribution and warehousing	1,365.0	1,493.3	1,545.8	1,649.5	1,737.6	1,770.8	1,865.2	2,036.2	2,129.8	2,327.4
Other	119.4	120.0	130.2	134.0	133.7	133.7	150.6	152.6	142.0	154.9
Adjustment items:										
Nonmaterial services[1]	819.6	870.8	895.3	922.4	956.6	1,000.7	1,065.4	1,149.2	1,242.0	1,285.4
Depreciation of fixed capital	1,154.4	1,245.1	1,361.5	1,421.0	1,592.4	1,709.7	1,845.1	1,990.1	2,109.4	2,150.5
Other[2]	−795.8	−840.8	−877.4	−906.4	−931.4	−975.0	−848.1	−908.4	−940.3	−1351.0
GDP	6,184.0	6,702.2	7,265.3	7,679.0	8,133.5	8,601.2	9,310.0	9,720.1	10,213.2	10,649.5
					(Annual percent change)					
NMP	...	8.4	8.5	6.0	4.4	5.4	5.6	3.3	4.2	9.8
GDP	...	8.4	8.4	5.7	5.9	5.7	8.2	4.4	5.1	4.3

Sources: Mongolian authorities; and IMF staff calculations.

[1] Gross output of nonmaterial services.

[2] Including subsidies from the state budget for intermediate consumption, and intermediate consumption of nonmaterial services.

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Table A2. Implicit NMP Deflators

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
					(1986 = 100)					
NMP	111.5	113.4	116.1	117.5	113.2	111.3	100.0	99.8	101.0	100.9
Industry	103.8	105.4	111.2	113.1	105.1	104.3	100.0	100.3	101.3	100.6
Agriculture	78.2	85.0	90.2	96.7	95.1	86.1	100.0	98.7	103.7	103.9
Construction	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Transportation	117.0	117.0	117.0	117.0	117.0	117.0	100.0	100.0	100.0	100.0
Communications	117.0	117.0	117.0	116.9	116.9	117.0	100.0	100.0	100.0	100.0
Distribution and warehousing	148.3	148.1	149.3	145.5	140.2	142.1	100.0	100.0	100.0	100.0
Other	95.0	95.0	95.2	95.0	95.0	95.0	100.0	100.0	100.0	100.0
					(Annual percent change)					
NMP	...	1.7	2.4	1.2	−3.7	−1.7	−10.2	−0.2	1.2	−0.1
Industry	...	1.6	5.5	1.7	−7.0	−0.8	−4.1	0.3	1.0	−0.7
Agriculture	...	8.7	6.1	7.2	−1.7	−9.5	16.1	−1.3	5.1	0.2
Construction	...	—	—	—	—	—	—	—	—	—
Transportation	...	—	—	—	—	—	−14.6	—	—	—
Communications	...	—	—	—	—	0.1	−14.5	—	—	—
Distribution and warehousing	...	−0.2	0.8	−2.5	−3.6	1.3	−29.6	—	—	—
Other	...	—	0.3	−0.3	—	—	5.3	—	—	—

Sources: Mongolian authorities; and IMF staff calculations.

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Table A3. NMP and GDP at Current Prices

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989 Est.
					(In millions of tugriks)					
NMP	5,576.9	6,150.6	6,825.7	7,325.3	7,378.1	7,636.5	7,247.6	7,478.7	7,889.9	8,646.0
Industry	1,634.6	1,806.8	2,110.6	2,358.2	2,383.6	2,493.3	2,442.8	2,519.5	2,639.1	2,919.8
Agriculture	838.3	1,007.7	1,219.5	1,320.1	1,250.2	1,237.7	1,520.7	1,405.5	1,510.0	1,722.9
Construction	342.1	342.3	346.1	352.6	367.5	382.0	423.1	503.8	563.1	617.2
Transportation	562.6	594.6	634.2	670.1	709.1	770.7	740.8	750.8	786.3	774.3
Communications	61.4	74.4	83.4	96.6	104.3	109.5	104.4	110.3	119.6	129.5
Distribution and warehousing	2,024.5	2,210.9	2,307.9	2,400.4	2,436.4	2,516.3	1,865.2	2,036.2	2,129.8	2,327.4
Other	113.4	114.0	124.0	127.3	127.0	127.0	150.6	152.6	142.0	154.9
Adjustment items:										
Nonmaterial services[1]	819.6	870.8	895.3	922.4	956.6	1,000.7	1,065.4	1,149.2	1,242.0	1,285.4
Depreciation of fixed capital	1,154.4	1,245.1	1,361.5	1,421.0	1,592.4	1,709.7	1,845.1	1,990.0	2,109.1	2,150.5
Other[2]	−795.8	−840.8	−877.4	−906.4	−931.4	−975.0	−848.1	−908.4	−940.3	−1,351.0
GDP	6,755.1	7,425.7	8,205.1	8,762.3	8,995.7	9,371.9	9,310.0	9,709.5	10,300.7	10,730.9
					(Percent of NMP)					
Adjustment items:										
Nonmaterial services	14.7	14.2	13.1	12.6	13.0	13.1	14.7	15.4	15.7	14.9
Depreciation of fixed capital	20.7	20.2	19.9	19.4	17.7	22.3	25.5	26.6	26.7	24.9
Other	−14.3	−13.7	−12.9	−12.4	−12.6	−12.8	−11.7	−12.2	−11.8	−15.7
GDP	121.1	120.7	120.2	119.6	121.9	122.7	128.5	129.8	130.6	124.1

Sources: Mongolian authorities; and IMF staff calculations.
[1] Gross output of nonmaterial services.
[2] Including subsidies from state budget for intermediate consumption, and intermediate consumption of nonmaterial services.

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A4. Composition of NMP and GDP at Current Prices

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989 Est.
					(Percent share of GDP)					
NP	82.6	82.8	83.2	83.6	82.0	81.5	77.8	77.0	76.6	80.6
ndustry	24.2	24.3	25.7	26.9	26.5	26.6	26.2	25.9	25.6	27.2
Agriculture	12.4	13.6	14.9	15.1	13.9	13.2	16.3	14.5	14.7	16.1
Construction	5.1	4.6	4.2	4.0	4.1	4.1	4.5	5.2	5.5	5.8
Transportation	8.3	8.0	7.7	7.6	7.9	8.2	8.0	7.7	7.6	7.2
Communications	0.9	1.0	1.0	1.1	1.2	1.2	1.1	1.1	1.2	1.2
Distribution and warehousing	30.0	29.8	28.1	27.4	27.1	26.8	20.0	21.0	20.7	21.7
Other	1.7	1.5	1.5	1.5	1.4	1.4	1.6	1.6	1.4	1.4
justment items:										
Nonmaterial services[1]	12.1	11.7	10.9	10.5	10.6	10.7	11.4	11.8	12.1	12.0
Depreciation of fixed capital	17.1	16.8	16.6	16.2	17.7	18.2	19.8	20.5	20.5	20.0
Other[2]	−11.8	−11.3	−10.7	−10.3	−10.4	−10.4	−9.1	−9.4	−9.1	−12.6
P	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
					(Annual percent change)					
NP	...	10.3	11.0	7.3	0.7	3.5	−5.1	3.2	5.5	9.6
ndustry	...	10.5	16.8	11.7	1.1	4.6	−2.0	3.1	4.7	10.6
Agriculture	...	20.2	21.0	8.2	−5.3	−1.0	22.9	−7.6	7.4	14.1
Construction	...	0.1	1.1	1.9	4.2	3.9	10.8	19.1	11.8	9.6
Transportation	...	5.7	6.7	5.7	5.8	8.7	−3.9	1.3	4.7	−1.5
Communications	...	21.0	12.2	15.8	8.0	5.0	−4.7	5.7	8.4	8.3
Distribution and warehousing	...	9.2	4.4	4.0	1.5	3.3	−25.9	9.2	4.6	9.3
Other	...	0.5	8.8	2.7	−0.2	—	18.6	1.3	−6.9	9.1
justment items:										
Nonmaterial services[1]	...	6.2	2.8	3.0	3.7	4.6	6.5	7.9	8.1	3.5
Depreciation of fixed capital	...	7.9	9.3	4.4	12.1	7.4	7.9	7.9	6.0	2.0
Other[2]	...	5.7	4.4	3.3	2.8	4.7	−13.0	7.1	3.5	43.7
DP	...	9.9	10.5	6.8	2.7	4.2	−0.7	4.3	6.1	4.2

Sources: Mongolian authorities, and IMF staff calculations.

[1] Total nonmaterial services.

[2] Including subsidies from state budget for intermediate consumption and intermediate consumption of nonmaterial services.

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Table A5. Gross Output, Material Input, and NMP

(Current prices; in millions of tugriks)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989 Est.
Industry										
Gross output	4,636.2	5,162.8	5,775.1	6,316.1	6,704.9	7,213.6	8,195.2	8,542.2	8,797.8	9,243.7
Material input	3,001.6	3,356.0	3,664.5	3,957.9	4,321.3	4,720.3	5,752.4	6,022.7	6,158.7	6,323.9
NMP	1,634.6	1,806.8	2,110.6	2,358.2	2,383.6	2,493.3	2,442.8	2,519.5	2,639.1	2,919.8
Agriculture										
Gross output	1,624.2	1,790.6	2,041.5	2,222.9	2,225.7	2,279.9	2,720.8	2,750.3	2,847.8	2,967.3
Material input	785.9	782.9	822.0	902.8	975.5	1,042.2	1,200.1	1,344.8	1,337.8	1,244.4
NMP	838.3	1,007.7	1,219.5	1,320.1	1,250.2	1,237.7	1,520.7	1,405.5	1,510.0	1,722.9
Construction										
Gross output	1,148.2	1,201.7	1,253.7	1,310.7	1,321.5	1,475.1	1,768.9	1,869.1	2,082.7	2,222.6
Material input	806.1	859.4	907.6	958.1	954.0	1,093.1	1,345.8	1,365.3	1,519.6	1,605.4
NMP	342.1	342.3	346.1	352.6	367.5	382.0	423.1	503.8	563.1	617.2
Transportation and communications										
Gross output	1,225.0	1,317.4	1,417.7	1,515.6	1,611.6	1,739.1	1,979.7	2,036.7	2,085.3	2,068.2
Material input	601.0	648.5	700.1	748.9	798.2	858.9	1,134.5	1,175.6	1,179.4	1,164.4
NMP	624.0	668.9	717.6	766.7	813.4	880.2	845.2	861.1	905.9	903.8
Distribution and warehousing										
Gross output	2,153.4	2,348.8	2,457.9	2,572.3	2,614.2	2,708.0	2,073.9	2,270.5	2,374.4	2,571.7
Material input	128.9	137.9	150.0	171.9	177.8	191.7	208.7	234.3	244.6	244.3
NMP	2,024.5	2,210.9	2,307.9	2,400.4	2,436.4	2,516.3	1,865.2	2,036.2	2,129.8	2,327.4
Other sectors										
Gross output	128.4	131.4	139.0	144.0	146.8	145.6	172.5	177.3	172.5	188.2
Material input	15.0	17.4	15.0	16.7	19.8	18.6	21.9	24.7	30.5	33.3
NMP	113.4	114.0	124.0	127.3	127.0	127.0	150.6	152.6	142.0	154.9
All material sectors										
Gross output	10,915.4	11,952.7	13,084.9	14,081.6	14,624.7	15,561.3	16,911.0	17,646.1	18,360.5	19,261.7
Material input	5,338.5	5,802.1	6,259.2	6,756.3	7,246.6	7,924.8	9,663.4	10,167.4	10,470.6	10,615.7
NMP	5,576.9	6,150.6	6,825.7	7,325.3	7,378.1	7,636.5	7,247.6	7,478.7	7,889.9	8,646.0

Source: Mongolian authorities

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Table A6. Income and Expenditure of Population

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989 Est.
					(In millions of tugriks, unless otherwise specified)					
Income of population	3,558.3	3,627.1	3,819.5	4,018.5	4,211.9	4,387.9	4,628.6	4,808.9	5,028.0	5,266.6
Of which:										
Wages and salary	2,015.4	2,135.1	2,265.2	2,436.6	2,560.8	2,682.6	2,808.8	2,946.1	3,101.9	3,287.8
Income from agricultural cooperatives	477.8	501.8	531.1	528.8	531.7	541.0	566.4	578.7	584.6	668.5
Self-employment income	123.2	109.1	106.2	109.4	109.3	117.4	150.5	158.7	169.9	179.7
Subsidies and allowances	430.7	424.8	450.4	487.6	505.6	532.7	563.7	600.4	635.1	672.1
Scholarships	110.5	123.7	124.8	132.8	138.6	138.4	146.7	142.9	128.9	126.3
Expenditure of population	3,538.5	3,612.0	3,822.4	4,164.5	4,351.1	4,376.5	4,597.0	4,758.7	4,992.3	5,234.6
Of which:										
Products	2,943.4	2,993.8	3,170.1	3,329.8	3,472.6	3,590.0	3,723.3	3,876.1	4,037.9	4,290.9
Services	595.1	618.2	652.3	690.7	731.9	766.5	873.8	882.6	954.4	943.7
Savings of population[1]	19.8	15.1	−2.9	−146.0	−139.2	11.4	31.6	50.2	35.7	32.0
Savings ratio[2]	0.6	0.4	−0.1	−3.6	−3.3	0.3	0.7	1.0	0.7	0.6
					(Annual percent change)					
Income of population	...	1.9	5.3	5.2	4.8	4.2	5.5	3.9	4.6	4.7
Of which:										
Wages and salary	...	5.9	6.1	7.6	5.1	4.8	4.7	4.9	5.3	6.0
Income from agricultural cooperatives	...	5.0	5.8	−0.4	0.5	1.7	4.7	2.2	1.0	14.4
Self-employment income	...	−11.4	−2.7	3.0	−0.1	7.4	28.2	5.4	7.1	5.8
Subsidies and allowances	...	−1.4	6.0	8.3	3.7	5.4	5.8	6.5	5.8	5.8
Scholarships	...	11.9	0.9	6.4	4.4	−0.1	6.0	−2.6	−9.8	−2.0
Expenditure of population	...	2.1	5.8	8.9	4.5	0.6	5.0	3.5	4.9	4.9
Of which:										
Products	...	1.7	5.9	5.0	4.3	3.4	3.7	4.1	4.2	6.3
Services	...	3.9	5.5	5.9	6.0	4.7	14.0	1.0	8.1	−1.1

Sources: Mongolian authorities; and IMF staff calculations.

[1] The negative savings for 1982–84 appear to reflect measurement problems.

[2] Calculated as a proportion of total income.

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Table A7. Sources and Uses of NMP

(Current prices; in millions of tugriks)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989 Est.
Sources of NMP	5,576.9	6,150.6	6,825.7	7,325.3	7,378.1	7,636.5	7,247.6	7,478.7	7,889.9	8,646.0
Industry	1,634.6	1,806.8	2,110.6	2,358.2	2,383.6	2,493.3	2,442.8	2,519.5	2,639.1	2,919.8
Agriculture	838.3	1,007.7	1,219.5	1,320.1	1,250.2	1,237.7	1,520.7	1,405.5	1,510.0	1,722.9
Construction	342.1	342.3	346.1	352.6	367.5	382.0	423.1	503.8	563.1	617.2
Distribution and warehousing	2,024.5	2,210.9	2,307.9	2,400.4	2,436.4	2,516.3	1,865.2	2,036.2	2,129.8	2,327.4
Other[1]	737.4	782.9	841.6	894.0	940.4	1,007.2	995.8	1,013.7	1,047.9	1,058.7
Final uses[2]	5,576.9	6,150.6	6,825.7	7,325.3	7,378.1	7,636.5	7,247.6	7,478.7	7,889.9	8,646.0
Personal consumption	3,500.5	3,647.1	3,856.4	4,068.1	4,262.5	4,429.5	4,618.7	4,844.4	5,066.7	5,348.3
Social consumption	1,128.6	1,388.5	1,446.0	1,543.2	1,632.3	1,739.5	1,928.5	1,997.0	2,147.9	2,174.8
Accumulation	2,777.6	3,762.5	3,841.3	4,018.4	3,834.4	4,357.2	4,269.9	3,594.6	3,513.1	3,714.2
Fixed investment, net	2,882.5	2,358.4	2,642.6	2,544.4	4,298.5	4,759.0	2,505.8	3,213.3	2,824.9	3,195.5
Change in stocks	169.1	381.1	533.9	645.1	392.4	655.7	581.6	−114.9	−203.4	134.4
Unfinished construction	−436.3	901.0	452.8	668.3	−1,072.1	−1,273.9	1,018.1	115.9	493.8	260.1
Losses on fixed capital and stocks	162.3	122.0	212.0	160.6	215.6	216.4	164.4	380.3	397.8	124.2
External balance and other[3]	−1,829.8	−2,647.5	−2,318.0	−2,304.4	−2,351.1	−2,889.7	−3,569.5	−2,957.3	−2,837.8	−2,591.3

Source: Mongolian authorities.

[1] Including transportation and communications.

[2] Expenditures.

[3] Includes data on exports and imports of goods and material services provided by the State Bank (on a payments basis) as well as statistical discrepancies (in particular, overestimation of personal consumption, unfinished construction, and loss on fixed capital and stocks).

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Table A8. Gross Fixed Capital Investment[1]

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989 Est.
					(In millions of tugriks)					
All sectors	3,104.0	4,288.9	4,646.1	3,917.3	4,301.9	4,633.9	4,762.5	4,552.2	4,537.9	4,806.8
Material sector	2,104.3	2,939.6	3,170.2	2,805.2	3,036.6	3,057.9	3,275.1	2,894.3	2,992.0	3,097.0
Industry	1,254.8	1,767.2	2,017.5	1,740.9	1,668.3	1,583.3	1,870.1	1,397.8	1,246.5	1,401.8
Agriculture	408.6	488.2	569.2	552.2	691.6	671.0	615.6	601.2	687.5	731.6
Construction	60.5	242.7	200.8	147.8	213.8	357.7	138.1	237.7	318.4	213.7
Transportation	165.8	223.2	262.6	280.7	288.1	293.1	445.3	461.7	552.3	515.5
Communications	157.4	131.7	56.8	62.7	109.8	89.3	102.2	58.9	51.6	65.2
Trade	52.6	82.1	63.3	20.3	63.5	58.7	100.9	122.2	127.6	162.2
Other	4.6	4.5	—	0.6	1.5	4.8	2.9	14.8	8.1	7.0
Nonmaterial sector	999.7	1,349.3	1,475.9	1,112.1	1,265.3	1,576.0	1,487.4	1,657.9	1,545.9	1,709.8
					(Percent of total)					
All sectors	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Material sector	67.8	68.5	68.2	71.6	70.6	66.0	68.8	63.6	65.9	64.4
Industry	40.4	41.2	43.4	44.4	38.8	34.2	39.3	30.7	27.5	29.2
Agriculture	13.2	11.4	12.3	14.1	16.1	14.5	12.9	13.2	15.2	15.2
Construction	1.9	5.7	4.3	3.8	5.0	7.7	2.9	5.2	7.0	4.4
Transportation	5.3	5.2	5.7	7.2	6.7	6.3	9.4	10.1	12.2	10.7
Communications	5.1	3.1	1.2	1.6	2.6	1.9	2.1	1.3	1.1	1.4
Trade	1.7	1.9	1.4	0.5	1.5	1.3	2.1	2.7	2.8	3.4
Other	0.1	0.1	—	—	—	0.1	0.1	0.3	0.2	0.1
Nonmaterial sector	32.2	31.5	31.8	28.4	29.4	34.0	31.2	36.4	34.1	35.6
					(Annual percent change)					
All sectors	...	38.2	8.3	−15.7	9.8	7.7	2.8	−4.4	−0.3	5.9
Material sector	...	39.7	7.8	−11.5	8.2	0.7	7.1	−11.6	3.4	3.5
Industry	...	40.8	14.2	−13.7	−4.2	−5.1	18.1	−25.3	−10.8	12.5
Agriculture	...	19.5	16.6	−3.0	25.2	−3.0	−8.3	−2.3	14.4	6.4
Construction	...	301.2	−17.3	−26.4	44.7	67.3	−61.4	72.1	34.0	−32.9
Transportation	...	34.6	17.7	16.9	2.6	1.7	51.9	3.7	19.6	−6.7
Communications	...	−16.3	−56.9	10.4	75.1	−18.7	14.4	−42.4	−12.4	26.4
Trade	...	56.1	−22.9	−67.9	212.8	−7.6	71.9	21.1	4.4	27.1
Other	...	−2.2	...	...	150.0	220.0	−39.6	410.3	−45.3	−13.6
Nonmaterial sector	...	35.0	9.4	−24.6	13.8	24.6	−5.6	11.5	−6.8	10.6

Sources: Mongolian authorities, and IMF staff calculations.
[1] Components may not add to totals because of rounding.

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Table A9. Output of Major Agricultural Products

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989 Est.
					(In millions of tugriks)					
Value of gross output	1,746.1	1,959.4	2,176.9	2,209.7	2,140.0	2,464.5	2,552.5	2,468.7	2,536.2	2,650.7
Animal husbandry	1,426.6	1,561.6	1,600.0	1,412.0	1,438.1	1,648.3	1,736.0	1,719.6	1,775.2	1,848.7
Crop production	319.5	397.8	576.9	797.7	701.9	816.2	816.5	749.1	761.0	802.0
					(In thousands of metric tons, unless otherwise specified)					
Main products: output volume										
Meat	468.0	486.8	484.0	475.4	481.7	465.2	495.0	484.7	462.7	491.9
Milk (mn. liters)	219.1	221.2	232.5	234.7	252.4	261.6	287.3	290.5	291.5	310.0
Butter (metric tons)	3,812.8	3,940.2	4,006.7	4,022.9	4,400.0	4,380.9	4,585.2	4,721.9	4,622.3	4,844.7
Eggs (millions)	21.1	19.2	19.0	22.1	23.3	25.9	27.2	28.7	31.1	35.8
Wool	27.9	28.6	29.2	27.8	27.2	26.0	26.2	25.3	25.8	26.5
Cereals	286.8	343.9	551.3	812.8	597.9	886.0	869.4	689.3	814.3	839.1
Potatoes	37.9	40.4	75.1	97.5	126.0	113.9	132.9	147.6	103.2	155.5
Other vegetables	26.3	29.1	36.1	34.3	35.4	41.2	46.4	48.0	56.3	59.5
					(Annual percent change)					
Value of gross output	...	12.2	11.1	1.5	−3.2	15.2	3.6	−3.3	2.7	4.5
Animal husbandry	...	9.5	2.5	−11.8	1.8	14.6	5.3	−0.9	3.2	4.1
Crop production	...	24.5	45.0	38.3	−12.0	16.3	—	−8.3	1.6	5.4
Main products: output volume										
Meat	...	4.0	−0.6	−1.8	1.3	−3.4	6.4	−2.1	−4.5	6.3
Milk	...	1.0	5.1	0.9	7.5	3.6	9.8	1.1	0.3	6.3
Butter	...	3.3	1.7	0.4	9.4	−0.4	4.7	3.0	−2.1	4.8
Eggs	...	−9.0	−1.0	16.3	5.4	11.2	5.0	5.5	8.4	15.1
Wool	...	2.5	2.1	−4.8	−2.2	−4.4	0.8	−3.4	2.0	2.7
Cereals	...	19.9	60.3	47.4	−26.4	48.2	−1.9	−20.7	18.1	3.0
Potatoes	...	6.6	85.9	29.8	29.2	−9.6	16.6	11.1	−30.1	50.7
Other vegetables	...	10.6	24.1	−5.0	3.2	16.4	12.6	3.4	17.3	5.7

Sources: Mongolian authorities; and IMF staff calculations.

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Table A10. Output of Basic Industrial Products

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
	(In thousands of metric tons, unless otherwise specified)									
Electricity (mn. kwh)	1,566.3	1,562.8	1,517.9	1,697.2	2,264.3	2,843.2	3,169.6	3,361.1	3,544.1	3,568.3
Coal	4,376.1	4,302.9	4,920.7	4,976.6	5,431.0	6,523.2	7,064.5	7,765.3	8,605.8	8,044.5
Fluorspar	603.5	594.9	666.6	708.1	747.3	786.8	—	543.7	522.7	578.2
Bricks (millions)	110.1	109.0	113.0	122.7	126.9	143.0	169.8	169.8	180.6	172.8
Cement	177.9	106.1	178.7	165.3	140.6	150.5	424.7	541.4	502.1	512.6
Lime	63.8	79.4	90.1	92.8	105.7	102.6	106.6	114.1	122.2	95.0
Sawn timber (thousands of cubic meters)	559.4	578.7	646.7	627.6	701.5	686.2	623.7	580.5	540.7	553.1
Scoured wool	11.8	10.2	12.1	12.1	11.6	11.3	10.7	10.4	9.6	10.1
Felt (thousand meters)	614.6	615.1	618.0	618.1	621.7	623.9	636.2	630.4	631.1	849.7
Woolen fabrics (thousand meters)	963.5	962.4	962.9	965.5	980.2	1,432.5	2,212.0	1,549.8	1,595.1	1,978.2
Coats (thousands)	190.6	201.0	201.8	223.0	195.7	186.2	153.8	99.4	101.7	89.7
Suits (thousands)	179.2	188.9	169.9	196.1	196.5	163.9	141.5	168.6	152.0	182.6
Hides	1.4	1.2	1.0	0.9	0.9	0.8	0.8	0.9	0.9	1.0
Leather footwear (thousand pairs)	2,104.9	1,916.4	1,727.4	2,226.3	2,677.1	2,883.4	3,149.3	3,517.3	3,920.6	4,140.0
Leather coats (thousands)	53.3	64.1	73.3	74.4	79.6	81.0	42.7	49.6	31.4	41.6
Sheepskin coats (thousands)	83.0	82.9	87.1	90.4	64.5	135.2	149.3	161.2	181.6	180.2
Meat	56.8	67.1	67.4	64.4	68.8	62.5	63.9	64.7	62.0	61.7
Sausages (tons)	2,966.1	3,510.8	3,364.2	4,195.1	4,161.8	4,051.5	4,462.1	4,782.1	5,284.7	5,824.3
Flour	83.4	125.2	119.6	150.2	185.1	175.7	185.9	198.7	196.4	199.7
Bakery goods	47.2	49.3	53.7	60.7	59.7	65.4	68.4	68.7	69.9	66.7
Confectionery	22.9	23.9	25.2	26.1	33.9	37.1	38.9	37.2	41.8	45.8
Milk and dairy products (liters)	24.8	—	—	—	—	45.2	52.8	55.6	59.0	62.0
Butter	3.8	4.0	4.0	4.0	4.7	4.4	4.6	4.7	4.6	4.6
Toilet soap	5.2	5.4	5.9	6.1	7.3	9.3	8.2	5.4	6.8	10.3
Household soap	3.9	3.4	4.1	4.7	4.7	4.1	3.9	3.7	2.5	3.3
	(Annual percent change)									
Electricity	...	−0.2	−2.9	11.8	33.4	25.6	11.5	6.0	5.4	0.7
Coal	...	−1.7	14.4	1.1	9.1	20.1	8.3	9.9	10.8	−6.5
Fluorspar	...	−1.4	12.1	6.2	5.5	5.3	...	...	−3.9	10.6
Bricks	...	−1.0	3.7	8.6	3.4	12.7	18.7	—	6.4	−4.3
Cement	...	−40.4	68.4	−7.5	−14.9	7.0	182.2	27.5	−7.3	2.1
Lime	...	24.5	13.5	3.0	13.9	−2.9	3.9	7.0	7.1	−22.3
Sawn timber	...	3.5	11.8	−3.0	11.8	−2.2	−9.1	−6.9	−6.9	2.3
Scoured wool	...	−13.6	18.6	—	−4.1	−2.6	−5.3	−2.8	−7.7	5.2
Felt	...	0.1	0.5	—	0.6	0.4	2.0	−0.9	0.1	34.6
Woolen fabrics	...	-0.1	0.1	0.3	1.5	46.1	54.4	−29.9	2.9	24.0
Coats	...	5.5	0.4	10.5	−12.2	−4.9	−17.4	−35.4	2.3	−11.8
Suits	...	5.4	−10.1	15.4	0.2	−16.6	−13.7	19.2	−9.8	20.1
Hides	...	−14.3	−16.7	−10.0	—	−11.1	—	12.5	—	11.1
Leather footwear	...	−9.0	−9.9	28.9	20.2	7.7	9.2	11.7	11.5	5.6
Leather coats	...	20.3	14.4	1.5	7.0	1.8	−47.3	16.2	−36.7	32.5
Sheepskin coats	...	−0.1	5.1	3.8	−28.7	109.6	10.4	8.0	12.7	−0.8
Meat	...	18.1	0.4	−4.5	6.8	−9.2	2.2	1.3	−4.2	−0.5
Sausages	...	18.4	−4.2	24.7	−0.8	−2.7	10.1	7.2	10.5	10.2
Flour	...	50.1	−4.5	25.6	23.2	−5.1	5.8	6.9	−1.2	1.7
Bakery goods	...	4.4	8.9	13.0	−1.6	9.5	4.6	0.4	1.7	−4.6
Confectionery	...	4.4	5.4	3.6	29.9	9.4	4.9	−4.4	12.4	9.6
Milk and dairy products	...	...	...	...	...	...	16.8	5.3	6.1	5.1
Butter	...	5.3	—	—	17.5	−6.4	4.5	2.2	−2.1	—
Toilet soap	...	3.8	9.3	3.4	19.7	27.4	−11.8	−34.1	25.9	51.5
Household soap	...	−12.8	20.6	14.6	—	−12.8	−4.9	−5.1	−32.4	32.0

Sources: Mongolian authorities; and IMF staff calculations.

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Table A11. Composition of Gross Industrial Output

(Percent of total value of gross industrial output)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989 Est.
Total value of gross output	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Foods	22.9	23.7	21.0	20.7	21.7	20.3	19.4	19.0	18.7	18.8
Leather and shoes	11.6	10.8	9.8	10.3	9.8	9.9	9.1	9.5	9.5	9.6
Textiles	8.4	7.8	10.8	10.7	11.3	11.8	11.6	11.4	10.9	12.0
Clothing	7.4	6.5	5.8	5.5	5.3	5.0	4.9	4.6	4.5	4.9
Energy[1]	9.7	9.7	8.7	8.8	9.8	11.0	11.2	11.2	11.6	11.7
Fuels	3.9	3.4	3.6	3.3	3.3	3.7	3.7	3.9	4.2	3.8
Nonferrous metals	8.7	12.1	14.7	14.9	14.2	13.5	13.0	12.6	12.3	11.4
Building materials	7.1	6.3	7.1	7.1	7.1	7.6	10.1	10.8	10.9	10.6
Wood processing	10.7	9.6	8.8	8.8	8.2	7.9	7.6	7.3	7.0	6.9
Chemicals	4.0	3.7	3.6	3.5	3.4	3.2	3.5	3.6	4.1	4.1
Metalworking	3.1	3.6	3.5	3.5	3.5	3.6	3.5	3.7	3.7	3.6
Printing	1.2	1.1	1.0	0.9	0.9	0.8	0.8	0.9	0.9	0.9
Glass and china	0.3	0.4	0.4	0.4	0.3	0.4	0.3	0.4	0.4	0.4
Other	0.9	1.4	1.4	1.7	1.3	1.2	1.2	1.3	1.4	1.3

Sources: Mongolian authorities; and IMF staff calculations.

[1] Including electric and thermal energy.

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le A12. Coal Statistics

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
					(In thousands of metric tons)					
esources, total	5,106.4	5,128.0	5,468.3	5,465.1	5,852.2	6,536.0	7,111.0	7,860.8	8,729.9	8,206.4
Stock at beginning of year	728.9	790.7	546.8	488.6	415.6	20.1	149.0	99.1	51.6	89.1
Production	4,376.1	4,302.9	4,920.7	4,974.5	5,425.1	6,515.9	6,962.1	7,761.7	8,605.8	8,040.0
Imports	1.4	34.4	0.8	2.0	11.5	—	—	—	72.5	77.3
otal distribution	5,106.4	5,128.0	5,468.3	5,465.1	5,852.2	6,536.0	7,111.1	7,860.8	8,729.9	8,206.4
Consumed by thermal power stations	2,184.0	2,211.3	2,352.8	2,519.5	3,468.4	3,678.6	3,904.4	4,242.7	4,542.1	4,310.7
Final consumption	2,131.7	2,369.9	2,354.5	2,329.1	2,063.7	2,483.2	2,807.6	2,964.1	3,054.2	2,936.4
Industry and construction	711.7	810.5	793.0	816.3	765.7	1,232.4	911.7	1,329.0	1,136.9	1,065.6
Agriculture	321.9	347.7	348.6	352.7	381.0	400.5	464.7	516.9	428.9	201.8
Communal housing and public services	671.5	774.9	772.1	740.0	666.2	702.4	783.8	438.5	737.0	1,248.2
Other	426.6	436.8	440.8	420.1	250.8	147.9	647.4	679.7	751.4	309.5
Losses	—	—	12.9	—	—	—	—	2.4	—	—
Exports	—	—	259.5	200.9	300.0	225.2	300.0	600.0	1,044.5	776.3
Stock at end of year	790.7	546.8	488.6	415.6	20.1	149.0	99.1	51.6	89.1	183.0
					(Annual percent change)					
oduction	...	−1.7	14.4	1.1	9.1	20.1	6.8	11.5	10.9	−6.6
otal distribution	...	0.4	6.6	−0.1	7.1	11.7	8.8	10.5	11.1	−6.0
Consumed by thermal power stations	...	3.7	−0.7	7.0	48.9	78.3	57.2	51.1	53.2	41.1
Final consumption	...	11.2	−0.6	−1.1	−11.4	20.3	13.1	5.6	3.0	−3.9
Exports	...	...	...	−22.6	49.3	−24.9	33.2	100.0	74.1	−25.7

Sources: Mongolian authorities; and IMF staff calculations.

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Table A13. Electricity Balance

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
					(In millions of kilowatt hours)					
Electricity supply, total	1,829.3	2,041.1	2,291.7	2,462.4	2,680.8	2,996.2	3,256.7	3,431.2	3,619.0	3,728.6
Domestic	1,566.3	1,562.8	1,517.9	1,768.0	2,263.4	2,843.2	3,169.6	3,361.1	3,544.1	3,570.4
Imports	263.0	478.3	773.8	694.4	417.4	153.0	87.1	70.1	74.9	158.2
Distribution, total	1,829.3	2,041.1	2,291.7	2,462.4	2,680.8	2,996.2	3,256.7	3,431.2	3,619.0	3,728.6
Of which:										
Industry and construction	873.3	1,052.0	1,174.9	1,221.3	1,263.3	1,633.3	1,799.3	1,836.9	1,871.0	1,911.3
Transportation and communications	68.1	80.9	83.6	87.8	88.8	144.7	161.2	178.2	182.0	185.2
Agriculture	95.6	95.1	91.2	98.3	111.8	84.9	91.1	102.3	103.2	123.4
Communal housing and public services	325.1	374.9	433.0	444.8	484.4	327.3	342.6	350.6	358.1	370.3
Other sectors	75.1	55.3	107.8	172.2	190.4	189.9	204.9	205.6	266.9	293.0
Loss in transmission and distribution	124.9	110.2	123.2	134.3	154.5	173.5	180.7	248.4	277.8	279.7
Power stations' own uses	267.2	272.7	278.0	303.7	387.6	442.6	476.9	509.2	560.0	565.7
					(Tugrik per kilowatt hour)					
Tariff										
Industry	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
Agriculture	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
Households	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
					(Annual percent change)					
Electricity supply, total	...	11.6	12.3	7.4	8.9	11.8	8.7	5.4	5.5	3.0
Domestic	...	−0.2	−2.9	16.5	28.0	25.6	11.5	6.0	5.4	0.7
Imports	...	81.9	61.8	−10.3	−39.9	−63.3	−43.1	−19.5	6.8	111.2
Distribution, total	...	11.6	12.3	7.4	8.9	11.8	8.7	5.4	5.5	3.0
Of which:										
Industry and construction	...	20.5	11.7	3.9	3.4	29.3	10.2	2.1	1.9	2.2
Transportation and communications	...	18.8	3.3	5.0	1.1	63.0	11.4	10.5	2.1	1.8
Agriculture	...	−0.5	−4.1	7.8	13.7	−24.1	7.3	12.3	0.9	19.6
Other sectors	...	−26.4	94.9	59.7	10.6	−0.3	7.9	0.3	29.8	9.8

Sources: Mongolian authorities; and IMF staff calculations.

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Table A14. Employment by Sector

(Average annual number of employees, in thousands)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Total employment	511.2	518.0	532.2	543.0	550.3	561.6	580.9	598.4	616.2	633.2
Material sphere	388.3	388.8	399.6	406.4	409.1	413.2	426.6	435.5	443.4	451.4
Agriculture	202.7	195.4	196.3	195.9	189.6	187.0	185.8	184.8	183.6	186.0
Industry	81.6	85.0	92.5	96.8	100.9	104.6	109.9	115.6	119.2	119.6
Transportation	32.3	33.3	34.7	35.6	37.8	38.7	43.4	44.6	47.4	47.0
Construction	30.7	31.7	31.4	32.0	32.6	33.9	35.5	37.2	38.9	41.7
Other[1]	41.0	43.4	44.7	46.1	48.2	49.0	52.0	53.3	54.3	57.1
Nonmaterial sphere	122.9	129.2	132.6	136.6	141.2	148.4	154.3	162.9	172.8	181.8
Education	49.2	51.6	53.5	54.7	55.8	58.7	60.4	63.1	70.5	74.6
Health	32.0	32.9	33.6	34.7	35.5	37.3	39.7	42.2	42.9	44.7
Science, research, and development	9.0	9.1	9.0	9.0	9.9	10.3	10.7	11.3	12.9	14.1
Other	32.7	35.6	36.5	38.2	40.0	42.1	43.5	46.3	46.5	48.4
Memorandum items:										
Women in work force[2]	49.6	49.0	49.2	49.2	49.8	50.6	51.1	51.5	51.2	51.2
Workers in the socialist sector (percent)	62.6	64.6	65.6	67.2	68.5	70.0	71.0	71.7	72.9	73.5
Average number of hours worked per week	46.0	46.0	46.0	46.0	46.0	46.0	46.0	46.0	46.0	46.0

Source: Mongolian authorities.
[1] Including communications and trade.
[2] In percent of the female population.

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Table A15. Employment in Selected Industries[1]

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
					(Average annual number of employees, in thousands)					
Total	67.9	71.8	77.4	80.2	86.4	91.0	95.5	100.7	101.7	107.3
Electrical power and thermal energy	4.9	5.4	5.9	6.2	6.8	7.0	7.6	8.2	9.8	8.4
Fuel	3.3	3.3	3.3	3.4	4.3	3.9	3.7	4.1	4.3	4.1
Engineering and metalworking	4.8	4.4	4.9	5.4	5.3	5.8	6.3	6.8	6.4	6.6
Chemical	2.1	2.0	2.2	2.4	2.5	4.6	3.0	—	4.7	4.9
Construction material	5.7	6.2	6.8	7.1	7.9	9.0	10.9	11.8	12.2	12.2
Timber and woodworking	9.1	9.2	9.3	9.3	9.6	10.4	10.2	11.1	10.2	10.1
Glass, china, and pottery	0.4	0.4	0.5	0.5	0.6	0.5	0.5	0.5	0.5	0.6
Textile	3.3	4.4	6.2	6.6	6.9	7.7	7.6	8.2	8.0	8.3
Clothing	9.8	10.4	10.7	10.9	11.3	11.6	12.0	13.0	12.6	10.1
Leather, fur, and shoes	6.5	6.7	7.2	7.6	7.9	8.3	8.4	9.2	9.7	9.3
Printing	2.0	2.0	2.0	2.0	2.1	1.9	1.9	1.9	2.0	1.3
Food	11.1	12.1	12.6	12.6	14.7	15.7	16.2	17.6	14.0	14.2
Other[2]	4.9	5.3	5.8	6.2	6.5	4.6	7.2	8.3	7.3	17.2
					(Annual percent change)					
Total	...	5.7	7.8	3.6	7.7	5.3	4.9	5.4	1.0	5.5
Electrical power and thermal energy	...	10.2	9.3	5.1	9.7	2.9	8.6	7.9	19.5	−14.3
Fuel	...	—	—	3.0	26.5	−9.3	−5.1	10.8	4.9	−4.7
Engineering and metalworking	...	−8.3	11.4	10.2	−1.9	9.4	8.6	7.9	−5.9	3.1
Chemical	...	−4.8	10.0	9.1	4.2	84.0	−34.8	...	...	4.3
Construction material	...	8.8	9.7	4.4	11.3	13.9	21.1	8.3	3.4	—
Timber and woodworking	...	1.1	1.1	—	3.2	8.3	−1.9	8.8	−8.1	−1.0
Glass, china, and pottery	...	—	25.0	—	20.0	−16.7	—	—	—	20.0
Textile	...	33.3	40.9	6.5	4.5	11.6	−1.3	7.9	−2.4	3.8
Clothing	...	6.1	2.9	1.9	3.7	2.7	3.4	8.3	−3.1	−19.8
Leather, fur, and shoes	...	3.1	7.5	5.6	3.9	5.1	1.2	9.5	5.4	−4.1
Printing	...	—	—	—	5.0	−9.5	—	—	5.3	−35.0
Food	...	9.0	4.1	—	16.7	6.8	3.2	8.6	−20.5	1.4
Other[2]	...	8.2	9.4	6.9	4.8	−29.2	56.5	15.3	−12.0	135.6

Sources: Mongolian authorities; and IMF staff calculations.
[1] A subset of the largest enterprises.
[2] Residual.

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ble A16. Average Monthly Wages

tugriks)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
All sectors	501	509	513	516	519	524	526	529	531	539
Material sector	517	526	530	534	538	544	547	551	560	568
Industry	570	573	574	579	580	584	586	586	593	618
Agriculture	382	396	412	419	426	423	425	428	464	449
Construction	538	566	575	571	575	579	586	607	585	596
Transportation	557	662	658	663	668	687	689	687	662	653
Communications	457	462	459	563	473	473	474	469	485	490
Trade and procurement	425	429	431	435	434	446	444	449	475	485
Other[1]	435	430	451	471	469	490	481	440	453	506
Nonmaterial sector	476	482	483	485	486	483	483	481	483	491
Housing and personal services	441	457	454	458	461	461	466	461	465	475
Public health, sport, and social insurance	412	412	417	419	422	420	412	416	421	425
Education and culture	471	476	476	477	478	473	479	481	473	478
Science, research, and development	550	565	566	579	554	564	566	555	566	591
Finance, loans, and insurance	459	475	488	473	477	475	467	485	476	478
Administration	605	598	604	615	617	602	607	600	635	649
Other	600	605	600	602	602	605	598	565	606	629

Source: Mongolian authorities.
[1] Including forestry.

ble A17. Price Indices and Volume Index of Retail Sales

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Wholesale prices (1978 = 100)	108.8	113.9	120.5	126.8	132.6	138.0	144.9	150.1	157.4	165.4
Consumer prices (1978 = 100)	100.1	100.0	102.5	102.5	102.5	103.1	102.1	102.1	102.1	102.1
Volume of retail sales (1980 = 100)										
Total turnover	100.0	104.0	107.0	112.0	117.0	119.0	128.0	131.0	137.0	148.0
Of which: Foodstuff	100.0	110.0	112.0	121.0	125.0	125.0	130.0	127.0	132.0	151.0
Other	100.0	99.0	102.0	106.0	111.0	114.0	125.0	135.0	140.0	146.0
					(*Annual percent change*)					
Wholesale prices	...	4.7	5.8	5.2	4.6	4.1	5.0	3.6	4.9	5.1
Consumer prices	...	−0.1	2.5	—	—	0.6	−1.0	—	—	—
Volume of retail sales										
Total turnover	...	4.0	2.9	4.7	4.5	1.7	7.6	2.3	4.6	8.0
Of which: Foodstuff	...	10.0	1.8	8.0	3.3	—	4.0	−2.3	3.9	14.4
Other	...	−1.0	3.0	3.9	4.7	2.7	9.6	8.0	3.7	4.3

Source: Mongolian authorities.

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Table A18. Domestic Wholesale and Foreign Contract Prices of Exports

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
					(In millions of tugriks)					
Value of exports, wholesale price	1,363.9	1,600.2	1,968.3	2,136.5	2,458.2	2,410.4	2,789.1	2,817.9	2,839.4	2,968.2
Of which:										
CMEA	1,324.9	1,561.1	1,906.1	2,090.4	2,333.4	2,280.6	2,632.4	2,666.2	2,676.7	2,734.9
Convertible currency area	22.9	18.9	26.2	15.1	83.8	100.2	71.9	108.6	91.8	145.8
Main exports by commodity[1]	944.7	957.3	1,106.2	1,139.2	1,270.6	1,248.8	1,391.1	1,416.0	1,406.1	1,386.2
Processed livestock products	185.0	221.3	279.3	347.1	399.8	465.1	476.7	536.4	527.6	554.6
Construction materials	67.8	78.8	82.9	80.9	84.2	96.6	143.9	242.0	218.3	192.7
Livestock	570.7	539.2	621.8	574.7	646.9	530.0	616.8	558.0	515.5	513.2
Cereals	—	2.6	1.3	6.8	2.6	16.4	55.6	1.4	68.3	8.2
Fluorspar	121.1	115.4	120.9	129.7	137.1	140.7	98.1	78.2	76.4	117.5
Copper	283.8	499.2	672.8	733.8	778.2	740.9	751.8	751.4	710.2	583.9
					(Ratio; in percent)					
Wholesale/contract price										
Total exports	113.7	114.7	117.7	117.7	121.9	117.6	130.8	181.8	129.0	138.2
Of which:										
CMEA	114.5	115.7	118.0	118.6	123.1	117.7	131.1	133.0	132.1	140.9
Convertible currency area	121.6	70.8	98.2	135.7	93.8	125.3	101.7	124.7	77.7	98.8
Main exports by commodity[1]										
Processed livestock products	164.7	144.4	150.0	141.4	145.4	140.1	147.3	151.4	149.0	151.7
Construction materials	183.7	101.8	99.2	93.0	94.5	106.5	137.7	150.9	157.4	153.9
Livestock	91.7	88.8	95.6	91.7	96.8	93.3	103.5	100.4	90.4	93.0
Cereals	...	173.3	108.3	101.5	104.0	100.0	178.8	155.6	125.3	136.7
Fluorspar	152.1	139.4	136.0	99.5	129.6	128.0	111.4	100.0	85.8	145.6
Copper	152.9	151.7	147.6	144.0	135.3	130.3	130.3	130.2	120.4	100.0
					(Percent change)					
Export prices										
Contract[2]	...	6.0	9.4	−4.3	6.3	5.9	−6.4	4.3	4.1	...
Wholesale[3]	...	7.1	12.1	−4.7	10.9	1.9	4.1	4.6	2.6	...

Sources: Ministry of Trade and International Cooperation; Appendix Table A32; and IMF staff calculations.

[1] Data provided reflect shipments by foreign trade enterprises.

[2] As calculated in Table A32.

[3] Calculated by deflating the value of exports at wholesale prices by the value of exports in 1980 contract prices.

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Table A19. Retail Prices of Selected Products

(In tugriks per unit)

	Unit	1950	1960	1970	1980	1988	1989
Milk	liter	1.10	1.23	1.30	1.39	1.47	1.45
Meat	kg	5.00	5.05	6.20	5.90	6.00	5.93
Coats	piece	...	136.90	111.80	119.07	150.10	179.52
Leather coats	piece	...	...	492.70	789.63	1,456.29	1,550.38
Leather jackets	piece	...	...	235.00	390.86	610.64	746.91
Fur and suede garments	piece	...	...	...	993.00	806.20	898.00
Garments	piece	...	235.60	122.40	107.70	164.27	166.26
Socks	pair	...	2.92	2.10	7.15	5.05	4.80
Boots	pair	...	45.30	55.30	71.26	74.25	77.88
Shoes	pair	...	44.00	41.10	57.37	42.87	46.73
Coal	metric ton	...	40.00	50.00	50.00	50.00	50.00
Diesel gasoline[1]	liter	...	0.54	0.54	0.54	1.13	1.13
Gasoline[1]	liter	...	0.90	0.90	0.90	1.25	1.25
Energy	kwt/h	...					
Industrial use		...	0.18	0.18	0.18	0.18	0.18
Other		...	0.35	0.35	0.35	0.25	0.25

Source: Mongolian authorities.
[1] Applicable to public sector.

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Table A20. State Budget Revenues[1]

	1975	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990 Budget
						(In millions of tugriks)						
Total revenue	2,457.5	3,452.6	3,720.2	4,182.3	4,477.7	4,680.4	4,918.0	4,360.4	4,540.4	4,680.7	5,243.3	5,807.3
Of which: Local government	(916.6)	(1,061.9)	(1,063.5)	(1,153.5)	(1,257.9)	(1,393.0)	(1,380.4)	(1,451.3)	(1,502.2)	(2,033.0)	(2,549.5)	(3,356.4)
Tax revenue	2,262.7	3,125.3	3,397.7	3,818.3	4,120.0	4,296.8	4,486.3	3,939.5	4,073.6	4,242.0	4,765.6	5,399.4
Turnover taxes	1,491.4	2,092.9	2,277.4	2,465.3	2,633.2	2,699.9	2,735.9	2,261.3	2,269.2	2,246.0	2,410.8	2,837.6
Import price differential	(...)	(1,501.2)	(1,586.1)	(1,629.6)	(1,667.9)	(1,669.5)	(1,744.1)	(1,547.1)	(1,570.0)	(1,570.9)	(1,739.1)	(...)
Domestic turnover taxes[2]	(...)	(591.7)	(691.3)	(835.7)	(965.3)	(1,030.4)	(991.8)	(714.2)	(699.2)	(675.1)	(671.7)	(...)
Profit taxes	704.0	968.6	1,056.9	1,291.9	1,425.5	1,533.2	1,686.0	1,608.2	1,736.2	1,921.1	2,276.0	2,490.1
Production taxes	27.8	30.9	29.0	25.1	24.0	24.1	22.6	25.7	21.9	26.4	24.6	21.9
Taxes on individuals	39.5	32.9	34.4	36.0	37.3	39.6	41.8	44.3	46.3	48.5	54.2	49.8
Nontax revenue	194.8	327.3	322.5	364.0	357.7	383.6	431.7	420.9	466.8	438.7	477.7	407.9
From state enterprises	10.6	13.8	24.2	27.9	32.8	31.5	28.5	32.0	32.9	33.4	32.4	33.6
From cooperatives	12.9	42.2	42.4	49.3	47.6	46.5	41.3	47.3	53.6	48.8	55.1	24.8
Social security premia	106.3	158.5	169.3	176.7	185.5	198.6	206.0	218.6	229.0	242.1	253.0	258.3
Other	65.0	112.8	86.6	110.1	91.8	107.0	155.9	123.0	151.3	114.4	137.2	91.2
						(Percent of GDP)						
Total revenue	...	51.1	50.1	51.0	51.1	52.0	52.5	46.8	46.8	45.4	48.9	...
Of which: Local government	(...)	(15.7)	(14.3)	(14.1)	(14.4)	(15.5)	(14.7)	(15.6)	(15.5)	(19.7)	(23.8)	(...)
Tax revenue	...	46.3	45.8	46.5	47.0	47.8	47.9	42.3	42.0	41.2	44.4	...
Turnover taxes	...	31.0	30.7	30.0	30.1	30.0	29.2	24.3	23.4	21.8	22.5	...
Import price differential	(...)	(22.2)	(21.3)	(19.8)	(19.1)	(18.5)	(18.6)	(16.6)	(16.2)	(15.2)	(16.2)	(...)
Domestic turnover taxes[2]	(...)	(8.8)	(9.3)	(10.2)	(11.0)	(11.5)	(10.6)	(7.7)	(7.2)	(6.6)	(6.3)	(...)
Profit taxes	...	14.3	14.2	15.7	16.3	17.0	18.0	17.3	17.9	18.6	21.2	...
Production taxes	...	0.5	0.4	0.3	0.3	0.3	0.2	0.3	0.2	0.3	0.2	...
Taxes on individuals	...	0.5	0.5	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	...
Nontax revenue	...	4.8	4.3	4.4	4.1	4.3	4.6	4.5	4.8	4.3	4.5	...
From state enterprises	...	0.2	0.3	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	...
From cooperatives	...	0.6	0.6	0.6	0.5	0.5	0.4	0.5	0.6	0.5	0.5	...
Social security premia	...	2.3	2.3	2.2	2.1	2.2	2.2	2.3	2.4	2.4	2.4	...
Other	...	1.7	1.2	1.3	1.0	1.2	1.7	1.3	1.6	1.1	1.3	...
						(Percent of total)						
Total revenue	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Of which: Local government	(37.3)	(30.8)	(28.6)	(27.6)	(28.1)	(29.8)	(28.1)	(33.3)	(33.2)	(43.4)	(48.6)	(57.8)
Tax revenue	92.1	90.5	91.3	91.3	92.0	91.8	91.2	90.3	89.7	90.6	90.9	93.0
Turnover taxes	60.7	60.6	61.2	58.9	58.8	57.7	55.6	51.9	50.0	48.0	46.0	48.9
Import price differential	(...)	(43.5)	(42.6)	(38.9)	(37.2)	(35.9)	(35.4)	(35.5)	(34.6)	(33.6)	(33.2)	(...)
Domestic turnover taxes[2]	(...)	(17.1)	(18.6)	(20.0)	(21.6)	(21.8)	(20.2)	(16.4)	(15.4)	(14.4)	(12.8)	(...)
Profit taxes	28.6	28.1	28.4	30.9	31.8	32.8	34.3	36.9	38.2	41.0	43.4	42.9
Production taxes	1.1	0.9	0.8	0.6	0.5	0.5	0.5	0.6	0.5	0.6	0.5	0.4
Taxes on individuals	1.6	1.0	0.9	0.9	0.8	0.8	0.8	1.0	1.0	1.0	1.0	0.9
Nontax revenue	7.9	9.5	8.7	8.7	8.0	8.2	8.3	9.7	10.3	9.4	9.1	7.0
From state enterprises	0.4	0.4	0.7	0.7	0.7	0.7	0.6	0.7	0.7	0.7	0.6	0.6
From cooperatives	0.5	1.2	1.1	1.2	1.1	1.0	0.8	1.1	1.2	1.0	1.1	0.4
Social security premia	4.3	4.6	4.6	4.2	4.1	4.2	4.2	5.0	5.0	5.2	4.8	4.4
Other	2.6	3.3	2.3	2.6	2.1	2.3	3.2	2.8	3.3	2.4	2.6	1.6

Sources: Mongolian authorities, and IMF staff estimates.
[1] Components may not add to totals because of rounding.
[2] Including, from 1986, taxes arising from the differential in export contract prices.

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Table A21. State Budget Expenditures[1]

	1975	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990 Budget
						(In millions of tugriks)						
Total expenditures	2,566.4	3,988.6	4,145.6	4,622.2	4,991.5	5,244.6	5,560.6	6,005.4	6,359.6	6,690.6	7,008.0	7,320.6
Of which: Local government	(1,176.4)	(1,521.5)	(1,541.8)	(1,625.0)	(1,727.3)	(1,866.0)	(1,969.8)	(2,416.9)	(2,805.5)	(3,143.9)	(3,437.7)	(3,551.9)
Current expenditure	2,103.4	3,337.0	3,572.1	3,960.2	4,195.6	4,467.8	4,625.1	4,874.0	5,067.0	5,175.8	5,378.5	5,790.6
Of which: Wages and salaries	(509.0)	(680.2)	(736.7)	(747.4)	(797.6)	(843.9)	(888.8)	(901.2)	(903.2)	(953.8)	(975.6)	(1,018.2)
National development	750.6	1,204.3	1,251.4	1,539.4	1,659.1	1,816.4	1,843.8	1,924.0	1,968.1	1,916.1	2,087.6	2,323.2
Interest payments[2]	33.1	105.6	40.2	77.7	113.4	138.6	167.5	5.8	33.3	99.6	169.2	240.3
Export subsidies	178.1	342.7	386.9	476.3	528.0	558.2	563.6	483.0	459.7	401.8	432.3	487.2
Other	539.4	756.0	824.3	985.4	1,017.7	1,119.6	1,112.7	1,435.2	1,475.1	1,414.7	1,486.1	1,595.7
Social and cultural	1,022.2	1,494.9	1,612.2	1,723.7	1,819.3	1,903.5	1,999.4	2,095.3	2,228.6	2,371.6	2,445.7	2,631.7
Free food and medicine	107.3	157.1	171.7	182.2	229.8	247.6	244.1	246.6	245.9	269.9	297.1	319.5
Social security payments	109.5	129.1	136.6	138.8	146.2	154.3	174.3	177.4	207.4	241.0	220.6	236.8
Pensions	177.0	293.6	313.2	333.5	358.3	380.5	401.8	425.4	456.1	481.7	508.8	541.1
Material expenditure	271.0	453.6	500.2	553.9	514.3	528.2	555.7	610.9	672.5	676.1	698.3	768.6
Other	357.4	461.5	490.5	515.3	570.7	592.9	623.5	635.0	646.7	702.9	720.9	765.7
Administration and defense	293.0	581.5	631.5	641.5	664.5	691.6	712.6	790.2	792.5	813.2	777.0	748.0
Other	37.6	56.3	77.0	55.6	52.7	56.3	69.3	64.5	77.8	74.9	68.2	87.7
Investment[3]	463.0	651.6	573.5	662.0	795.9	776.8	935.5	1,131.4	1,292.6	1,514.8	1,629.5	1,530.0
Material sector	144.7	225.1	168.6	197.3	252.1	252.9	318.4	473.9	530.1	696.6	785.5	678.6
Nonmaterial sector	318.3	426.5	404.9	464.7	543.8	523.9	617.1	657.5	762.5	818.2	844.0	851.4
						(Percent of GDP)						
Total expenditures	...	59.0	55.8	56.3	57.0	58.3	59.3	64.5	65.5	65.0	65.3	...
Of which: Local government	(...)	(22.5)	(20.8)	(19.8)	(19.7)	(20.7)	(21.0)	(26.0)	(28.9)	(30.5)	(32.0)	(...)
Current expenditure	...	49.4	48.1	48.3	47.9	49.7	49.4	52.4	52.2	50.2	50.1	...
Of which: Wages and salaries	(...)	(10.1)	(9.9)	(9.1)	(9.1)	(9.4)	(9.5)	(9.7)	(9.3)	(9.3)	(9.1)	(...)
National development	...	17.8	16.9	18.8	18.9	20.2	19.7	20.7	20.3	18.6	19.5	...
Interest payments	...	1.6	0.5	0.9	1.3	1.5	1.8	0.1	0.3	1.0	1.6	...
Export subsidies	...	5.1	5.2	5.8	6.0	6.2	6.0	5.2	4.7	3.9	4.0	...
Other	...	11.2	11.1	12.0	11.6	12.4	11.9	15.4	15.2	13.7	13.8	...
Social and cultural	...	22.1	21.7	21.0	20.8	21.2	21.3	22.5	23.0	23.0	22.8	...
Free food and medicine	...	2.3	2.3	2.2	2.6	2.8	2.6	2.6	2.5	2.6	2.8	...
Social security payments	...	1.9	1.8	1.7	1.7	1.7	1.9	1.9	2.1	2.3	2.1	...
Pensions	...	4.3	4.2	4.1	4.1	4.2	4.3	4.6	4.7	4.7	4.7	...
Material expenditures	...	6.7	6.7	6.8	5.9	5.9	5.9	6.6	6.9	6.6	6.5	...
Other	...	6.8	6.6	6.3	6.5	6.6	6.7	6.8	6.7	6.8	6.7	...
Administration and defense	...	8.6	8.5	7.8	7.6	7.7	7.6	8.5	8.2	7.9	7.2	...
Other	...	0.8	1.0	0.7	0.6	0.6	0.7	0.7	0.8	0.7	0.6	...
Investment[3]	...	9.6	7.7	8.1	9.1	8.6	10.0	12.2	13.3	14.7	15.2	...
Material sector	...	3.3	2.3	2.4	2.9	2.8	3.4	5.1	5.5	6.8	7.3	...
Nonmaterial sector	...	6.3	5.5	5.7	6.2	5.8	6.6	7.1	7.9	7.9	7.9	...
						(Percent of total)						
Total expenditures	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Of which: Local government	(45.8)	(38.1)	(37.2)	(35.2)	(34.6)	(35.6)	(35.4)	(40.2)	(44.1)	(47.0)	(49.1)	(48.5)
Current expenditures	82.0	83.7	86.2	85.7	84.1	85.2	83.2	81.2	79.7	77.4	76.7	79.1
Of which: Wages and salaries	(19.8)	(17.1)	(17.8)	(16.2)	(16.0)	(16.1)	(16.0)	(15.0)	(14.2)	(14.3)	(13.9)	(13.9)
National development	29.2	30.2	30.2	33.3	33.2	34.6	33.2	32.0	30.9	28.6	29.8	31.7
Social and cultural	39.8	37.5	38.9	37.3	36.4	36.3	36.0	34.9	35.0	35.4	34.9	35.9
Administration and defense	11.4	14.6	15.2	13.9	13.3	13.2	12.8	13.2	12.5	12.2	11.1	10.2
Other	1.5	1.4	1.9	1.2	1.1	1.1	1.2	1.1	1.2	1.1	1.0	1.2
Investment[3]	18.0	16.3	13.8	14.3	15.9	14.8	16.8	18.8	20.3	22.6	23.3	20.9
Material sector	5.6	5.6	4.1	4.3	5.1	4.8	5.7	7.9	8.3	10.4	11.2	9.3
Nonmaterial sector	12.4	10.7	9.8	10.1	10.9	10.0	11.1	10.9	12.0	12.2	12.0	11.6

Sources: Mongolian authorities, and IMF staff estimates.

[1] Components may not add to totals because of rounding.

[2] Partially estimated from debt-service data.

[3] Excludes geological feasibility studies, and some equipment, classified as current expenditure in the Mongolian accounts.

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Table A22. Foreign Trade Budgetary Taxes and Subsidies

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
							(In millions of tugriks)							
Revenue	1,300.3	1,349.6	1,274.3	1,395.7	1,565.1	1,677.6	1,823.3	1,851.2	1,981.0	2,052.3	1,779.0	1,814.2	1,822.9	1,899.5
Import price differential[1]	1,053.3	1,146.8	1,261.9	1,348.9	1,501.2	1,586.1	1,629.6	1,667.9	1,669.5	1,744.1	1,545.1	1,570.0	1,570.8	1,739.1
CMEA goods	1,008.8	1,096.4	1,208.1	1,291.5	1,420.9	1,494.6	1,555.2	1,588.1	1,628.2	1,693.9	1,456.3	1,473.7	1,471.2	1,618.7
Convertible currency goods	44.5	50.4	53.8	57.4	80.3	91.5	74.4	79.8	41.3	50.2	88.8	96.3	99.6	120.4
Export price differential	47.6	19.0	12.4	46.8	63.9	120.9	193.7	263.1	311.5	308.2	233.9	244.2	252.1	160.4
CMEA goods	47.6	18.9	12.2	46.8	63.9	120.6	193.5	263.0	311.1	307.5	233.1	242.5	250.5	158.5
Convertible currency goods	—	0.1	0.2	—	—	0.3	0.2	0.1	0.4	0.7	0.8	1.7	1.6	1.9
Expenditures	199.4	183.8	231.8	294.1	342.7	386.9	476.3	528.0	558.2	563.6	483.0	495.7	401.8	432.3
Export subsidies	199.4	183.8	231.8	294.1	342.7	386.9	476.3	528.0	558.2	563.6	483.0	495.7	401.8	432.3
CMEA goods	189.0	173.6	219.5	286.1	332.1	376.4	463.4	518.7	524.1	519.9	457.8	455.8	360.4	371.5
Convertible currency goods	10.4	10.2	12.3	8.0	10.6	10.5	12.9	9.3	34.1	43.7	25.2	39.9	41.4	60.8
							(Percent of GDP)							
Revenue	...	...	...	...	23.2	22.9	22.2	22.1	22.0	21.9	19.1	18.7	17.7	17.7
Import price differential[1]	...	...	...	...	22.2	21.3	19.8	19.1	18.5	18.6	16.6	16.2	15.2	16.2
CMEA goods	...	...	...	...	21.0	20.1	18.9	18.2	18.0	18.1	15.6	15.2	14.3	15.1
Convertible currency goods	...	...	...	...	1.2	1.2	0.9	0.9	0.5	0.5	1.0	1.0	1.0	1.1
Export price differential	...	...	...	...	0.9	1.6	2.4	3.0	3.5	3.3	2.5	2.5	2.4	1.5
CMEA goods	...	...	...	...	0.9	1.6	2.4	3.0	3.5	3.3	2.5	2.5	2.4	1.5
Convertible currency goods	...	...	...	...	—	—	—	—	—	—	—	—	—	—
Expenditures	...	...	...	...	5.1	5.2	5.8	6.0	6.2	6.0	5.2	5.1	3.9	4.0
Export subsidies	...	...	...	...	5.1	5.2	5.8	6.0	6.2	6.0	5.2	5.1	3.9	4.0
CMEA goods	...	...	...	...	4.9	5.1	5.6	5.9	5.8	5.5	4.9	4.7	3.5	3.5
Convertible currency goods	...	...	...	...	0.2	0.1	0.2	0.1	0.4	0.5	0.3	0.4	0.4	0.6

Sources: Mongolian authorities; and IMF staff calculations.

[1] Funds remitted to the budget on a net basis by the state foreign trade enterprises and distributors.

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Table A23. Export Subsidy Coefficients, 1989–June 1990

	Coefficient[1] for Exports Denominated in	
	Transferable rubles	Convertible currencies
Wool thread	1.658	2.700
Unprocessed sheared wool	2.146	2.700
Semiprocessed wool		
Dirty wool	1.419	2.700
Partially scoured wool	1.892	2.700
Coarse wool	1.739	2.700
Less coarse wool	2.257	2.700
Knitted goods		
Woolens	2.523	2.700
Wool blankets	2.158	2.700
Other blankets	3.072	2.700
Carpets		
Ulaanbaatar	1.484	2.700
Erdenet factory	1.849	2.700
Semiprocessed leather	—	1.700
Small woolen products	—	1.700
Woolen coats	—	1.500
Boot soles	2.759	...
Leather shoes	1.232	2.700
Leather clothing	—	2.700
Fur goods	1.795	3.300
Sheepskin clothing	1.295	2.700

Source: Ministry of Finance.

[1] The producer price is determined by multiplying the contract export price in tugriks by the coefficient.

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Table A24. Sectoral Distribution of Gross Short-Term Credit Extended

	1975	1980	1985	1986	1987	1988	1989
				(In millions of tugriks)			
Short-term credit extended	11,090.0	16,396.1	23,664.3	27,575.9	27,280.2	26,531.7	24,987.1
Agriculture	836.0	1,395.0	1,669.6	1,962.8	1,961.7	2,946.0	2,424.2
Industry	1,109.0	1,456.2	1,884.9	2,273.8	2,319.8	1,140.2	1,964.2
Transportation and communications	304.0	825.3	1,232.0	2,041.6	2,136.2	2,144.5	2,042.1
Construction	545.0	1,083.1	1,488.6	1,839.4	1,861.0	1,756.4	1,379.5
Trade	6,972.0	9,641.8	14,379.9	15,303.2	15,161.8	8,415.2	8,888.0
Warehousing	1,315.0	1,965.1	2,856.3	4,031.6	3,734.3	10,036.4	8,192.7
Other	9.0	29.6	153.0	123.5	105.4	93.0	96.4
				(Percent of total)			
Short-term credit extended	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Agriculture	7.5	8.5	7.1	7.1	7.2	11.1	9.7
Industry	10.0	8.9	8.0	8.2	8.5	4.3	7.9
Transportation and communications	2.7	5.0	5.2	7.4	7.8	8.1	8.2
Construction	4.9	6.6	6.3	6.7	6.8	6.6	5.5
Trade	62.9	58.8	60.8	55.5	55.6	31.7	35.6
Warehousing	11.9	12.0	12.1	14.6	13.7	37.8	32.8
Other	0.1	0.2	0.6	0.4	0.4	0.4	0.4

Source: State Bank of the Mongolian People's Republic.

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Table A25. Sectoral Distribution of Credit[1]

	1970	1975	1980	1985	1986	1987	1988	1989
				(Percent of total; end of period)				
Total credit[2]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Short-term credit	93.6	92.5	81.1	78.1	78.1	76.9	74.7	73.3
Agriculture	7.9	9.4	12.1	11.8	11.3	12.3	14.5	13.0
Industry	14.8	9.8	9.1	10.0	10.0	10.6	7.2	7.0
Transportation and communications	3.9	2.2	2.6	2.4	2.9	3.0	3.1	4.1
Construction	4.5	3.9	7.7	9.1	9.3	7.9	8.6	8.2
Trade	62.1	54.0	37.5	28.7	27.0	25.9	20.6	20.6
Warehousing	...	13.1	12.0	15.9	17.3	16.9	20.3	20.0
Other	0.5	0.1	0.1	0.2	0.4	0.4	0.3	0.4
Long-term credit	6.4	7.5	18.9	21.9	21.9	23.1	25.3	26.7
Agriculture	0.1	—	2.3	1.3	1.3	1.3	4.0	4.1
Light industry	3.7	3.9	5.2	7.6	7.2	6.9	8.0	8.1
Construction	—	0.3	2.6	4.6	4.2	5.0	5.2	5.8
Transportation	2.5	2.6	2.0	3.2	3.6	4.0	4.4	5.6
Fuel and electricity	—	0.5	2.3	0.5	0.6	0.7	0.7	1.0
Communications, trade, forestry, and other	0.1	0.1	4.5	4.6	4.9	5.2	3.1	1.9

Source: State Bank of the Mongolian People's Republic.
[1] Components may not add to totals because of rounding.
[2] Credit outstanding, end of period.

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Table A26. Interest Rates

	1985	1986	1987	1988	1989	1990 July
			(Percent a year; end of period)			
Loan rates						
Short-term						
Agriculture and agricultural raw materials	1.0	1.0	1.0	1.0	1.0	1.0
State reserve of livestock feed	0.5	0.5	0.5	0.5	0.5	0.5
Intrapublic sector debt clearance	6.0	6.0	6.0	6.0	6.0	6.0
Current asset shortfall						
Agricultural cooperatives	4.0	4.0	4.0	4.0	4.0	4.0
Other sectors	8.0	8.0	8.0	8.0	8.0	8.0
Other	2.0	2.0	2.0	2.0	2.0	2.0
Long-term loans						
State-owned institutions	...	2.0	2.0	2.0	2.0	2.0
Penalty interest						
Short-term, defaults/delays						
Agriculture	5.0	5.0	5.0	5.0	5.0	5.0
Other	8.0–10.0	8.0–10.0	8.0–10.0	8.0–10.0	8.0–10.0	8.0–10.0
Long-term						
Defaults	10.0	10.0	10.0	10.0	10.0	10.0
Delays	6.0	6.0	6.0	6.0	6.0	6.0
Deposits						
Current accounts	—	—	—	—	—	—
Demand deposits	—	—	—	—	—	—
Savings accounts	6.0	3.0	3.0	3.0	3.0	3.0
Term savings deposits	8.0	4.0	4.0	4.0	4.0	4.0
Foreign currency						
Without term	6.0	3.0	3.0	3.0	3.0	3.0
With term	8.0	4.0	4.0	4.0	4.0	4.0

Source: State Bank of the Mongolian People's Republic.

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Table A27. Composition of Exports[1]

ETN categories[2]	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
					(In millions of transferable rubles)[3]					
Total	269.9	314.0	376.4	408.6	453.9	461.7	479.8	481.0	495.2	483.8
CMEA	260.4	303.7	363.6	396.7	426.6	436.0	451.7	451.1	455.8	437.1
Bilateral arrangements	5.3	4.3	6.8	9.4	7.2	7.7	12.2	10.3	12.8	26.6
Convertible currency area	4.2	6.0	6.0	2.5	20.1	18.0	15.9	19.6	26.6	33.2
By commodity										
Machinery, equipment, and vehicles	0.7	0.7	0.5	0.7	0.7	0.7	0.2	0.1	0.5	...
Fuels, mineral raw materials, and metals	71.3	107.9	147.0	160.2	187.4	195.0	192.4	189.3	206.5	...
Chemical products, fertilizers, and rubber	—	—	—	—	—	0.1	—	—	0.3	...
Construction materials and parts	1.1	1.0	1.6	1.9	4.6	3.0	19.2	21.9	17.0	...
Other nonfood raw materials	83.4	86.3	99.7	104.5	107.2	113.5	96.3	106.0	113.0	...
Live animals	—	—	—	0.4	—	—	—	—	—	...
Raw materials for food production	36.3	30.0	31.3	34.8	39.3	28.3	45.1	36.7	39.9	...
Food products	51.3	54.1	49.8	51.0	52.1	43.4	52.6	51.0	40.1	...
Manufactured consumer goods	25.7	34.0	46.5	55.1	62.6	77.7	74.0	76.0	77.9	...
					(Percent of total)					
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
CMEA	96.5	96.7	96.6	97.1	94.0	94.5	94.4	93.8	92.1	90.3
Bilateral arrangements	2.0	1.4	1.8	2.3	1.6	1.6	2.7	2.1	2.6	2.8
Convertible currency area	1.6	1.9	1.6	0.6	4.4	3.9	3.3	4.1	5.4	6.9
By commodity										
Machinery, equipment, and vehicles	0.3	0.2	0.1	0.2	0.2	0.2	—	—	0.1	...
Fuels, mineral raw materials, and metals	26.4	34.4	39.1	39.2	41.3	42.2	40.1	39.4	41.7	...
Chemical products, fertilizers, and rubber	—	—	—	—	—	—	—	—	0.1	...
Construction materials and parts	0.4	0.3	0.4	0.5	1.0	0.6	4.0	4.6	3.4	...
Other nonfood raw materials	30.9	27.5	26.5	25.6	23.6	24.6	20.1	22.0	22.8	...
Live animals	—	—	—	0.1	—	—	—	—	—	...
Raw materials for food production	13.5	9.6	8.3	8.5	8.7	6.1	9.4	7.6	8.1	...
Food products	19.0	17.2	13.2	12.5	11.5	9.4	11.0	10.6	8.1	...
Manufactured consumer goods	9.5	10.8	12.4	13.5	13.8	16.8	15.4	15.8	15.7	...
Memorandum items:					*(Ratio of exports on payments basis to exports on shipments basis)*					
Total	97.4	100.2	100.5	101.3	104.7	102.7	110.6	110.5	109.0	110.8
CMEA	97.4	100.8	100.4	101.7	105.8	102.9	111.7	111.5	110.5	110.9
Bilateral arrangements	94.3	92.3	101.6	68.5	110.1	75.3	107.9	78.9	105.7	116.9
Convertible currency area	104.2	75.5	106.1	149.2	80.6	107.0	79.5	104.5	83.4	106.0

Sources: Ministry of Trade and International Cooperation; and IMF staff calculations.

[1] Data on a shipments basis; components may not add to totals because of rounding.

[2] *Edinaia tovarnaia nomenklatura*, the CMEA commodity classification system.

[3] Exports to the convertible currency area and under bilateral contracts are converted into transferable rubles at the official rates of exchange. A commodity breakdown is not available separately on a direction-of-trade basis.

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Table A28. Composition of Imports[1]

ETN categories[2]	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
					(In millions of transferable rubles)[3]					
Total	367.0	471.5	529.9	621.9	653.4	734.0	763.6	740.1	746.1	646.0
CMEA	355.8	459.3	514.4	606.9	639.0	715.4	738.7	707.7	713.7	597.6
Bilateral arrangements	6.2	5.4	8.7	5.6	7.8	11.0	12.1	20.2	16.6	19.9
Convertible currency area	5.4	7.2	7.3	9.4	6.6	7.6	12.8	12.3	15.8	28.4
By commodity										
Machinery, equipment, and vehicles	204.7	245.0	316.8	333.1	322.7	372.1	402.4	382.6	428.3	...
Fuels, mineral raw materials, and metals	88.3	115.2	152.2	183.7	195.5	210.5	216.5	227.8	250.0	...
Chemical products, fertilizers, and rubber	23.1	23.7	30.2	28.2	36.7	43.1	41.5	45.4	41.7	...
Construction materials and parts	6.8	7.8	7.4	6.9	10.1	10.6	9.7	14.4	10.7	...
Other nonfood raw materials	8.8	9.5	10.7	11.8	15.0	20.7	17.9	18.8	24.9	...
Live animals	—	—	—	—	—	—	0.5	0.8	1.4	...
Raw materials for food production	10.6	23.1	9.6	10.1	7.7	10.5	7.9	9.9	0.9	...
Food products	31.0	35.8	38.7	42.5	42.0	46.0	48.3	48.0	53.4	...
Manufactured consumer goods	77.0	91.7	93.4	117.7	123.0	126.5	145.6	136.4	137.8	...
					(Percent of total)					
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
CMEA	96.8	97.4	97.1	97.4	97.4	97.5	96.7	95.6	95.7	92.5
Bilateral arrangements	1.7	1.1	1.5	1.1	1.6	1.5	1.6	2.7	2.2	3.1
Convertible currency area	1.5	1.5	1.4	1.5	1.0	1.0	1.7	1.5	2.1	4.4
By commodity										
Machinery, equipment, and vehicles	45.5	44.4	48.1	45.4	42.9	44.3	45.2	43.3	45.1	...
Fuels, mineral raw materials, and metals	19.6	20.9	23.1	25.0	26.0	25.1	24.3	25.8	26.3	...
Chemical products, fertilizers, and rubber	5.1	4.3	4.6	3.8	4.9	5.1	4.7	5.1	4.4	...
Construction materials and parts	1.5	1.4	1.1	0.9	1.3	1.3	1.1	1.6	1.1	...
Other nonfood raw materials	2.0	1.7	1.6	1.6	2.0	2.5	2.0	2.1	2.6	...
Live animals	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	...
Raw materials for food production	2.4	4.2	1.5	1.4	1.0	1.3	0.9	1.1	0.1	...
Food products	6.9	6.5	5.9	5.8	5.6	5.5	5.4	5.4	5.6	...
Manufactured consumer goods	17.1	16.6	14.2	16.0	16.3	15.1	16.4	15.4	14.5	...
Memorandum items:					*(Ratio of imports on payments basis to imports on shipments basis)*					
Total	97.8	100.1	98.0	102.4	99.3	99.8	108.0	100.1	100.0	98.4
CMEA	97.6	100.1	98.1	102.4	99.3	99.7	108.3	100.3	100.2	99.5
Bilateral arrangements	98.9	101.6	94.2	107.4	101.9	102.6	97.1	94.5	100.2	90.9
Convertible currency area	107.8	101.8	100.2	99.1	96.7	100.6	99.4	92.4	88.5	80.4

Sources: Ministry of Trade and International Cooperation; and IMF staff calculations.

[1] Data on a shipments basis; excludes imports for turnkey projects, for which disaggregated data are not available. Components may not add to totals because of rounding.

[2] *Edinaia tovarnaia nomenklatura*, the CMEA commodity classification system.

[3] Imports from the convertible currency area and under bilateral arrangements are converted into transferable rubles at the official rates of exchange. A commodity breakdown is not available separately on a direction-of-trade basis.

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Table A29. Balance of Payments with the CMEA Area[1]

(In millions of transferable rubles)

	1975	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Current account	−157.70	−224.47	−579.87	−619.25	−610.71	−602.76	−695.62	−775.68	−657.44	−690.74	−606.49
Trade balance	−77.14	−176.64	−233.87	−268.54	−328.72	−280.22	−370.94	−422.02	−351.04	−414.37	−286.30
Exports, f.o.b.	151.16	253.52	306.19	365.12	403.61	451.24	448.56	504.69	503.13	503.87	484.46
Imports, c.i.f.	−228.29	−430.16	−540.07	−633.66	−732.33	−731.46	−819.51	−926.70	−854.17	−918.24	−770.75
Equipment[2]	−38.25	−83.26	−80.31	−129.14	−112.05	−99.26	−105.95	−126.69	−144.01	−202.83	−176.87
Other	−190.04	−346.90	−459.76	−504.52	−620.29	−632.20	−713.56	−800.01	−710.15	−715.41	−593.88
Turnkey projects[3]	−58.21	−120.90	−338.23	−338.23	−263.56	−295.22	−302.72	−365.81	−304.85	−255.09	−269.43
Services balance	−22.34	−22.60	−7.69	−12.38	−18.36	−27.25	−21.84	12.28	−1.37	−21.09	−50.44
Receipts	8.81	22.42	22.27	30.53	35.57	34.76	46.98	43.96	41.83	45.16	39.64
Shipment	3.74	5.01	7.06	5.35	5.31	5.30	5.66	6.38	6.49	9.95	7.37
Travel	0.17	0.53	0.66	0.74	0.76	1.01	0.83	0.80	0.91	0.89	1.11
Interest	—	0.06	0.05	0.06	—	0.07	0.03	—	—	—	—
Other	4.89	16.82	14.50	24.39	29.50	28.38	40.46	36.78	34.43	34.32	31.16
Expenditures	−31.15	−45.02	−29.96	−42.91	−53.92	−62.01	−68.82	−31.68	−43.20	−66.26	−90.08
Shipment	−9.71	−10.40	−11.99	−12.03	−12.67	−10.70	−11.38	−12.25	−14.59	−16.06	−19.90
Travel	−0.10	−0.13	−0.07	−0.13	−0.12	−0.16	−0.13	−0.24	−0.24	−0.25	−0.31
Interest	−9.87	−22.54	−7.94	−15.04	−23.11	−31.15	−37.65	−1.30	−7.50	−22.42	−38.08
Other	−11.48	−11.96	−9.97	−15.71	−18.02	−19.99	−19.67	−17.89	−20.88	−27.52	−31.79
Unrequited transfers	−0.01	95.67	−0.07	−0.10	−0.07	−0.07	−0.12	−0.14	−0.18	−0.19	−0.32
Private	−0.01	−0.05	−0.07	−0.10	−0.07	−0.07	−0.12	−0.14	−0.18	−0.19	−0.32
Official	—	95.72	—	—	—	—	—	—	—	—	—
Capital account	157.70	224.47	580.23	619.79	611.44	603.85	696.53	768.64	676.68	679.06	599.24
Medium-/long-term capital	124.22	273.07	579.59	627.02	550.35	593.46	628.61	755.15	726.46	720.25	644.03
Disbursements	124.22	285.46	607.56	657.39	580.63	624.64	660.18	762.64	734.06	727.95	651.72
Trade loans	27.75	81.30	189.02	190.02	205.02	230.16	251.51	270.14	285.19	270.03	205.42
Turnkey projects	58.21	120.90	338.23	338.23	263.56	295.22	302.72	365.81	304.85	255.09	269.43
Equipment[2]	38.25	83.26	80.31	129.14	112.05	99.26	105.95	126.69	144.01	202.83	176.87
Amortization	...	−12.39	−27.97	−30.37	−30.27	−31.17	−31.57	−7.49	−7.59	−7.69	−7.69
Nonresidents' bank deposits[4]	...	...	0.49	5.61	0.65	−0.18	3.01	−2.71	9.00	−3.27	−2.68
Errors and omissions	33.48	−48.61	0.15	−12.84	60.44	10.57	64.91	16.21	−58.78	−37.92	−42.11
Overall balance	—	—	0.36	0.54	0.72	1.09	0.91	−7.04	19.24	−11.68	−7.25
Financing	...	...	−0.36	−0.54	−0.72	−1.09	−0.91	7.04	−19.24	11.68	7.25
State Bank (increase: −)	...	...	−0.36	−0.54	−0.72	−1.09	−0.91	7.04	−19.24	11.68	7.25
Gold sales	...	...	−0.36	−0.54	−0.72	−1.09	−0.91	—	0.02	0.05	0.09
IBEC balance	...	...	...	...	...	...	...	7.04	−19.26	11.63	7.16

Sources: Mongolian authorities; and IMF staff estimates.

[1] Components may not add to totals because of rounding.

[2] Imports of equipment constituting technical assistance financed by the U.S.S.R.

[3] Includes both goods and labor services; data are not available for a disaggregation.

[4] Changes in deposits by nonresidents, chiefly foreign embassies, at the State Bank. The largest share of these deposits is held by CMEA countries, but changes also include deposits of other centrally planned economies and countries in the convertible currency area.

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Table A30. Balance of Payments Under Bilateral Clearing Arrangements[1]

(In millions of U.S. dollars)

	1975	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Current account	0.64	−0.49	−0.37	−0.95	1.21	1.49	1.93	15.74	−2.98	8.44	8.64
Trade balance	−1.22	−1.74	−1.54	−1.12	−1.16	−3.10	−6.57	1.99	−16.70	−4.78	−3.44
Exports, f.o.b.	5.43	7.66	5.52	9.48	8.67	9.94	6.95	18.41	12.50	20.80	23.41
Imports[2]	−6.65	−9.40	−7.07	−10.60	−9.83	−13.04	−13.52	−16.43	−29.20	−25.58	−26.85
Services balance	1.86	1.25	1.18	0.16	2.36	4.59	8.51	13.76	13.73	13.22	12.09
Receipts	2.11	1.45	1.31	0.35	2.56	4.75	8.84	13.98	14.03	13.49	12.47
Shipment	2.06	1.31	1.15	0.23	2.45	4.55	8.76	13.77	13.80	13.12	12.28
Travel	—	0.02	—	—	0.01	—	—	—	—	0.02	—
Other	0.05	0.12	0.17	0.12	0.10	0.20	0.08	0.20	0.22	0.35	0.19
Expenditures	−0.25	−0.19	−0.14	−0.19	−0.19	−0.16	−0.33	−0.22	−0.30	−0.27	−0.39
Shipment	−0.07	—	—	−0.05	−0.05	−0.08	−0.22	−0.11	−0.01	—	−0.09
Travel	—	—	—	—	−0.01	−0.01	—	—	—	—	—
Other	−0.18	−0.19	−0.14	−0.14	−0.14	−0.07	−0.11	−0.11	−0.29	−0.27	−0.30
Capital account	−0.64	0.49	0.37	0.95	−1.21	−1.49	−1.93	−15.74	2.98	−8.44	−8.64
Medium-/long-term capital	—	—	—	—	—	—	—	−5.60	−5.22	−5.52	−5.05
Disbursements	—	—	—	—	—	—	—	—	—	—	—
Amortization[3]	—	—	—	—	—	—	—	−5.60	−5.22	−5.52	−5.05
Short-term capital	—	—	—	—	—	—	—	—	—	—	—
Errors and omissions	−0.64	0.49	0.37	0.95	−1.21	−1.49	−1.93	−10.14	8.20	−2.92	−3.59
Overall balance	—	—	—	—	—	—	—	—	—	—	—
Financing	—	—	—	—	—	—	—	—	—	—	—

Source: Mongolian authorities.

[1] Components may not add to totals because of rounding; includes trade with China, the Democratic People's Republic of Korea, and Yugoslavia.

[2] Contracts specify shipment on both a c.i.f. and an f.o.b. basis.

[3] Repayment to China of debt contracted in the 1960s.

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Table A31. Balance of Payments with Convertible Currency Area[1]

(In millions of U.S. dollars)

	1975	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Current account	−1.00	−0.09	0.40	3.10	−4.30	14.48	17.14	6.59	22.51	19.63	31.30
Trade balance	−1.50	−2.21	−3.89	−1.30	−7.51	12.32	13.92	−0.12	14.03	12.60	18.34
Exports, f.o.b.	2.37	6.71	6.30	8.74	5.02	20.32	23.08	17.68	31.50	34.11	52.18
Imports[2]	−3.87	−8.92	−10.20	−10.04	−12.53	−8.00	−9.16	−17.80	−17.47	−21.51	−33.83
Services balance	0.50	2.12	4.30	4.40	3.21	2.16	3.22	6.71	8.49	7.04	12.97
Receipts	2.54	5.05	6.31	7.31	5.83	5.23	6.67	8.91	10.78	11.61	16.55
Shipment	0.06	0.01	0.03	0.04	0.07	0.08	0.08	0.15	0.25	0.54	1.07
Travel	0.68	1.11	2.34	2.57	2.61	2.30	2.21	2.39	3.27	3.38	3.58
Interest	0.07	0.11	0.14	0.08	—	—	0.05	0.13	0.15	0.18	0.19
Other	1.73	3.82	3.81	4.62	3.15	2.85	4.33	6.23	7.12	7.51	11.70
Expenditures	−2.04	−2.93	−2.01	−2.91	−2.61	−3.08	−3.45	−2.19	−2.30	−4.58	−3.58
Shipment	—	−0.06	−0.05	−0.17	−0.11	−0.09	−0.08	−0.04	−0.13	−0.16	−0.15
Travel	−0.01	—	—	—	—	—	—	—	—	—	—
Interest	—	—	—	—	—	—	—	—	—	—	—
Other	−2.03	−2.86	−1.97	−2.74	−2.50	−2.99	−3.37	−2.15	−2.17	−4.42	−3.43
Unrequited transfers	—	—	—	—	—	—	—	—	—	—	−0.01
Private	—	—	—	—	—	—	—	—	—	—	−0.01
Official	—	—	—	—	—	—	—	—	—	—	—
Capital account	—	—	−0.91	−0.32	0.22	0.28	12.59	15.37	51.41	−22.21	−55.65
Disbursements	...	...	...	...	...	1.60	1.60	2.30	2.30	1.70	1.70
Errors and omissions[3]	—	—	−0.91	−0.32	0.22	−1.32	10.99	13.07	49.11	−23.91	−57.35
Overall balance	−1.00	−0.09	−0.51	2.78	−4.08	14.76	29.73	21.96	73.92	−2.58	−24.35
Financing	1.00	0.09	0.51	−2.78	4.08	−14.76	−29.73	−21.96	−73.92	2.58	24.35
State Bank foreign exchange reserves, net (increase: −)[4]	1.00	0.09	0.51	−2.78	4.08	−14.76	−29.73	−21.96	−73.92	2.58	24.35
Memorandum item:											
Gross foreign exchange reserves stock, end of period	1.34	9.14	8.63	11.41	7.33	22.09	51.82	73.78	147.70	145.12	120.77
(In months of imports)	4.2	12.3	10.2	13.6	7.0	33.1	67.9	49.8	101.5	81.0	42.0

Sources: Mongolian authorities, and IMF staff estimates.
[1] Components may not add to totals because of rounding.
[2] On a c.i.f. as well as an f.o.b. basis.
[3] Includes valuation adjustment.
[4] For the period 1969–80 calculated as the change in the current account balance.

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Table A32. Export and Import Deflators and the Terms of Trade[1]

	1970	1975	1980	1981	1982	1983	1984	1985	1986	1987	1988
	(In millions of transferable rubles; index of deflators 1980 = 100)[2]										
Exports											
Current prices											
Total	75.90	157.50	269.90	314.00	376.40	408.60	453.90	461.70	479.80	481.00	495.20
Centrally planned	74.50	156.30	265.70	308.00	370.40	406.10	433.80	443.70	463.90	461.40	468.60
Other	1.40	1.20	4.20	6.00	6.00	2.50	20.10	18.00	15.90	19.60	26.60
Constant 1980 prices											
Total	125.70	171.30	269.90	295.60	324.30	369.30	383.20	368.70	409.70	395.70	388.80
Centrally planned	123.40	169.70	265.70	290.60	320.50	367.30	364.50	354.10	393.40	380.50	368.40
Other	2.30	1.60	4.20	5.00	3.80	2.00	18.70	14.60	16.30	15.20	20.40
Export price deflator											
Total	60	92	100	106	116	111	118	125	117	122	127
Centrally planned	60	92	100	106	116	111	119	125	118	121	127
Other	61	75	100	120	158	125	107	123	98	129	130
Imports											
Current prices											
Total	108.70	191.90	367.00	471.50	529.90	621.90	653.40	734.00	763.60	740.10	746.10
Centrally planned	107.80	189.10	361.60	464.30	522.60	612.50	646.80	726.40	750.80	727.80	730.30
Other	0.90	2.80	5.40	7.20	7.30	9.40	6.60	7.60	12.80	12.30	15.80
Constant 1980 prices											
Total	180.20	310.90	367.00	439.80	428.10	487.90	457.70	504.20	496.60	464.50	459.70
Centrally planned	179.30	308.60	361.60	432.60	420.80	478.60	451.10	496.60	483.90	455.40	447.50
Other	0.90	2.30	5.40	7.20	7.30	9.30	6.60	7.60	12.70	9.10	12.20
Import price deflator											
Total	60	62	100	107	124	127	143	146	154	159	162
Centrally planned	60	61	100	107	124	128	143	146	155	160	163
Other	100	122	100	100	100	101	100	100	101	135	130
Terms of trade											
Total	100	149	100	99	94	87	83	86	76	76	78
Centrally planned	100	150	100	99	93	86	83	86	76	76	78
Other	100	62	100	120	158	124	107	123	97	95	101
	(Annual percent change)[3]										
Export prices	...	8.9	1.7	6.0	9.4	−4.3	6.3	5.9	−6.4	4.3	4.1
Centrally planned	...	8.9	1.7	6.0	9.4	−4.3	7.2	5.0	−5.6	2.5	5.0
Other	...	4.2	5.9	20.0	31.7	−20.9	−14.4	15.0	−20.3	31.6	7.8
Import prices	...	0.6	10.0	7.0	15.9	2.4	12.6	2.1	5.5	3.2	1.9
Centrally planned	...	0.3	10.4	7.0	15.9	3.2	11.7	2.1	6.1	3.2	1.9
Other	...	4.1	−18.0	—	—	1.0	−1.0	—	1.0	33.7	−3.7
Terms of trade	...	8.3	−8.3	−1.0	−6.5	−6.7	−6.3	3.8	−11.9	1.1	2.2

Sources: Ministry of Trade and International Cooperation; and IMF staff calculations.

[1] Centrally planned economies include CMEA members, Yugoslavia, China, and the Democratic People's Republic of Korea, while "other" refers to countries in the convertible currency area; components may not add to totals because of rounding.

[2] Trade under bilateral clearing arrangements and with the convertible currency area is converted into transferable rubles at the official rate of exchange.

[3] For 1975 and 1980, rates of growth are average rates for the previous five years.

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Table A33. International Reserves
(In millions of U.S. dollars; end of period)

	Total	Foreign Exchange	Gold[1]
1980	23.0	9.1	13.9
1981	21.8	8.6	13.2
1982	23.7	11.4	12.3
1983	19.3	7.3	12.0
1984	32.9	22.1	10.8
1985	68.6	51.8	16.8
1986	92.4	73.8	18.6
1987	167.8	147.7	20.1
1988	164.1	145.1	19.0
1989	139.6	120.8	18.8

Source: State Bank of the Mongolian People's Republic.
[1] Valued at about $185 per troy ounce.

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Table A34. External Debt

(In millions of transferable rubles)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Debt outstanding (end of period)[1]										
Total long-term debt	3,405.0	4,025.2	4,651.6	5,213.7	5,806.9	6,434.3	7,199.5	7,940.5	8,622.7	9,855.0
CMEA countries										
U.S.S.R.	3,306.9	3,921.8	4,542.2	5,097.8	5,689.9	6,263.5	7,035.4	7,773.9	8,451.0	9,685.4
Czechoslovakia	29.8	31.7	33.5	36.5	38.0	38.6	38.6	40.0	39.9	39.9
Germany[2]	12.0	12.7	12.2	13.5	13.7	16.1	15.7	16.6	18.9	19.4
Bulgaria	14.0	13.6	15.3	16.5	16.7	18.4	17.5	15.8	13.7	11.6
Romania	5.8	6.6	6.9	6.5	5.9	5.3	4.6	3.8	3.0	2.3
Hungary	27.6	29.3	31.6	32.9	33.7	34.9	34.6	34.2	34.2	35.5
Poland	8.9	9.5	9.9	10.0	9.0	8.3	7.9	10.8	15.6	17.9
China[3]	...	...	...	...	...	49.2	45.2	41.8	38.2	34.8
International Investment Bank (Moscow)	—	—	—	—	—	—	—	3.6	8.2	8.2
Disbursements by category of loan										
Total	285.5	607.6	657.4	580.6	624.6	660.2	762.6	734.1	727.9	651.7
Trade loans	81.3	189.0	190.0	205.0	230.2	251.5	270.1	285.2	270.0	205.4
Technical assistance	204.2	418.5	467.4	375.6	394.5	408.7	492.5	448.9	457.9	446.3
Turnkey projects	120.9	338.2	338.2	263.6	295.2	302.7	365.8	304.9	255.1	269.4
Equipment	83.3	80.3	129.1	112.0	99.3	105.9	126.7	144.0	202.8	176.9
Service of long-term debt										
Interest	22.9	7.9	15.3	23.1	31.0	37.6	1.3	7.5	22.3	38.1
CMEA	22.9	7.9	15.3	23.1	31.0	37.6	1.3	7.5	22.3	38.1
Principal	12.4	28.0	30.4	30.3	31.2	31.6	11.5	11.0	11.3	11.1
CMEA	12.4	28.0	30.4	30.3	31.2	31.6	7.5	7.6	7.7	7.7
China[3]	...	...	...	...	...	...	4.0	3.4	3.6	3.4

Sources: Ministry of Finance; and State Bank of the Mongolian People's Republic.

[1] Mongolia's long-term debt is owed exclusively to the CMEA countries and China. Short-term imbalances sometimes arise in bilateral clearing accounts with other countries. Such imbalances are cleared in the early months of the subsequent year.

[2] (Former) German Democratic Republic.

[3] Debt to China contracted during the 1960s.

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Table A35. Exchange Rates

	1970	1975	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990 July
							(End of period)						
Official Exchange Rates													
Tugriks per transferable ruble													
Commercial rate	4.44	4.44	4.44	4.44	4.44	4.44	4.44	4.44	4.44	4.44	4.44	4.44	4.44
Noncommercial rate[1]	9.61	9.61	7.11	7.11	7.11	7.11	7.11	7.11	6.69	6.69	6.69	6.69	6.69
							(Annual average)						
Tugriks per U.S. dollar													
Commercial rate[2]	4.00	3.19	2.90	3.19	3.24	3.30	3.54	3.71	3.18	2.89	2.89	3.00	5.63
Noncommercial rate	—	—	—	—	—	—	—	—	—	—	20.00	20.00	20.00
							(End of period)						
Commercial rate	4.00	3.37	2.96	3.11	3.31	3.41	3.79	3.40	3.06	2.84	3.00	3.00	5.63
Noncommercial rate	—	—	—	—	—	—	—	—	—	—	20.00	20.00	20.00
							(Annual average)						
Memorandum items:													
Tugriks per transferable ruble, adjusted[3]	...	5.96	6.03	5.55	5.47	5.34	5.24	5.21	5.39	5.48	5.42	5.69	...
U.S. dollar per transferable ruble													
Official cross rates[4]	1.11	1.39	1.53	1.39	1.37	1.35	1.25	1.20	1.40	1.54	1.54	1.48	0.79
Bulgaria[5]	1.11	0.79	1.01	0.94	0.91	0.89	0.86	0.84	0.74	0.81	0.63	0.58	...

Sources: Mongolian authorities; and IMF staff calculations.

[1] Obtained by multiplying the official noncommercial rate of Tug 4.18 per U.S.S.R. ruble by a retail/wholesale price markup coefficient.

[2] On July 1, 1990, the commercial exchange rate was fixed at Tug 5.63 = US$1. On August 2, 1990, the rate was modified to Tug 5.56 per U.S. dollar.

[3] Weighted average exchange rate obtained by adjusting exports and imports to and from the CMEA for trade taxes and subsidies as presented in Table A22; weights calculated on the basis of shares of exports and imports in CMEA trade.

[4] Cross rate obtained using the official commercial tugrik/transferable ruble rate and the commercial tugrik/U.S. dollar rate.

[5] Cross rate calculated from commercial exchange rates of the lev of Bulgaria vis-à-vis the transferable ruble and the dollar.

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ANNEX II

MONGOLIA: RECENT ECONOMIC TRENDS

A, B, C, D, E

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MONGOLIA

RECENT ECONOMIC TRENDS

May 6, 1992

6.5

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MONGOLIA

RECENT ECONOMIC TRENDS 1/

A. Introduction

1. Despite very considerable difficulties, exacerbated by the dissolution of the former USSR in late 1991, Mongolia has made significant progress towards a market-oriented economy while consolidating the democratic process. However, it continues to experience the short- and medium-term transitional problems that a radical transformation of the kind being attempted by the authorities inevitably entails. These have been compounded by Mongolia's heavy import dependence on the former COMECON countries (including Russia particularly), whose own economic problems have led to a drastic reduction in external trade and investment. Finally, the country's geographic isolation makes the development of new markets costly and difficult. The Mongolian authorities have accepted these formidable challenges and are making strenuous efforts to overcome them.

2. During 1991, the international community responded quickly to the authorities' request for assistance during the transition. A Mongolia Assistance Group Meeting took place from September 5-6, 1991, in Tokyo, co-chaired by the Government of Japan and the World Bank. As foreseen at that time, additional assistance is now needed for 1992-93, given Mongolia's continuing economic difficulties and a second Mongolia Assistance Group Meeting has been convened for May 28-29, 1992 in Tokyo. Its main purposes will be: to assess Mongolia's progress in reforming its economy; to articulate medium-term development objectives and identify external capital requirements to obtain them; to review the utilization of the aid committed during 1991; and, to consider new assistance required for the remainder of 1992 and for 1993.

3. Following a process of popular consultation and discussion during the second half of 1991, and extended debate in the national legislature, a new constitution was approved and became effective February 12, 1992. It incorporates the principles of a modern democratic, pluralistic society based on a market economy and private ownership. National elections for a new unicameral legislature will be held on June 28, 1992. Several new political parties have been formed and, not unexpectedly, a variety of opinions is being debated. It is commendable that, notwithstanding very difficult economic circumstances, these constitutional reforms and the democratic process have not only continued, but been reinforced.

B. Economic Stabilization: Recent Developments

4. Adjustment and stabilization in Mongolia, as in other reforming, formerly centrally planned economies, presents difficult challenges for policy formulation and implementation. Moreover, Mongolia's efforts have been uniquely aggravated by its almost total external trade dependence on the former USSR and

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1/ This memorandum assesses economic developments since late 1991. For a more comprehensive assessment, see Mongolia: Country Economic Memorandum: Towards a Market Economy, World Bank, December, 1991; Economic Report on the Mongolian People's Republic, Asian Development Bank, September, 1991; and The Mongolian People's Republic: Toward a Market Economy, Occasional Paper No. 79, IMF, 1991.

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other former socialist economies of Eastern Europe. The sudden collapse of COMECON in early 1991, and subsequent disruptions in trade and distribution within Russia, created an extremely difficult situation in Mongolia. Large amounts of financial and technical aid received from the former USSR, equivalent to about 30% of GDP during the 1980s, virtually disappeared in 1991, and this has significantly worsened Mongolia's economic difficulties.

5. Preliminary economic indicators for 1991 reveal the full extent of the country's economic crisis. Exports declined by 22% and imports, excluding turnkey projects, by 44% (in nominal US dollars), following the already sharp drop that had taken place in 1990.2/ Owing mainly to shortages of spare parts and energy, and disruptions in distribution associated with external trade, GDP3/ in 1991 is now estimated to have fallen by around 16% in real terms, in line with the expectation contained in the documentation prepared for the first donor meeting. This is reflected in practically every sector, particularly in construction and services which declined by 30% and 24% respectively. A more detailed assessment of results in the main economic sectors is provided below (paras. 12-18).

6. Inflation accelerated, averaging 7% per month during the last quarter of 1991 and 120% for 1991 as a whole. While partly reflecting the initial impact of price liberalization, this high rate of inflation was also caused by passive fiscal and monetary policies, particularly during the first part of the year, and by shortages associated with the virtual collapse of imports. Reflecting these inflationary pressures, the parallel exchange rate reached about Tg.170 per US dollar by end-1991 (compared to the official rate of Tg.40 per US dollar).

7. The fiscal situation continued to be very precarious. For 1991, the Government's deficit was equivalent to almost 13% of GDP (including subsidies to some public enterprises). Extremely high levels of expenditure inherited from the former command economy, inadequate revenue performance due to a weak tax collection system, compressed external trade, significant tax exemptions, and the abrupt cessation of Soviet aid were the main factors responsible. The high level of Government expenditures (over 60% of GDP) was the consequence of several factors. First, Mongolia's public service sector employs about 170,000 staff, over 25% of the labor force. Second, public expenditure on education exceeded 10% of GDP. Although some private schools are now being created, about 40,000 college and high level students received monthly stipends. Third, subsidies to public enterprises consumed a sizeable part of the budget, perhaps as high as 10% of GDP. Finally, budgetary financing of the Social Fund deficit was substantial, about 7% of GDP; more than 300,000 people received pensions (equivalent to over 40% of the labor force), although some continue to work to supplement retirement payments.

2/ External trade statistics should be treated cautiously because of valuation problems associated with the use of transferable ruble exchange rate.

3/ Mongolia uses Net Material Product in their national accounts, which have been adjusted in GDP terms by IMF/World Bank staff. GDP numbers are highly tentative.

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8. Unemployment has increased and is currently estimated at 16% of the labor force in urban areas. There is also evidence that underemployment is high, as is usually the case in formerly socialist economies. The number of persons (officially registered) unemployed at the end of 1991 is estimated at 55,400. Unfortunately, the situation is likely to worsen, as state owned enterprises face hard budget constraints and/or undergo restructuring. In addition, there are some 70,000 students graduating from school every year, half of whom normally enter the labor market. Given the high level of education with which many of these people will enter the labor force, the economy will need to find appropriate opportunities for their employment. This calls for emphasis on the development of the service sector. Until the economy absorbs the external shock and starts to grow, prospects for employment creation are small.

9. At the end of 1991, Mongolia's net international reserves (US$18 million) were estimated to be less than 2 1/2 weeks of imports. It should be noted that some private external trade has begun, as restrictions have been relaxed or eliminated. These transactions were estimated at over US$50 million in 1991.

10. Against this background, the Government initiated efforts to stabilize the economy and, in October 1991, entered into a Stand-By Arrangement with the International Monetary Fund. Stabilization measures included: a devaluation in the local currency from Tg.7.1 per US dollar to Tg.40 per US dollar4/; restraints in government expenditures (including investments); actions to increase fiscal revenues (imposition of a 10% import surcharge and increases in excise taxes); and, control over money and credit aggregates by limiting access to central bank credit, imposition of reserve requirements and an increase in central bank lending rates. Limits on external public commercial borrowing were also established. However, the initial impact of these stabilization measures was adversely affected by uncertain supplies of food and fuel during the winter, the lack of well established markets, and the concomitant lack of competition for several goods. Concerned that uncertainties could lead to speculation and hoarding, leaving vulnerable groups of society unprotected, the authorities continued during 1991 with the rationing of certain essential commodities for the urban population and price subsidies for selected consumer goods.

11. Despite these significant efforts, the need for renewed action was evident in early 1992. While progress had been achieved in a number of areas, the external environment deteriorated more severely than expected and some slippage in the implementation of policy measures had occurred. According to preliminary information for the first quarter of 1992, industrial output declined further, while price increases accelerated. Retail prices increased by 51% in the first quarter of 1992, including an increase of 33% in March alone (although that increase mainly reflected price liberalization measures taken at the beginning of that month). The authorities have taken additional steps to stabilize the economy and introduced, very recently, several measures. The barter exchange rate of Tg.15 per US dollar used for trade with Russia was unified with the official rate of Tg.40 per US dollar. The Bank of Mongolia

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4/ The adjustment of the exchange rate, as originally implemented in June 1991, was applicable to nonbarter transactions.

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lending rate was doubled to 30%, and a circular advising commercial banks to adjust their rates was issued. As a result, lending rates to private traders reached 8-9% per month in some cases. Excise taxes were raised on certain brands of vodka; gasoline prices were increased; the coverage of state orders for agricultural products was narrowed to live animals and meat; the private sector may now compete to procure agricultural goods at freely determined prices; general export licenses were abolished (with the exception of copper scrap, cashmere, logs, and deer horns); and plans to apply foreign exchange surrender requirements to the private sector were withdrawn.

C. The Main Economic Sectors

Agriculture

12. Agriculture, the backbone of the Mongolian economy, accounts for about 40% of employment, 20% of GDP and 75% of the raw materials used by other sectors. Agricultural value added declined by 0.8% in 1990 because of cold weather, late rains and lack of diesel and farm equipment. Although weather conditions were more favorable in 1991, severe shortages of inputs such as fertilizers, spare parts, and diesel, as well as delays in deregulating agricultural prices, have had a negative impact. Consequently, agricultural GDP fell by 7% in 1991. Output of almost all agricultural produce declined: vegetables by 41%, wheat by 7% and cereals by 17%. Meat production, however, increased by 7%.

13. Following the removal of limits on private ownership, the share of privately-owned livestock rose to more than 50% and the process of privatizing the rest is progressing. The commercialization of cooperatives is also proceeding as scheduled and almost all are now in private hands. Some large state farms are being converted into smaller units to facilitate their privatization, although progress in this area has been somewhat slower than expected.

Industry

14. Industry accounts for one third of GDP and employs around one quarter of the labor force. After stagnating in 1990, industrial output declined by 12% in 1991. Lack of foreign exchange resulted in shortages of imported raw materials and spare parts which, in turn, caused a sharp contraction in all subsectors, ranging from 10% in electricity production to 28% in the output of Erdenet's copper concentrate, Mongolia's principal export. Almost all factories are currently operating well below capacity and in some cases production has stopped altogether. Increased capacity utilization will depend to a large extent upon improved availability of essential imported inputs.

15. The electric power subsector is of critical importance to Mongolia's recovery, particularly the coal-based power plants which supply the urban areas. Diesel-based power plants, which predominantly supply the rural areas, have been affected by the drop in petroleum imports. Following the breakdown of the COMECON system, the purchase and delivery of spare parts, already erratic in 1990, was seriously disrupted during 1991 and electricity production fell by 10% compared to 1990, with negative effects on the rest of the economy. For example, the Erdenet copper company reported a production loss valued at US$12 million in the first half of 1991, owing to power outages. In addition to these immediate

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operating and maintenance problems, structural reforms remain to be addressed. Mongolia's power plants are old and need extensive rehabilitation and studies of these investment requirements are an urgent priority.

16. The coal subsector is equally important, accounting for 90% of the country's primary energy production, of which 60% is used for electricity power generation. Since 1989, procurement and delivery of replacement equipment, spare parts, explosives, fuels, lubricants and batteries have become increasingly problematic and disrupted coal production. As a result, output declined from 8.0 million tons in 1989 to 7.0 million tons in 1991.

Construction

17. The construction sector, which accounts for about 6% of GDP, recorded a 30% decline in value in 1991, mainly attributable to changed investment priorities and shortages of building materials. Before 1986, almost all construction projects were financed through the budget, which covered all forms of building expenditure, including wages, construction materials, administrative costs, and the purchase of construction equipment and technology. Since then, loan financing has been introduced, albeit at highly subsidized rates, and the government has substantially reduced its direct financing of construction. Financing problems halted many projects in 1990, including the construction of 800 houses, and has thus negatively impacted developments in 1991.

Services

18. The service sector, including communications, transport, distribution, education, health, research and development, tourism, and administration, represents about 41% of GDP and employs about 35% of the labor force. The current economic crisis resulted in a 24% decline in value added of services in 1991. In transport, lack of fuel, batteries and spare parts has hampered the operations of enterprises in both the public and private sectors, and the volume of freight transport declined by about 21%. Passenger volumes remained stagnant. Communications remained unchanged and continue to be a bottleneck for the development of the economy. There was a 12% decline in the trade subsector, reflecting the decline in the real sectors of the economy.

D. Structural Reforms

19. The centerpiece of Mongolia's structural reforms is the redefinition of property rights, i.e. the privatization of economic assets formerly owned entirely by the state, and the Government has moved decisively in this area. During the second half of 1991, every citizen received coupons ("vouchers") that can be used to buy enterprises offered for privatization (pink coupons for small businesses, blue for large ones). By early 1992, over 1,000 small businesses had been privatized. Large enterprises are to be privatized more gradually through the recently established stock market and already 10 enterprises have been sold. The initial list of enterprises to be privatized includes about 170 companies, out of more than 300 to be transferred to the private sector. Although, as noted above, most of the agricultural/livestock sector is already in private hands, except for large state and cooperative farms, industry is still predominantly

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publicly-owned, with only 30% of assets currently privatized. A bankruptcy law has been approved.

20. In February 1992, the Mongolian stock exchange started operations, marking an important institutional step in the transition towards a market economy. Transactions were initially and understandably limited, but in recent weeks, turnover has increased rapidly to more than Tg.30 million weekly. At this stage, transactions in the stock exchange are limited to the privatization process. Moreover, stock market regulations are yet to be approved by Parliament.

21. Further progress has been made towards a fully liberalized pricing system. In January 1992, price adjustments were introduced for transport, energy and children's clothing and, in March 1992, the authorities liberalized all but a few products at retail level. However, local price commissions have been monitoring price movements and intervening if, in their judgement, increases are excessive. The authorities instructed these commissions to limit their activities to monitoring price settings of domestic monopolies. In addition, live animals and meat are still subject to procurement under state orders. However, the Government very recently announced that these orders will be abolished in the near future.

22. A modern banking law was enacted in May 1991, and the process of establishing a fully fledged central bank (the Bank of Mongolia) and a two- tier banking system is underway. The retail banking activities of the former state bank have been transferred to eight commercial banks (relicensed by the Bank of Mongolia), which took over its 400 branches. The Bank of Mongolia, now with only 21 branches, has begun developing its capabilities for indirect monetary management. It has introduced reserve requirements and increased its lending rate to commercial banks. However, there remain significant weaknesses that hamper the effective implementation of monetary policies, particularly the lack of a proper payment clearing system and inadequate bank supervision and regulations. Moreover, a fully functioning commercial banking system remains to be developed.

23. Efforts are underway to replace the old taxation system and to raise revenues. A draft law revising corporate and personal taxes has been presented to Parliament, while excise tax rates have been raised and their coverage broadened. Draft legislation to reduce custom duty exemptions and to introduce sales tax have also been presented to Parliament and are expected to be approved soon. In line with earlier plans, the 1992 budget includes user fees for health and education. To complement the introduction of an appropriate legal framework, efforts to improve tax administration are underway, with external technical assistance.

E. Economic Prospects and External Financing Needs

Growth

24. With concerted efforts by the authorities and continued assistance from the international community, Mongolia's economy should be able to resume growth by 1994. Present policies are appropriately directed towards minimizing

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disruptions, achieving stabilization and concentrating efforts on areas with the quickest growth potential. Nonetheless, the resumption of economic growth in two years will require major efforts. The authorities' stabilization policies need to be complemented by aggressive measures to encourage domestic and foreign private sector activities. Moreover, the international community will hopefully continue to provide assistance on appropriate terms. In addition, it is assumed that the situation in the new Commonwealth of Independent States (CIS) will improve gradually (at least so far as external trade with Mongolia is concerned and, in particular, with regard to petroleum supply).

25. After a drop of about 16% in 1991, GDP is expected to decline by a further 5% in 1992 and, following zero growth in 1993, to show a small increase in 1994. This projected trend underlines rapid changes in the structure of the economy, namely the contraction of the industrial sector and the Government. A strong lead in growth can be expected from the agricultural (including livestock) sector, as producer prices, distribution, and ownership continue to be liberalized. The service sector, excluding Government, should also contribute to economic growth as more trade and tourism activities are undertaken by old and new private companies. However, a significant reduction in industrial activities appears unavoidable as non-competitive firms are closed while others restructure their activities. Despite this temporary reduction in total industrial output, export-oriented industries, mostly agro-based industries, can be expected to grow in response to the new environment (i.e. wool, leather, and meat).

Aid Utilization

26. External aid committed since June 1991 amounts to about US$245 million. This includes about US$125 million in balance of payments (bop) support5/, US$20 million in project aid, US$74 million in technical assistance, and US$26 million in contributions in-kind (mostly food and medicine). While significant aid in-kind and some bop assistance was delivered and/or disbursed during the second half of 1991, the bulk of the bop aid committed in late 1991 will only be delivered and disbursed during the first half of 1992. Technical assistance will be disbursed, of course, throughout a longer period covering five or more years. However, funds already committed in bop and in-kind are expected to be fully disbursed by the end of 1992. Taking projected disbursements into account, some additional bop resources will be needed in 1992 and 1993. As the country gradually recovers from the disruptions in its external trade and structural reforms are carried out, external assistance could then increasingly be directed towards infrastructure and development project financing.

External Resource Requirements in 1992 and 1993 6/

27. Annex E projects external requirements for 1992-93 amounting to US$1,197 million, including imports totalling US$1,040 million. Essential

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5/ This amount excludes the IMF Stand-by arrangement for $31 million, because it is considered a "below the line" item (to finance increase in gross reserves).

6/ A separate document, Aid Utilization and Assistance Priorities for 1992-1993, reviews aid utilization in more detail for 1991 and development assistance priorities for 1992-93.

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imports for 1992 are estimated to range between US$430-450 million. In addition to these essential import requirements, 1992 imports include completion of "turn-key" projects financed by Russia (US$38.0 million) and other investment projects already under implementation (US$67.0 million). Imports for 1993, both essential and project finance, have been projected by taking into account renewed activities in several sectors for 1993 and subsequent years. These import projections are consistent with a concomitant increase in exports.

28. Other financing requirements for 1992-1993 include: services, totalling US$38.9 million; a projected increase in net international reserves of about US$47.8 million, to the equivalent of about 7 weeks of imports by the end of 1993; debt amortization totalling US$40.4 million; and other financing requirements (short-term and arrears) totalling US$29.9 million.

29. Total external financing requirements for 1992-1993 are expected to be met from the following sources. First, by exports totalling US$755 million, which are projected to grow by about 10% in real terms during 1993, associated with a recovery in copper production and other exports which suffered from electricity cuts and shortages in essential inputs. Export growth should also result from incentives associated with the deepening of structural adjustment policies, particularly for products such as wool, leather, meat, skins, and other non-traditional products in which the country has comparative advantage. An indicative composition of exports for the 1991-93 period is shown in Annex D. Second, by disbursements from grants and loans already committed, US$35.6 million and US$187.2 million, respectively. Third, by disbursements from commercial loans during 1992 (US$40 million) and direct investments (US$10 million) in 1992 and 1993 in response to the new economic environment.

30. The growth scenario outlined in paras. 24-25 above assumes that the country's requirements for essential imports will be met. Estimated requirements for 1992 indicate a financing gap of US$75 million which needs to be urgently filled. The financing gap for 1993 is estimated at around US$95 million. The total gap for the remainder of 1992 and the whole of 1993 therefore amounts to US$170 million. Since there are normally some lags between commitments and disbursements, the commitments needed to fill the financing gap, particularly for 1993, will need to be significantly larger, at least US$200 million in total, for the remainder of 1992 and 1993.

F. Conclusion

31. Mongolia's reform process has had a strong but difficult beginning. Two key systemic aspects of the transformation are proceeding rapidly: the consolidation of democratic reforms and the introduction of a broad privatization program. However, the successful completion of this process will depend on the effective implementation of appropriate economic policies and the building of the necessary institutional support. While some steps have been taken, delays have occurred as difficult choices had to be made. To ensure momentum, the authorities will need to make difficult policy decisions in several key areas. These include:

(i) the maintenance of fiscal and monetary discipline;

(ii) the maintenance of appropriate exchange and interest rates;

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(iii) the careful appraisal of all new public investments;

(iv) the continuation and deepening of price liberalization;

(v) the design and implementation of public employment and compensation policies compatible with efficient governance;

(vi) the elimination of unnecessary administrative requirements for the private sector and the relaxation of restrictions on foreign investments (particularly in the mining sector);

(vii) the privatization of large public enterprises; and

(viii) the development of an efficient banking system, based on the recently approved banking law.

32. In its efforts to successfully overcome its developmental challenges, Mongolia will continue to require financial and technical assistance on highly concessional terms. For 1992, financial assistance is needed mainly for balance of payments support. As the country recovers, official development assistance and foreign direct investment will be increasingly required for priority development projects in 1993 and beyond.

ANNEXES

A. SOCIAL INDICATORS
B. SELECTED ECONOMIC INDICATORS
C. BALANCE OF PAYMENTS
D. INDICATIVE COMPOSITION OF EXPORTS, 1991-93
E. EXTERNAL FINANCING REQUIREMENTS, 1992-93

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MONGOLIA: SOCIAL INDICATORS

	Unit of measure	25-30 years ago	15-20 years ago	More recent estimate
Human Resources				
Size; growth; structure of population				
Total population (mre = 1990)	'000	1,094	1,412	2,128
14 and under	% of pop.	41.4	44.8	40.7
15-64	% of pop.	53.1	54.2	55.7
Age dependency ratio	unit	0.84	0.89	0.79
Percentage in urban areas	% of pop.	42.1	48.7	52.3
Population growth rate	annual %	3.0	2.4	2.8
Urban	annual %	6.1	3.9	2.9
Urban/rural growth differential	difference	5.3	2.9	0.3
Projected population: 2000	'000	..	..	2,735
Stationary population	'000	..	..	6,226
Determinants of population growth				
Fertility				
Crude birth rate	per '000 pop.	42.7	40.1	35.1
Total fertility rate	births per woman	5.94	5.62	4.70
Mortality				
Crude death rate	per '000 pop.	15.7	12.1	8.3
Infant mortality rate	per '000 live births	113.2	92.0	61.8
Under 5 mortality rate	per '000 live births	..	..	83.4
Life expectancy at birth: overall	years	50.0	55.2	62.6
female	years	51.3	56.5	63.8
Labor force (15-64)				
Total labor force	'000	514	668	1,029
Agriculture	% of labor force	54.4	43.8	..
Industry	% of labor force	20.0	21.0	..
Female	% of labor force	44.7	45.2	45.5
Participation rate: overall	% of labor force	48.1	46.2	47.0
female	% of labor force	43.0	41.8	42.9
Natural Resources				
Area	km^2	1,566,500	1,566,500	1,566,500
Density	pop. per km^2	1	1	1
Agricultural land	% of land area	89.8	89.8	80.1
Agricultural density	pop. per km^2	1	1	2
Forests and woodland	km^2	150,000	152,180	139,150
Deforestation rate (net)	annual %	0	0	0
Expenditure				
Food	% of GDP	..	..	..
Cereal imports	'000 metric tons	69	56	57
Food aid in cereals	'000 metric tons	..	..	..
Food production per capita	1979-81=100	124.7	122.7	..
share of agriculture in GDP	% of GDP	..	..	..
Daily calorie supply	calories per person	2,364	2,436	2,479
Daily protein supply	grams per person	98	98	89
Energy consumption per capita	kg of oil equivalent	460.8	771.0	1,276.5
Investment in Human Capital				
Medical care	% of GDP	..	..	..
Population per: physician	persons	726	..	..
nurse	persons	317	248	..
hospital bed	persons	..	..	..
Access to health care	% of pop.	..	..	100.0
Immunized (under 12 months): measles	% of age group	..	..	88.0
DPT	% of age group	..	..	84.0
Oral rehydration therapy use (under 5)	% of cases	..	..	59.0
Gross enrollment ratios				
Primary: total	% of school-age group	98.0	108.0	98.0
female	% of school-age group	97.0	104.0	100.0
Secondary: total	% of school-age group	66.0	81.0	92.0
female	% of school-age group	66.0	84.0	96.0
Tertiary: science/engineering	% of tertiary students	..	..	35.6
Pupil-teacher ratio: primary	pupils per teacher	32	31	28
secondary	pupils per teacher	..	15	22
Newspaper circulation	per '000 pop.	84.4	79.3	98.1

Selected Economic Indicators, 1987-92

	1987	1988	1989	1990	1991 (Est.)	1992 (Proj.)
	(Changes in Percent)					
Gross domestic product						
Nominal	4.3	6.1	4.2	-2.5	54.1	100.8
Real	4.4	5.1	4.2	-2.5	-16.2	-5.0
Prices						
Consumer	--	--	--	--	120.1	159.2
Wholesale	3.6	4.9	5.1	--	--	--
GDP deflator	--	--	--	-0.4	84.0	111.3
Interest rates (in % per annum)						
1-year term deposit	4.0	4.0	4.0	4.0	15.0\a	30.0\b
Budget						
Revenue	4.1	3.0	12.1	1.6	70.2	14.3
Expenditure	5.8	5.2	5.3	-4.3	64.7	22.9
Monetary						
Domestic credit	-0.5	1.7	2.0	11.4	70.3	34.0
Government, net	--	--	7.1	29.1	-14.6	0.8
State enterprises	-0.7	0.6	-0.6	-0.2	38.5	16.8
Private	--	--	4.6	22.4	403.3	84.8
Broad money	0.1	3.4	6.6	25.1	56.3\c	27.6
	(In Percent of GDP)					
Budget						
Revenue	46.8	45.4	48.6	50.6	55.9	31.8
Expenditure	65.5	65.0	65.3	64.1	68.5	41.9
Overall deficit	-18.7	-19.5	-16.8	-13.5	-12.6	-10.1
Financing						
Foreign, net	18.7	19.6	15.0	10.5	11.3	10.0
Domestic, net	-0.3	-0.1	1.8	3.0	1.3	0.1
Monetary						
Broad money	50.5	49.2	47.4	60.8	61.7	39.2
Of which: Currency in circulation	5.0	5.1	5.4	7.1	10.5	7.3
	(In US$ millions, Unless Otherwise Specified)					
Balance of payments\d						
Exports, f.o.b.	816.7	829.2	795.8	444.8	346.5	357.0
Imports, c.i.f.\e	-1,358.6	-1,458.1	-1,911.8	-1,023.6	-501.2	-555.0
Current account deficit	-990.2	-1,033.4	-1,240.4	-644.0	-110.8	-187.3
Overall balance	73.9	-2.6	5.9	-53.2	-47.8	-31.2
Change in reserves, net (increase, -)	--	--	-5.9	53.2	31.2	-27.8
Net international reserves	--	--	102.5	49.3	18.0	45.8
(weeks of imports)	--	--	(3.7)	(3.4)	(2.2)	(4.6)
External debt						
In nonconvertible currencies (Tg. bn.)	--	--	9.9	10.5	10.6	10.6
In convertible currencies ($mn.)\f	--	--	--	--	150.8	298.7
Arrears ($mn., end of period)\g	--	--	--	--	34.6	--
Debt service ratio\h	3.1	5.6	8.3	13.4	5.7	13.9

Sources: Mongolian authorities; and IMF staff estimates.

\a Central Bank lending rate as of December 31, 1991.
\b Effective March 23, 1992.
\c This rate of growth is overstated since the clearing of payment orders against deposits did not take place as scheduled before end-1991.
\d Calculated using official exchange rates.
\e Includes imports and payments associated with turnkey projects.
\f Excluding reserve liabilities other than to the IMF.
\g Includes US$18 million of arrears on reserve liabilities.
\h As a proportion of goods and services; no allowance is made for servicing of debt to former CMEA members.

Mongolia: Balance of Payments, 1990-93
(In US$ million)

	1990	1991 Total (Est.)	1992 Total (Proj.)	1993 Total (Proj.)
Current Account	-644.0	-110.8	-187.3	-101.0
Trade balance	-314.5	-80.0	-160.0	-87.0
Exports, f.o.b.	444.8	346.5	357.0	398.0
Of which: barter \a	427.8	289.4	130.0	0.0
Imports, c.i.f.	-759.3	-426.5	-517.0	-485.0
Of which: barter	-673.1	-286.2	0.0	0.0
Turnkey projects \b	-264.3	-74.7	-38.0	0.0
Services balance	-72.6	0.2	-15.9	-23.0
Receipts	48.0	26.5	38.1	40.0
Payments \c	-120.6	-26.3	-54.0	-63.0
Unrequited official transfers	7.4	43.6	26.6	9.0
Capital Account	583.5	106.9	156.1	27.4
Direct investment	0.0	0.0	5.0	5.0
Med.-/long-term (excl. dir. invest.)	516.7	130.3	146.1	35.7
Disbursements	537.4	139.3	162.2	65.0
Of which: Turnkey projects	264.3	74.7	38.0	0.0
Other	273.1	64.6	124.2	65.0
Amortizations \c	-20.7	-9.0	-16.1	-24.3
Short-term \d	66.8	-23.4	-5.0	-18.3
Errors and omissions	7.2	-43.9	0.0	0.0
Overall balance	-53.3	-47.8	-31.2	-73.6
Financing	53.3	47.8	31.2	73.6
Change in net official reserves (increase, -)	53.3	31.2	-27.8	-20.0
Arrears	0.0	16.6	-16.6	0.0
Remaining financing gap	0.0	0.0	75.6	93.6
Memorandum items:				
Net official reserves (end of period)	49.2	18.0	45.8	65.8
Assets	177.3	126.7	218.3	--
Liabilities	128.1	108.7	108.7	--
In weeks of total imports	3.4	2.2	4.6	7.1
In weeks of nonbarter imports	29.7	6.7	4.6	7.1

Sources: Mongolian authorities; and IMF staff estimates.

\a 1991 data includes private barter trade estimated at US$49.1 million.
\b Includes both goods and labor services: data are not available for disaggregation.
\c No allowance is made for servicing of debt obligations to the former CMEA members.
\d 1990 data include changes in balances of nonconvertible currency deposits held by nonresidents, net borrowing from IBEC, and other clearing accounts as reported by the (former) State Bank. 1991 data includes counterentry for estimated trade balance with the U.S.S.R.

Mongolia: Indicative Composition of Exports, 1991-93
(In US$ million)

	1991	1992 (Proj.)	1993 (Proj.)
Copper \a and other minerals	192	195	205
Wool and fur	31	32	38
Meat, livestock, horses	34	35	45
Leather, carpets, skins	37	40	47
Other merchandise \b	53	55	63
Total Merchandise Exports	347	357	398

Sources: Mongolian authorities; and World Bank staff estimates.

\a Net of processing costs.
\b Mainly private sector barter trade.

External Financing Requirements, 1992-93
(In US$ million)

	1991	1992	1993	Total 1992-93
Requirements				
Imports \a	501.2	555.0	485.0	1040.0
Services	-0.2	15.9	23.0	38.9
Receipts	26.5	38.1	40.0	78.1
Payments	26.3	54.0	63.0	117.0
Increase in Reserves (Net)	-31.2	27.8	20.0	47.8
Debt Amortization	9.0	16.1	24.3	40.4
Others \b	50.6	11.6	18.3	29.9
TOTAL REQUIREMENTS	529.4	626.4	570.6	1197.0
Financing				
Exports	346.5	357.0	398.0	755.0
Grants	43.6	26.6	9.0	35.6
Concessional loans	108.5	122.2	65.0	187.2
Direct Investment	0.0	5.0	5.0	10.0
Commercial Loans	30.8	40.0	0.0	40.0
TOTAL FINANCING	529.4	550.8	477.0	1027.8
GAP	0.0	75.6	93.6	169.2

Sources: IMF/World Bank staff estimates.

\a Includes "turnkey" projects.
\b Includes errors and omissions.

ANNEX III

MONGOLIA:
AID UTILIZATION AND ASSISTANCE PRIORITIES

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AID UTILIZATION AND ASSISTANCE PRIORITIES

May 6, 1992

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MONGOLIA

AID UTILIZATION AND ASSISTANCE PRIORITIES, 1992-93

A. Introduction

1. Faced with declining stocks of staple commodities, severe dislocations in external trade with its established partners (in particular, with the former USSR), and an abrupt decline in financial assistance from these sources, in April 1991 Mongolia requested emergency food aid and quick-disbursing balance of payments support to help finance critical imports needed for the balance of 1991 and early 1992. At meetings in Tokyo, September 5-6, (co-chaired by Japan and the World Bank) and in Ulaanbaatar, October 9-10, (arranged by the Mongolian authorities and UNDP) the international development community confirmed indications of external assistance totalling about $245 million equivalent.

2. This note, prepared by World Bank staff, has two objectives. First, it reviews the composition and utilization of the aid committed during the second half of 1991. Second, against this background, it assesses Mongolia's external financing needs during the next 18 months, with particular reference to sectoral priorities and the blend of development assistance that appears desirable during this period. It concludes with some general comments on external aid coordination and management, based on the limited experience to date of both the Mongolian authorities and the aid agencies concerned.

B. Aid Utilization

Overview

3. The total value of external financial and technical assistance indicated since June, 1991 is about $245 million equivalent.1/ Balance of payments support ($125 million) and contributions in-kind (mainly food and medicine estimated at $26 million), totalling $151 million, accounted for 62% of the total which, given the country's most pressing needs in mid-1991, was appropriate. The remaining $94 million consisted of various types of technical assistance (about $74 million, or 30%) and a small amount of project aid (almost $20 million, or 8%). A summary of these external aid commitments, by donor agency and type of aid, is contained in Table 1 attached.

4. Mongolia's use of this aid needs to be analyzed bearing in mind three points related to its timing and composition. First, while the authorities requested emergency food aid in April, 1991--and several bilateral donors responded very shortly thereafter--the process of mobilizing balance of payments support effectively began only during the second half of the year. Specifically, formal agreements between Mongolia and the three principal bilateral donors were concluded during the third quarter, and, following accelerated preparation and appraisal, credit agreements with ADB and IDA were

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1/ Excluding financial and technical assistance from the former CMEA countries, including the USSR, which, except for remaining disbursements under a few uncompleted turnkey projects, has effectively ceased.

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signed in late October and December, 1991 respectively. Second, all project aid and most technical assistance, together amounting to about $94 million or 38% of the total, will by its nature be implemented and disbursed over several years. For example, the estimated $22 million technical assistance indicated by several United Nations' agencies (FAO, UNDP, UNFPA, UNICEF and WHO) will be available for implementation of agreed activities in annual increments based on country programming cycles, typically 2-4 years. Thus, the value of technical assistance accessible to Mongolia from these sources in terms of actual disbursements during 1991-92 was probably only $5-7 million. The balance of $15-17 million should therefore be regarded as the core of a modest pipeline for implementation and disbursement mainly during 1992-95. Third, the technical assistance to be provided by ADB and IDA totalling $17 million similarly is planned for disbursement over about three years, linked to the implementation of specific capacity-building activities and sub-projects.

Contributions in-Kind

5. Not surprisingly, given the timing of the authorities' request and the prompt reaction of the donor agencies, Mongolia's utilization of contributions in-kind is the most advanced, and virtually completed. Food and other commodities valued at about $17.1 million (66% of the total indicated) arrived in Mongolia, and was available to the authorities for sale and distribution well before the end of 1991. Shipment of the remaining $8.9 million (33% of the total) is currently in progress and expected to arrive in the country by mid-1992. In this context, it is worth noting that the volume of food and other commodities delivered by the four largest donors during 1991 is estimated at about $15.5 million, or 82% of their total indications.

Balance of Payments Support

6. Excluding IMF resources approved last October, balance of payments support in the form of grants and concessional loans by three bilateral donors ($65 million), and by ADB and IDA ($60 million), totalled $125 million. These untied concessional funds were explicitly designed to finance critical imports urgently needed during late 1991 and early 1992. As an exception to their normal procedures, some agencies agreed that, if necessary for reasons of economy, efficiency or technology, a proportion of their funds (up to about $11 million) could be used to finance goods procured directly from original suppliers in the former USSR.

7. Mongolian government data, supported by IMF and World Bank staff estimates, show that, at end-December 1991, disbursements--defined as contracts awarded and letters of credit opened--totalled about $58 million, or 46% of the total balance of payments support. Imports valued at nearly $15 million, or 12% of the total, had arrived in Mongolia by the end of 1991. The balance of goods already contracted by end-December 1991 ($43 million) were delivered during the first quarter of 1992. By end-March 1992, total estimated disbursements (as defined above) had increased to about $91 million, or 73% of the total committed. Shipment and delivery of these goods are expected to occur in the following 90-120 days. Contracts for the remaining $34 million available are currently being negotiated and processed. In summary, by mid-1992, Mongolia expects to have fully utilized the $125 million balance of

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payments support indicated during 1991. At least $75 million worth of aid-financed critical imports will have arrived in the country by the end of June: the balance will be delivered during the third quarter of 1992.

8. By sector, about 55% of balance of payments support was earmarked for commodities, equipment, machinery, spare parts, vehicles and other goods required to operate and maintain the country's basic infrastructure--i.e. agriculture, construction, energy (including coal, electricity, and petroleum products), and transport; 14% was allocated to export-oriented industries (leather goods and textiles); 4% to the health sector; and, the remaining 27% to other priority needs of the economy, including intermediate consumer goods. This sectoral distribution conforms to the priorities discussed and agreed at the Mongolia Assistance Group meeting in Tokyo last September.

Technical Assistance and Project Aid

9. Technical assistance and the small amount of project aid available to date are not the main focus of this note. It is nonetheless evident, and of interest, that the technical assistance provided so far has two main goals: the developing new and reorganized institutions in both the private and public sectors; and undertaking sector surveys and preliminary feasibility studies to underpin and justify development projects that may be suitable for development assistance financing or foreign direct investment later.

C. Assistance Priorities, 1992-93

Background

10. A separate memorandum: "Mongolia - Recent Economic Trends" estimates an external financing gap of about $75 million for the balance of 1992 and of about $95 million for 1993, i.e. a total of about $170 million for the two years together.2/ For 1992, the $75 million requirement is needed mainly for balance of payments support. Taking into account an appropriate composition of financing and the lead time required for commitments to result in disbursements, the $95 million requirement for 1993 should be at least 30% higher, i.e. about $125 million.

11. These data need to be considered with the following considerations in mind. First, despite limited but significant progress in diversifying external trade during 1991, for most essential imports Mongolia will remain heavily and, owing to its location, unavoidably dependent on Russia and, to a lesser extent, other successor republics of the former USSR. Given the currently difficult economic situation in most of these countries and the absence to date of formal arrangements with Russia for 1992, Mongolia's trade prospects are subject to an usual degree of uncertainty. Second, the financing gap noted above, derived partly on the basis of conservative but realistic projections of exports and imports, constitutes a minimum estimate of the

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2/ The $95 million net requirement for 1993 assumes that financing of about $65 million already identified (mainly from multilateral sources) will be available for commitment and quick disbursement in that year.

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resources required on a disbursement basis in 1992-93. In this connection, the need to replenish stocks of several essential commodities that were seriously depleted during 1991 is significant and, if additional financing was to become available, there is little doubt that the economy could absorb a higher level of imports. Third, as noted earlier, the pipeline of aid already committed for disbursement in 1992 and beyond (mainly technical assistance and a small amount of project aid) is very modest.

12. Taking these factors into account, the minimum financing required immediately for 1992 is about $75 million, preferably in the form of quick-disbursing balance of payments support and contributions in-kind. For 1993, financing as a blend of balance of payments support, commodity and project aid, and associated technical assistance, of up to $125 million committed during the second half of 1992 would, depending on its composition, result in disbursements of up to about $95 million. Assuming the economy begins to recover during the next 18 months as expected, it is desirable that external financing for 1993 and beyond should be directed increasingly towards rehabilitating and improving the efficiency of the country's basic infrastructure and towards investments in the productive sectors. This would lay the basis for a resumption of growth as soon as possible.

Sectoral Priorities

13. Sectoral priorities for imports required in 1992 are, not unexpectedly, broadly similar to those identified and agreed last year. According to a list prepared by the authorities, about $450 million, or 80% of the $555 million value of total imports projected for 1992 (including goods and services under ongoing 'turnkey' projects), should be considered essential. Of this total, some $42 million (9%) would be for essential foodstuffs, drugs, medical supplies and equipment, and educational supplies; about $33 million (8%) for chemicals, equipment and raw materials for Mongolia's two main export industries (leather and wool processing); and, about $375 million (83%) for petroleum products ($160 million) and the main infrastructure sectors ($215 million). The latter breaks down approximately as follows: agriculture ($37 million); construction materials ($25 million); energy ($63 million, comprising electric power $11 million and mining $52 million); transport ($35 million); and, chemicals, intermediate consumer goods, paper products and miscellaneous industrial goods ($55 million).

14. While most of the resources required to finance these essential imports (e.g. petroleum products) will have to be met from export revenues and by disbursements from grants and loans already committed, the principal priorities in terms of the need for assured financing and their suitability for external donor assistance include the following:

(a) Agriculture: farm equipment, machinery and spare parts ($20 million); fertilizers and pesticides($10 million); and, veterinary medicines, seeds and tractors ($7 million).

(b) Construction Materials: bricks, cement, steel and steel products, and miscellaneous building materials ($25 million).

(c) Electric Power: spare parts ($4 million), pumps and compressors ($2 million), cables, motors, transformers and high pressure steel pipes ($4 million).

(d) Mining: dumptrucks ($14 million), bulldozers ($12 million), equipment and spare parts ($15 million), excavators ($6 million) and explosives ($5 million).

(e) Transport: vehicles, including spare parts ($14million), tires and batteries ($8 million), road maintenance equipment and bitumen ($5 million) and cargo-handling equipment ($3 million).

(f) Others: paper products, including newsprint ($6million) and miscellaneous industrial chemicals ($6 million).

In addition, priorities in terms of commodities and contributions in-kind, if available from the development community, include foodstuffs such as flour, sugar, vegetable oil, rice and yeast ($22 million), drugs and medical equipment ($18 million), and educational materials and supplies ($2 million).

15. The amounts noted above are indications of orders of magnitude, rather than precise estimates. The Mongolian authorities concerned will have more specific data and detailed specifications available for the information of country delegations attending the 2nd Mongolia Assistance Group meeting.

D. External Aid Coordination and Management

16. In the relatively short period since Mongolia launched its economic reform process, the country's contacts and relations with the international development community have expanded dramatically, particularly during the past year. Notwithstanding continuing difficulties in communications and transport owing to its geography, a large number of bilateral official and trade delegations have already visited Mongolia and senior Mongolian officials have exchanged visits with their counterparts in several countries in Asia, the United States and Western Europe. This increasing volume of official and private sector business, including the activities of bilateral and multilateral aid agencies, will soon require more systematic arrangements and procedures for external aid coordination and management.

17. Clearly, the principal responsibility for coordinating and managing external financial and technical assistance rests with the authorities of the recipient country concerned. Acknowledging this obligation, the Mongolian authorities have already initiated measures designed to improve the county's absorptive capacity. A Commission for Coordination of Foreign Assistance has been formally established in the office of the First Deputy Prime Minister, who is himself responsible within the government for coordinating overall macro-economic policy. Based on experience with short-term advisers (financed under the ADB and IDA financed credits) who have assisted in the international tendering and procurement of externally-financed imports during the past six months, a longer-term adviser is soon to be engaged by the Ministry of Trade and Industry, under a UNDP financing. This adviser will help further train

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Mongolian officials concerned and thus strengthen the authorities' institutional capacity for externally-financed public sector imports.

18. These two actions are small, but significant steps. They will start developing a stronger and more focussed capability within the present Mongolian government structure for coordinating and managing the increasing volume of external financial and technical assistance that has recently become available. However, given the number of external aid agencies already involved, further progress is needed in several areas during the next year. These include the recruitment of additional Mongolian staff, the provision of needed facilities and the assignment of appropriate authority within the government. Similarly the principal aid agencies concerned may wish to consider ways to strengthen their representation and the institutional arrangements required to support their financial and technical cooperation with Mongolia.

Attachment: Table 1 - External Aid Commitments, 1991

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Table 1: MONGOLIA: EXTERNAL AID COMMITMENTS,/a 1991
(in $ million)

Source	Food aid & grant in-kind	BOP	Project	TA	Total
China	1.45		9.6		11.05
Denmark	1.8		10.0		11.8
France	0.19				0.19
Germany	2.6	5.0		15.7	23.3
Italy	1.5				1.5
India				0.2	0.2
Japan	5.07	50.0		11.0	66.07
Korea	2.13			0.6	2.73
Netherlands	2.6				2.6
New Zealand				0.1	0.1
United Kingdom	0.036				0.036
United States	8.6	10.0		7.3	25.9
Subtotal	26.0	65.0	19.6	34.9	145.5
ADB		30.0		12.0	42.0
EEC				0.6	0.6
ESCAP /b				*	*
FAO				0.5	0.5
IDA		30.0		5.0	35.0
UNDP				10.0	10.0
UNFPA				4.0	4.0
UNICEF				3.5	3.5
WHO				3.7	3.7
Subtotal	0.0	60.0		39.3	99.3
Total	26.0	125.0	19.6	74.2	244.8

/a $30 million of IMF loans are "below the line" and excluded.

/b Technical Assistance by ESCAP--to be determined.

ANNEX IV

RECENT ECONOMIC DEVELOPMENTS AND SHORT-AND MEDIUM-TERM OBJECTIVES OF THE GOVERNMENT

GOVERNMENT OF MONGOLIA

RECENT ECONOMIC DEVELOPMENTS AND SHORT- AND MEDIUM-TERM OBJECTIVES OF THE GOVERNMENT

TOKYO
MAY 1992

INTRODUCTION

For the last two years Mongolia has been making a great deal of efforts to make irreversible its transition from an ideologized political and economic system towards democratic government and market-oriented economy. The historical heritage and the external and internal factors of the current day have made these two years a very hard time for Mongolia and the Mongolian people.

Mongolians are firmly devoted to the process of reforms once chosen and furthering of the democratization and modernization, with the support and cooperation of international community assisting Mongolia.

Since detailed reports on the economic situation of Mongolia, the reform program of the Government, and on the role of foreign assistance were distributed at the Tokyo and Ulaanbaatar donor meetings held in September and October 1991, this paper will briefly describe the progress of the implementation of the Government reform program.

I. IMPLEMENTATION OF THE ECONOMIC REFORM PROGRAM OF THE GOVERNMENT

An over a year-long period of the implementation of the Government's economic reform program has paved the way for a transition towards market economy and witnessed systematic measures taken to privatize public and cooperative properties, develop different forms of property, transform the taxation and banking system, deregulate prices and tariffs, liberalize foreign economic co-operation activities, and to establish a legal framework for company activities.

It is necessary to state that the outcome of last year's donor meetings, the findings and proposals of the World Bank and International Monetary Fund and the recommendations of experts have significantly contributed to the implementation of the Government reform program.

A. Creation of legal framework. Attention has been paid to laying down the legal basis for market economy relations, and laws on economic entities, bankruptcy, property ownership, protection of consumers, taxes, banks and on customs have been passed by the State Small Khural. Draft laws on sales tax, land, against monopoly, on air space, statistics, local administration, free economic zones and on intellectual property have been submitted to the State Small Hural for consideration.

The new Constitution adopted recently declares that "Mongolia shall have an economy based on different forms of property and answering both universal trends of world economic development and national specifics."

B. Privatization. The privatization process in Mongolia has gained full momentum. The first stage of privatization-covering small

enterprises, shops, and agricultural machinery and transportation means-has been completed. Over 60 percent of livestock has been privatized and the rest are the property of livestock share holding companies and cooperatives. The second stage, under which equity in large-scale enterprises is being made available to the public, is now under way following the opening of the Ulaanbaatar Stock Exchange in early 1992.

Out of more than 1100 enterprises subject to large-scale privatization, 40 percent has been already privatized. As a result, the role and impact of the private sector in the national economy is increasing radically.

As of April 1 this year, some 2,500 cooperatives, about 900 share holding companies and over 3,900 sole proprietorships have been registered in, under the law on economic entities. Of these, over 60 percent have been listed as consumer goods manufactures, about 15 percent trading and public catering businesses and 6 percent as construction and maintenance businesses. It should be, however, noted that most of them are now engaged in trade. This simply is explained by fact that manufacturers-would-be lack starting capital and also foreign exchange for acquiring production technology.

Apart from the privatization of state-owned enterprises, policies are being pursued to support newly emerged private businesses and assist them in moving towards market relations.

C. Public finance, budget. In 1991 a new tax system and a tax Administration were established to see to the stabilization of budget revenues. The revenues in the form of taxes have found legal basis in the tax law.

The guideline is to decrease the budget expenditures in line with the requirement to restrain budget deficit growth and with long-term policy on reducing the share of the public sector in the economy. To this end, subsidizing of losses and prices for production sector as well as budget allocations for the modernization and renovation of some public enterprises were stopped. The Government's administrative expenditures and current expenditures for cultures, health and education spheres were cut by 10 percent.

Our guidelines for the relationship between central and local budgets in the nearest future consist in gradually decreasing rates of budget subsidies to all aimags (provinces) in order to ensure their financial self-reliance.

Additional civil service wage increases will be granted only to the extent that these can be accommodated within the budget and the overall wage bill will not be increased beyond the budget amount.

D. Financial sector, monetary policy. The financial sector is being reformed in accordance with the main principles of the market economy.

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A two-tier banking system has been established. The Central Bank responsibilities cover state monetary policy including currency issue, togrog stability, operations with securities, supervision of commercial banks.

Significant progress was made from August 1991 in reestablishing control over credit and monetary aggregates. The Mongolbank loan rate was doubled to 30 percent, reserve requirement-which ranged from 5 percent to 20 percent were made more uniform, and remuneration of required reserves was introduced.

A circular was issued to all commercial banks advising them to adjust their interest rates following the increase in the Mongolbank loan rate. In response, commercial banks have begun adjusting their deposit and loan interest rates, which under the Banking Law are freely determined.

Further adjustments to the Mongolbank lending rate will be made as necessary in light of the objective of making key interest rates positive in real terms in relation to the underlying rate of inflation by mid-year.

All banks in Ulaanbaatar will make a switch to payments clearing during May which will improve the efficiency of the banking system and this system will be undertaken nationwide by June. Advances to banks that accrued pursuant to the separation of the commercial activities of the former State Bank have already been converted into long-term loans but these are being reviewed with a view to early repayment of these claims.

A uniform official rate of 40 togrog per US$1.00 was fixed in early March. Further on, we have in mind to bring this exchange rate closer to the market one, but for some period we'll have to use it as a basic official exchange rate. Starting 1 200.

We intend to reduce the current differential between the official and parallel market exchange rates. As an interim measure, we have reduced the foreign exchange surrender requirement from an effective 100 percent rate for most state enterprises to an average of 65 percent, while clarifying that the private sector is exempt from this requirement.

We intend to avoid contracting or guaranteeing nonconcessional external debts.

The leadership of some banks has been replaced on the charges of irresponsibility which resulted in heavy forex losses through arbitration dealing in recent years.

The Government will maintain tight domestic financial policies, as crucial element of stabilization process. Therefore, to strengthen debt management, the activities of the existing Government Commission for coordination of foreign assistance have been extended to cover all forms of borrowing, and a central debt register is being established.

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E. Foreign trade. We are taking measures for the liberalization of foreign trade. But taking into account that privatization is still in progress and new industries and businesses have just started gaining experience in direct trade, it is necessary for the Government to retain control over certain export products and the imports of a limited range of consumer goods and industrial raw materials. About 50% of imports are to remain under control in 1992.

Nevertheless, we recognize that continuation of the system of state orders will impede our efforts to diversify export markets over the long term. Further, this system protects the domestic processing industry from competition and lessens their impetus to become competitive. To signal that the maintenance of state orders is temporary, we have established a firm timetable to eliminate this system by 1993.

However centralized procurement of live animals and meat will ensure our ability to barter at short notice for essential commodities such as petroleum.

Because of the shortage of petroleum it has been necessary to take administrative action to ensure adequate supplies of petroleum for crop planting and transportation of essential consumption goods and coal.

The Government has submitted to the Parliament the draft legislation on the new broad-based sales tax. This would impact both to domestic production and imports.

We have also submitted amendments to the Customs Law that would remove the provision restricting the imposition of additional taxes on imports to goods imported by the public sector. Donor-financed imports, except for humanitarian assistance including food and medicine, are subject to customs duties.

As part of the liberalization of foreign trade most export restrictions were removed, except in the case of items derived from rare animals or protected species, certain animals' skins and a limited range of raw materials.

F. Price and tariff liberalization. As a result of the implementation of step-by-step measures the prices of over 90 percent of all goods have already been freed.

Effective April 1, the private sector has been allowed to purchase stocks of agricultural goods through the newly established commodity exchanges, competing with the state units at freely determined prices. To limit monopolistic pricing practices and provide adequate incentives to producers, minimum farmgate prices were established from March 1, prices are free to move above these minimum levels.

In January, the budgetary subsidy to manufacturers of children's clothing was eliminated and retail prices have been liberalized for new supplies. Wholesale prices of coal and electricity and most freight

transportation charges were adjusted by between 40 and 300 percent. Airfares have been increased to a level consistent with valuing full costs of fuel at the official, rather than the preferential barter, exchange rate. Effective March 1, the retail prices of all goods remaining under direct price control-except for flour, bread, medicine, household coal for heating, and vodka sold under the ration system-were liberalized all subject to a ceiling price. These ceiling prices were established for 6 items sold under the ration system-meat, rice, sugar, vegetable oil, green tea, and tobacco--and set close to the prevailing free market price at levels 2-4 times higher than the previous fixed ration prices.

Adjustment were also made for inventories of key commodities for the rural population (cotton fabrics for national dress, tarpaulins, etc.), which had been imported at the preferential barter exchange rate, thereby raising the price of these goods to a level consistent with valuating at the official exchange rate.

Effective April 1, 1992 prices of medicines imported by the private sector were liberalized, and prices of medicines imported by the Government were increased to reflect costs at the official exchange rate.

II. ECONOMIC CRISIS

Although the Government's economic reform program is being generally implemented the situation in the country remains complex because of the impact of external and internal factors and the economic recession continues.

A. Basic economic indicators and situation in its main sectors. The decline in the production of national income was registered in 1990 at 3.8 percent against 1989 and in 1991 at 13 percent against 1990.

Because of last year's drastic cut in imports the main economic sectors as well as industries were not provided with essential equipments and spare parts, which resulted in a sharp drop of production and services. Apart from that, the shortage of domestic raw materials and energy supply led to industrial stoppages thus deepening the economic crisis.

In 1991 gross industrial output shrank by 12.1 percent as against 1990.

The output of main industrial products in 1991 has fallen against 1990 as follows: electricity by 9.2 percent; copper and molibdenium concentrates by 30 percent; saw-timber and cement by about 50 percent; woolen textiles carpets, knitted goods and felt boots by 30 percent; leather and sheepskin clothing by 20 percent, flour by 8 percent; processed meat by over 10 percent, milk and diary products by 15 percent. The Erdenet copper molibdenium plant accounting for 50 percent of our export earnings in 1991 has lost more than US$80 million due to decline in production.

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The industrial production in the first quarter of 1992 has declined by 17.7 percent against the same period of 1991. The main causes are energy supply disruptions, shortages of petroleum, imported spare parts and raw materials (See Annex 1).

Because of power cuts, the Erdenet copper molibdenium plant and fluospar mines had stoppages in operation and the Erdent plant failed to fulfil its first 3 months plan in 1992 by 60 million togrogs. Since the start of this year some fluorspar mines have been stopped due to the lack of diesel fuel.

In the first quarter of 1992 more than 40 percent of industrial stoppages falls on energy supply disruptions.

Ninety percent of electricity in Mongolia is produced by power stations in Ulaanbaatar, Erdenet, Darhan and Choibalsan. In order to maintain the normal operation of power stations in Ulaanbaatar it is necessary to remove overburden of 28,000 cu m in 1992 and supply them daily with 15,300 tons of or more than 330 railway cars of coal from the Sharyngol and Baganuur mines. Because of shortage of railroad cars the power stations were frequently left with only 0.5-1 day reserves in 1991. Thanks only to a relatively mild winter we did manage to escape severe hardships.

If food and light industries work at their full capacity they could meet 60 percent of the domestic demand. The figure is possible to be increased by another 10 percent if small-scale private industries and businesses assume normal functioning.

As of April this year, many industries such as leather, sewing, metal-working, timber and carpet factories and many others are idling which places private businesses associated with them in a difficult situation.

In Mongolia agriculture plays a vital role in increasing country exports, supplying people with foodstuffs and industries with raw materials. This basic sector of our economy is also facing the decline, although export of meat and meat products in 1991 has been cut by 9.7 percent compared with 1990, the number of livestock has totalled 23.5 million of livestock by the end of 1991 which is by 0.4 million less than in the previous year. This is directly related to a sharp drop in imports of foodstuffs and increased local consumption of meat.

The veterinary service, fodder and crop production are critically dependent on the imports of equipment, machinery, spare parts and other inputs. Due to the fall in imports, the production of fodder declined by 2.3 percent, the number of livestock undergone preventive treatment by 16 percent, production of grain by 11.2 percent, potato and vegetables by 30 percent compared with 1990 respectively.

Privatization is resulting in the decrease of the sizes of plots of land cultivated by one crop producer, which increases the need in small-scale machinery to be used by farmers. For example, the demand for 100 hp capacity tractors and combines has slackened in favor of 60-80 hp capacity

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ones, thus identifying new priorities for the import. We have started the 1992 spring sowing work under the stress of a great shortage of machinery, spare parts, fuel and lubricants.

Starting from 1992 we have switched over to making state procurement purchases through the Agricultural Commodity Exchange. However, due to the lack of experience in operating commodity exchanges in the market economy, underdeveloped infrastructure and shortages of petroleum products, the deliveries of wool, skins and hides, milk and butter have sharply dropped resulting in the scarcity of foodstuffs for the population and raw materials for industry.

At the moment, due to the lack of petroleum products, all economic sectors are suffering from stoppages and the spring sowing is seriously interrupted and food supply may be very complicated by coming autumn. Now the Mongolian Government are using strategic reserves of oil for the sowing.

B. Foreign trade. Mongolia has had heavy import dependence on the former COMECON countries, particularly the former USSR, whose own critical economic situation affected negatively on the economic situation of Mongolia. At the same time, the geographical isolation of the country from developed countries' markets makes the access to new markets costly and difficult.

Reforms measures have been implemented against the background of an economic situation that - owing to a combination of adverse external events and some slippages in policy implementation - has been even more difficult that originally envisaged. It is clear that for 1992 the external factors will continue to have the serious repercussions for the economy.

The disintegration of the former USSR, which was not anticipated early last year, has had a negative impact on the Mongolian economy and will continue to do so during 1992. In particular the recovery of trade that had been expected following the establishment of new bilateral clearing arrangements during 1991 did not take place and the level of trade - both exports and imports with the former USSR in 1991 consequently fall substantially below that envisaged.

The shift to the new system of payments in convertible currency has become a hard trial for Mongolia with its under-developed economy and limited international reserves and export potential.

In 1991 Mongolia exported US$346.5 million goods and imported US$391.5 million products. It means that in 1991 foreign trade turnover halved against 1990, with inclusion of exports and imports respectively (Annex 2).

In 1991 the exports of copper and molybdenium concentrates, coal, wool, cashmere, sheepskin and leather goods, carpets, and others totalling to about 20 items fell short of plan targets from 30 to 80 percent and this resulted in a US$200 million losses in foreign trade earnings.

In the first quarter of 1992 the foreign trade turnover has fallen by 12.4 percent with export decline by 11.3 percent and import fall by 13.4 percent respectively in comparison with the same period of last year.

Starting from the last year we are making efforts to diversify our foreign trade and open new markets.

The export to China has increased by 2.4 fold, to Germany by 1.8 fold, to Japan 1.4 fold respectively and trade volume with Hong Kong and South Korea has expanded.

In our last year's foreign trade turnover the former USSR has accounted for 64.0 percent, PR of China for 5.6 percent, and Japan for 1.8 percent, Germany for 1.8 percent and Republic of Korea, Italy, Switzerland and others for the rest.

The breakdown of 1991 exports are as follows:

- 54.9% (US$190.3 million) minerals such as copper and molibdenium concentrates, fluorspar;
- 12.6% (US$43.6 million) is a live animals and meat;
- 4.1% (US$14.0 million) is leather and sheepskin products;
- 2.8% (US$9.6 million) cashmere and cashmere products and others

The items, as carpets, sheepskin and leather goods and saw-timber were sold mainly through cross border and barter trade.

In 1991 Mongolia's imports of consumer goods were US$85.1 million (21.7%), petroleum products worth of US$134.0 million (34.2%) and industrial imports amounting to US$172.4 million (44%).

Although new sources of the foreign aid, mobilized through the donor meetings in September and October 1991, has started to finance essential imports by the end of the last year, the total volume of imports was significantly less than envisaged.

In 1991 Mongolia has imported 600.6 thousand tons of petroleum products which was equal to 75 percent of required demand of the year and to 70 percent of imports of the product in 1990.

Mongolia imports 40 percent of its consumer goods. The volume of imported consumer goods in 1991 has decreased by 2.9 fold as against 1990, and in the first quarter of this year it was 2.6 fold less than in the same period of 1991.

Despite the decrease of the foreign trade volume in 1991, a significant increase occurred in cross border and barter trade has contributed to meeting the population demands in essential goods.

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The situation with the foreign trade remains difficult and uncertain in 1992. It is clear now that the barter trade of copper concentrates by petroleum products will not take place in practice. As a result, the situation with supplies of goods, materials, in particular petroleum products.

At the same time we are lacking foreign exchange to purchase these products.

In the first quarter of 1992 we exported goods for US$53.5 million and imported for US$61.8 million. As of the first quarter of this year the share of donor aid and credits in imports have accounted for 51.3 percent or US$31.7 million, and goods purchased through barter trade made up another 44.2 percent or US$27.3 million.

In the first quarter of this year Mongolia has imported 4.2 thousand tons of petroleum which covers only 2 percent of our real needs for the quarter. Therefore, we had to cut the petroleum consumption threefold, and this has been contributing to the deepening of economic crisis.

C. Public Finance, Budget. Due to decline in foreign trade, domestic production and services the Mongolian public finance faces big difficulties. In 1991 the budget deficit has amounted to 2.8 billion togrogs (national methodology) which was by 1.1 billion togrogs more than anticipated.

Because of the changed economic situation in the former Soviet Union and Eastern European countries with whom we had more than 90 percent of our foreign trade we were able to import only 40 percent of already contracted goods. This fact and sharply reduced exports have led to a 2.3 billion togrogs losses, which is accounted for 93.3 percent of all losses in budget revenues.

The industries idling because of shortages of imported inputs which contributed also to the decrease of the budget revenue.

In order to cut budget expenditures we are financing only essential allocations as wages and salaries, pensions and benefits, while refraining from the other allocations envisaged by the budget. But still for the first quarter of this year we already have a budget deficit equal to 380 million togrog.

The decline in production and services, increase of the budget deficit and expansion of shadow economy resulted in a growing inflation rate and liabilities exceeding over assets.

The currency in circulation has increased by more than 310 million togrogs and totalled 2.2 billion togrog by April 1, 1992. The granting by commercial banks of enormous credits in cash have resulted in insolvency of some borrowers and increase of currency in hands of households and firms. This had an impact on the development of a chronic inflation.

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III. AID UTILIZATION

In Mongolia's present economic situation, loans and grants provided by international financial organizations and donor countries are crucial for the Government in its urgent efforts at arresting the crisis.

Last year during the donor consultation meetings held in Tokyo and Ulaanbaatar it was agreed that international financial organizations and donor countries would provide financial credits and grants totalling to over US$200 million and humanitarian aid worth of US$30 million (according to our estimates) for use up to July 1992. These soft loans and grants have been used mainly for obtaining equipment, spare parts, raw and other industrial materials for such sectors as energy, coal mining, light industry, transport and construction as well as for consumer goods, foodstuffs and human medicines, etc. It had a positive impact on the improvement of situation with the balance of payments as well as overcoming with relatively less losses in the 1991/92 winter period.

Apart from this many millions of dollars worth foodstuffs, consumer goods, medicines and medicaments, equipment, school notebooks and so forth have been received from the USA, Japan, Germany, South Korea, the Netherlands, Denmark, China, Italy, France, UK and other countries as a humanitarian aid which is a great support to us.

A note of the Mongolian Government on aid utilization and foreign assistance requirements will be presented in the meeting.

IV. SHORT- AND MEDIUM-TERM OBJECTIVES OF THE GOVERNMENT

The essence of the Government's short- and medium-term objectives lies in halting the economic crisis within the shortest span of time and with as little losses as possible, and to encourage types of production crucial for laying down a reliable basis for further development. So we see the implementation of this policy as follows:

A. Stabilization of key economic sectors:

1. In order to properly carry out the 1992 spring sowing the Government will fully mobilize the fuel and financial resources under its control in order to ensure self-sufficiency in flour, potato and other vegetables for the next winter and spring. However, the available domestic resources as they stand today will be insufficient for the following:

The sowing campaign which should be completed now requires 41,000 tons of fuel whereas the entire state reserves currently total only 22 thousand tons. Though Russia can meet our demands, the payment is required to be made in convertible currency. To this purpose we need additional US$4.8 million.

For purchase of herbicides approximately US$1.3 million is needed as well as 50.0 thousand tons of fertilizers are required for.

2. There is a necessity to renovate the fleet of machinery and vehicles in the agricultural and transport sectors because of its obsolete condition. This year's crop yield, the next year's sowing campaign and transport works would depend much on the renovation of the machinery and equipment in this field. According to our estimates there is a minimum need for more 100 tractors, 40 combines and other machinery amounting to 7.9 million for the agricultural sector as well as fuel trucks, trucks and buses worth of 5.6 million for the transport sector.

3. It is necessary to start the preparatory activities in order to ensure a reliable performance of the energy sector during next winter. We need, according to our estimates, 200 cars, 6 locomotives and a more than US$10 million worth of spare parts to extract the appropriate volume of coal for winter.

If these necessary inputs and supplies are provided we will be able to ensure the extraction and transportation of the coal necessary for the forthcoming winter.

We are very much interested to complete rehabilitation and the partial re-tooling of Ulaanbaatar power plants III and IV which was agreed on with the donors.

We request all donors present here and Germany above all to take into consideration the fact that the spare parts for our power plants can be found not only in Russia, but also in some other European countries and to see whether it is possible to supply them within the framework of aid programs.

4. Regarding the build-up of exports by fully mobilizing internal reserves to be instrumental in stabilizing the economic situation, we urge the donor countries and international bodies to direct their emergency aid at purchasing spare parts, raw and other materials as per Annex 3.

B. Acceleration of economic reforms

1. The Government sets the task of reducing as much as possible the budget expenditures and to keep the budget deficit within the projected limits.

In line with its strategies to create reliable budget revenue sources and to cut budget expenditures, the Government will uniform income taxes on all companies including small-scale industries and will take measures to collect them fully, introduce on a broad basis the sales tax, strengthen the tax administration, eliminate most of exemptions from customs duties, and raise excise taxes on alcohol beverages, cigarettes and other goods, thereby increasing budget revenues starting from the second half of 1992.

The medical insurance system as well as fee and charges for high education (university and college) will be introduced in the third quarter of 1992 with state budget subsidies to these sectors reduced significantly.

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The burden on the state budget will be lessened by the revision of the present pensions system which extends some favorable conditions to relatively young people and those still in employment.

The Government believes, notwithstanding, that out of all the ways and methods to reduce the budget burden and the budget deficit the most effective one is to promote the development of private sector.

2. The banking system has been undergoing large-scale readjustment in terms of improving its management and organization, its operation and services as well the supervision system.

The establishment of a centralized supervision over the utilization of donor aid and credits is in progress. We are interested in having a highly qualified consultant to work with us under World Bank or other donors technical assistance programs on improvement of the performance of the Central Bank.

3. In order to slow down currency depreciation and to introduce market instruments, the Government is taking urgent actions.

This includes the adjustment of banks lending and deposit interest rates to inflation rates, the credit policy tightening and establishment of a system of penalties for loans falling behind the grace period, the creation of a mechanism of requiring cash through improved commodity supply. By using the latter as a source of capital investment, we expect to close the gap between the official and the parallel market exchange rates and to stabilize our Togrog (national currency).

However, we consider that in order to realize the above task some additional funds would be required. Therefore, we propose and urge the donor countries and international financial institutions to cooperate with us in estimating the amount necessary to accomplish the above task.

The reserve requirements of commercial banks as well as the money supply will continue to be fixed on a quarterly basis.

The Government welcomes the privatization of commercial banks and supports activities aimed at improving their ability to operate on the domestic and foreign markets, including capacity to appraise projects.

4. The liberalization of prices will be continued further. We intend to liberalize prices of flour, bread, and coal, which are actually controlled by the Government, by the fourth quarter of 1992. The ceiling prices will be kept under control in line with cost developments and adjusted as necessary.

5. The privatization undertaken by use of vouchers will be completed in 1993. As a result, 50 percent of existing assets will be transferred to private owners.

6. Given the further deterioration in the external environment, we consider it crucial to accelerate reforms to provide incentives to exports and

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to trade diversification, as well as to promote domestic savings to finance investment over the longer term.

7. We will make efforts to strengthen the Government's Commission for coordination of foreign aid and assistance, support its activities to establish contacts with donor countries and international institutions, to adjust its work in line with new conditions. Further on the Commission will concentrates all the coordination policy on donor assistance and aid and their implementation.

C. Medium-term objectives

At the stage of the country's development the Government considers it as its priority task to ensure normal functioning of power and mining industries as well as export-oriented production of foodstuffs and consumer goods, to ensure a reliable supply of imported raw materials and spare parts and to overcome bottlenecks in transportation. This work includes first of all measure to eliminate power cuts, increase the capacity of the Zamyn Uud railroad junction through which imports - the bulk of raw materials and spare parts come, as well as to improve communications. As a unique channel connecting the country with Asia and Pacific region, Zamyn Uud railroad junction has a great importance for the national economy development.

The Government of Mongolia is not only taking actions to restrain the economic decline, but has also elaborated a program envisaging measures to overcome it and lay down the foundation for further development. The gist of this program is as follows:

- to develop the essential infrastructure including energy supply, transport and telecommunications to the extent sufficient for ensuring economic stability and attracting foreign and domestic investment;

- to encourage the development of small and medium-scale industries working on domestically produced minerals and raw materials and capable of increasing exports and/or replacing imports;

- to give priority to the development of small- and medium-scale enterprises in the private sector;

- to encourage foreign investment in re-tooling the existing enterprises and in building new ones;

- to encourage foreign investment in re-tooling the existing enterprises and in building new ones we consider necessary to promote exports based on domestic raw materials, to set up import substitute enterprises in order to create favorable conditions for the economic growth.

At this end we intend to develop gold and oil exploration and to set up new enterprises in the fields of sugar and vegetable oil production, agricultural raw materials deep processing and construction materials

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production based on utilization using local mineral resources and metallurgy. (See annex 4).

It is a matter of crucial importance for Mongolia to get assistance from donor countries and international institutions in the form of loans and grants as well as feel the results of the other government's policies and measures to encourage their private sector to invest directly.

Along with that we deem it necessary to implement a structural reform program approved by the Government last year and to start feasibility studies on major enterprises and businesses that are expected to ensure further development of the national economy. These economic entities include, inter alia, electricity generating, mining, non-ferrous metal, chemical industries (Annex 5).

The Government remains confident that the donor community will actively participate in the implementation of the above-mentioned specific projects. On its part, the delegation is ready to discuss the donors proposals during the meeting as well as at a donor consultation meeting to be organized by the Government of Mongolia in collaboration with UNDP in September next in Ulaanbaatar.

The Government's policy to switch the economy to a market system and embark upon the rails of sustainable development is consistent and the internal situation is changing for the better for its realization.

V. CONCLUSION

Although the Mongolian Government is making efforts to mobilize all internal resources in order to halt present economic crisis, some additional funds - foreign loans and aid are still essential. The projected amount for exports in 1992 is US$357.0 million to be achieved by promoting and encouraging exports oriented industries.

With a condition that the projected export target is met and expecting to halt economic decline within 1993, we need imports equal to US$700 million. In this case, we will be able to stop power cuts, reduce stoppages of export oriented enterprises and assure their normal functioning, improve petroleum supply, achieves the planting targets, prepare for the harvest season and generally take necessary action to meet the coming winter.

However, in the conditions of continued economic crisis we urgently need import of good and materials simply to survive until the end of this year. To allow us to do this, we require financial support amounting to US$76 million to be disbursed in 1992 year in cash or commodity.

According to the preliminary estimates, an additional financial support equal about to US$170 million is requested at least to meet import needs for 1993. However, in the real practice there are normally some lags

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between commitments and disbursements and disbursements need to fill the financing gap should be significantly larger.

We hope that the donors will discuss commitments on offering grants and soft loans of US$76 million minimum on quick disbursing terms for 1992 during the Mongolia assistance group meeting here as well as US$225 million for 1993 now and later on.

Along with that, the Government would appreciate the donor nations and organizations indirect assistance by granting concessionary measures, including exemptions from, or reduction, in customs duties on Mongolian exports, and providing all possible assistance and encouragement to trading organizations involved in trade with Mongolia. Such concessions would be a great incentive and assistance to Mongolia.

The Mongolian Government sincerely hopes that, the international donor community taking into consideration issues discussed here and will continue its policy of supporting and assisting the restructuring of Mongolian economy, and will help us to take our place in due course as an independent trading nation.

ANNEX 5

MONGOLIA'S IMPORT REQUIREMENTS

I. HUMANITARIAN ASSISTANCE

	NAME OF GOODS	UNITS	1990	1991	1992 (demand)	($ value) (million)
	TOTAL	US$ mill				49.5
	of which:					
A.	FOODSTUFF	US$ mill				27.1
1	Brick tea (green)	tonn	4390	4025	6000	5.3
2	Yeast	tonn	182	134	300	0.6
3	Flour	tonn	30000	42200	30000	6.3
4	Sugar	tonn	40739	23000	30000	9.0
5	Sunflower oil	tonn	1540	2270	3600	4.3
6	Milk powder	tonn	1500	1069	1250	1.6
B.	MEDICAL/HEALTH SECTOR	US$ mill	16.8	10.0		19.4
1	Medicine	US$ mill	12.8	2.4	13.0	13.0
2	Health equipment and tools	US$ mill	4.0	7.6	6.4	6.4
C.	EDUCATION SECTOR	US$ mill				3.0
1	School supplies for children	mln.pcs	38		38	3.0

Annex 1

Stoppages and their causes at export-oriented industries

/I quarter 1992/.

Enterprises	Production capacity	Share of export products /%/	Stoppages /days/	Causes /per cent/ Power cuts	Shortage of Spare parts	Shortage of Raw materials
1."Sobi" cashmere factory	-	90	20	100	-	-
2.Spinning factory	2500 tn	10	18	40,0	21,0	39,0
3.Leather factory	-	96	42	20	-	80
4.Ulaanbaatar carpet factory	475,0 sq m	80	10	50	-	45
5.Carpet factory in Choibalsan	400,0 sq m	40	20	-	40	60
6.Carpet factory in Erdenet	1150,0 sq m	40	20	20	10,0	70
7.Berh fluor spar mine	-	100	28	-	-	100,0
8.Erdenet copper concentrate factory	20 mln tn of ore	100	-	100	-	-
9.Woolen Textile factory 2	1 mln pcs	20	12	30	10	60

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10.Moggol textiles company	1300,0 m fabric	30	18	44	30	-
11.Wood processing factory	198,0 cub.m	20	-	-	60	30
12.Wool washing factory	4000 tn	10	10	70	10	20

These industries produce 70 per cent of the country's export products, of which Erdenet copper concentrate factory alone accounting 50 per cent.

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Annex I

COMPARATIVE TABLE OF RECENT YEARS'
EXPORTS AND IMPORTS

Foreign trade volume	1988	1989	1990	1991
	mln. transferable roubles			mln.US $
Foreign trade turnover	1,241.3	1,129.8	1,061.7	738.0
Exports	495.2	483.4	442.7	346.5
Imports	746.1	646.4	619.0	391.5
break down:				
- consumer goods	125.2	141.2	136.7	85.1
- petroleum products	199.2	129.3	255.3	134.0
- machinery and spare parts	421.7	375.9	227.0	172.4
trade balance	-250.9	-162.0	-176.3	-45.0

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II. IMPORTED INPUTS FOR EXPORT INDUSTRIES

	NAME OF GOODS	UNITS	1990	1991	1992 demand	($ value) (million)
	TOTAL	US$ mill	53.8	25.3		33.1
	of which:					
1	LEATHER PROCESSING INDUSTRY	US$ mill	16.3	9.0		17.1
	- equipments and spare parts	US$ mill	1.5	0.3	3.2	3.2
	- raw materials	US$ mill	7.0	3.4	5.9	5.9
	- chemicals	US$ mill	7.8	5	8.0	8.0
2	WOOL PROCESSING INDUSTRY	US$ mill	12.5	13.3		16.0
	- equipments and spare parts	US$ mill	2.1	2.1	3.0	3.0
	- raw materials	US$ mill	0.3		0.2	0.2
	- chemicals	US$ mill	0.9	1.8	2.5	2.5
	- yarns for carpet production	US$ mill	9.2	8.8	9.3	9.3

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III. IMPORT ITEMS: BUDGETARY AND/OR DONOR ASSISTED

	NAME OF GOODS	UNITS	1990	1991	1992 demand	($ value) (million)
	TOTAL	US$ mill				460.9
	of which:					
A.	PETROLEUM PRODUCTS	US$ mill	192.0	130.0		180.1
1	Gasoline	thou.tonn	365	218.4	280	64.4
2	Jet fuel	thou.tonn	5	0.2	4	1.5
3	Diesel fuel	thou.tonn	338.7	264	300	73.5
4	Heavy oil (mazut)	thou.tonn	70.2	72.5	70	6.6
5	Aviation gasoline	thou.tonn	35	41.7	40	11.0
6	Kerosene	thou.tonn	0.3	0.1	0.2	0.1
7	Lubricants	thou.tonn	36.1	3.7	23	23.0
B.	ENERGY SECTOR	US$ mill	8.8	1.8		11.1
1	Spare parts	US$ mill	2	1.2	3.5	3.5
2	Pumps, compressors and s.p.	US$ mill	2.4	0.2	2.6	2.6
3	Cables	US$ mill	3.1	0.0	1.5	1.5
4	Electric motors	US$ mill	1.1	0.3	1.0	1.0
5	Transformers	US$ mill	0		0.2	0.2
6	High pressure steel pipes	ton	1300.0	1182.0	1200.0	1.1
7	Others	US$ mill				1.2
C.	MINING SECTOR	US$ mill				51.8
1	Excavators	pc				
	0.65-1 cub.m	pc	33		20	3.0
	2.5-8 cub.m	pc	4		6	2.7
2	Dumptrucks	pc	33	12	50	13.5
3	Bulldozers	pc	30		40	12.0
4	Drilling machines	pc	4			
5	Spare parts and equipments	US$ mill	21.0	5.0	15.0	15.0
6	Conveyer belts	US$ mill	0.6	0.2	0	0.1
7	Explosives	thou.tonn	12.5	1.2	10	5.5

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G.	TRANSPORTATION SECTOR	US$ mill	78.7	6.0		44.8
1	Trucks	pcs	981	50	30	0.6
2	Buses	pcs	246		30	1.5
3	Fuel trucks	pcs	249		100	2.5
4	Spare parts for trucks, buses and cars	US$ mill	24.4	1.5	15.0	15.0
5	Tires	thou.pcs	123.7	2.8	55	7.0
6	Batteries	US$ mill	0.3		1.5	1.5
7	Spare parts for railway transport	US$ mill	2.4	0.1	2.5	2.5
8	Spare parts for airplanes	US$ mill			4.0	4.0
9	Bearings	thou.pcs	131.4		100	1.0
10	Bitumen	thou.tonn	4		12	2.2
11	Spares for road maintenance equipments	US$ mill	5.1		4.0	4.0
12	Spares for lifting and transporting mechanism	US$ mill	4.6		3.0	3.0
H.	CHEMICALS	US$ mill	6.3	1.2		5.6
1	Sodium sulfide	tonn	6800	425	6000	1.6
2	Coustic soda	tonn	465	135	800	0.5
3	Soda ash	tonn	1305		1200	0.1
4	Trichloretylen	tonn	340	693	500	0.2
5	Sodium bichromate	tonn	650	350	650	0.6
6	Sulfuric acid	tonn	1640		1280	0.1
7	Laquer, enamel paints	tonn	417.7	86	500.0	0.8
8	Synthetic fat for soap prod.	tonn	180		400	0.3
9	Polyethilen films	tonn	200		250	0.4
10	Others					1.0
I.	CONSUMER GOODS	US$ mill	98.0	25.0		50.0
1	Cotton fabrics	mill.m	56.1	6.0	50.0	
2	Gray cloth	tonn	2219		1400	
3	Canvas	thou.m	2380	80	2500	
4	Socks	US$ mill	3.3	0.03		
5	Shoes	thou.pr	1343	194	500	
6	Candles	tonn	1129.3	300	1000	
7	Detergants	tonn	2590	300	1500	
8	Jute fabrics	thou.m	3200		3500	
9	Woolen fabrics	thou.m	1250		1200	
10	Lining fabrics	thou.m	3533	770.1	3500	
11	Flax fabrics	thou.m	370		285	
12	Sewing threads	US$ mill	0.8			
13	Ready made garments	US$ mill	10.4	3.5		
14	Knitwear	US$ mill	9.2	3.5		
15	Cooking utensils	US$ mill	5.2	0.3		
16	Household electric appliances	US$ mill	6.4	1.7		
17	Matches	thou.box			70	
18	Soaps	tonn	1204	400	1200	
19	Pipe tobacco	mill.pcs	977.7	500	1000	

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IV. PROPOSED CAPITAL INVESTMENTS AND FOREIGN EXCHANGE REQUIREMENTS

	NAME OF GOODS	UNITS	1990	1991	1992 demand	($ value) (million)
	TOTAL	US$ mill				157.1
	of which:					
A.	TRANSPORTATION SECTOR	US$ mill				89.0
1	4WD Vehicles	pcs	300	245	50	1.0
2	Locomotives	pcs	5.0		5	5.0
3	Cargo wagons	pcs			200	10.0
4	Airplanes	US$ mill			13.0	13.0
5	Reconstruction of Chinese-Mongolian border railway station	US$ mill			60.0	60.0
B.	ENERGY SECTOR	US$ mill				39.3
1	Power stations	pcs	260		200.0	5.0
2	Diesel generators	pcs	6		10.0	2.3
3	Services	US$ mill	35		32.0	32.0
C.	MINING SECTOR	US$ mill	12.0			15.0
1	Services	US$ mill	12.0		15.0	15.0
D.	COMMUNICATIONS SECTOR	US$ mill				13.8
1	Asian sattelite equipment	US$ mill			1.8	1.8
2	Rural station equipment	US$ mill			9.0	9.0
3	Radio and TV equipment and spare parts	US$ mill			3.0	3.0

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Annex 44

LIST OF MEASURES WHICH DIRECTED TO IMPLEMENTATION
OF TASK FOR THE STABILIZATION OF ECONOMY OF MONGOLIA

Projects and measures to be necessary to implement	Capacity	Duration to be implement	Results to be expected
A	1	2	3
	1. Development of export-oriented industries		
1.Ulaangoo the Slaughterhouse in	33 tons/shift	1988-1993	Level of meat processing
2.The Slaughterhouse in Baga-khangai	5 tons/shift	1992-1994	Contract are being exchanged to obtain to obtain techniques and technology from Germany
3.The Renovation of the gold excavation plant		1992-1995	In 1993 gold excavation will be increased by 6 times against 1991
4.The establishment of gold purification plant	1,5-6 tons/year	1992-1993	We are interesting to obtain machineries from Japan,China
5.The exploitation of the gold deposits in Suabat	To clear up feasibility study	1992-1994	Excavation of gold will be increased.there is possibility to obtain soft loans from Italy
6.The crystal resonator plant	4 mln crystal resonator	1992-1996	2,7 mln US$ profit will be produced from 1996 There is established Russian-Mongolian joint venture Resonator line are buying from USA
7.The molibdenium production plant	100 tons	1993-1994	We are interesting to obtain American machineries
8.Cagel wool processing plant plant	140 thous.s clothes 13 thous.blankets,73 thous. textiles	1991-1993	New export resourses. Contract are signed with USA
9.Reconstruction of Cashmere processing plant	100 thous.metr cashmere clothes	1993-1995	New export resourses We are interesting to obtain soft loan from from Japan
10.Reconstruction of leather foot plant,renewation of horse hide,goat skin plant	1 mln pair of foots	1993-1994	New export resourses
11.Cement plant	1,2 mln tons	1992-1996	Domestic building materials needs will be supplied Proposal are being exchanged to choose machinary from USA

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A	1	2	3
II. Development of import-substituting industries			
1.PETROLEUM PROCESSING PLANT	600 thous.tons	1992-1994	30% of car petrol,45% of diesel,70% of plan petrol will be produced in domestic
2.CRUDE OIL IMPORT AND PROCESSING IT ABROAD TO PRODUCE OIL AND LUBRICANTS	18,25 thous. tons/year	1992-1993	oil price will be decreased
3.3.Small flour plant	Each plant will be produced 4 thous.tons	1992-1993	flour will be produced at provincial place
4.Sugar production -New plant in Zuunkharaa /Irrigation system for cultivation of sugar beet/	22,7 thous.tons	1992-1994	50% of domestic needs will be supplied and will be exported fodder.
-to build sugar plant in Batsunber,Kharkhorin	3,6 thous tons	1992-1994	20% of domestic needs will be supplied.
5.Oilplant factory in Selenge Darnod	1,8 thous.tons	1992-1993	80% of domestic needs will be supplied
6.Car spare parts production plant	3 thous.tons	1992-1993	It's important to improve structure of metalworking industry, decrease import
7.Foundry plant	60 tons	1992-1993	It's important to utilize scrap ,produce small parts, decrease import
8.Electric engine production	150 thous.pieces	1992-1995	It's important to create electric equipment industry
9.Home electric appliances production	20 thous. pieces of washing mshine ,100 thous pieces of vacuum cleaner	1994-1995	Proposal are being exchanged to setup joint venture with Korea
10.Cotton fabric production factory		1993-1994	1,3-3 mln m2 cotton clothes will be produced
11.Paper plant	5 thous.ton	1992-1993	50% of paper needs will be supplied.
12. Sodium production plant	38 thous tons	1992-1995	Domestic needs will be supplied
13.Explosives production plant		1992-1993	Import will be decreased
14.Window glass plant	2 mln m2/year	1992-1993	Domestic needs will be supplied Proposal are being exchanged to choose machinary from Korea
15.Mineral paints production plant	2,6 mln tons oil and enamel	1992-1993	Domestic needs will be supplied

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A	1	2	3
	paint.		
16.Polyaar concrete plant	20 thous set of sanitary parts	1992-1993	74% of import sanitary parts will be produced in domestic Contract have signed with Germany
17.Fire-resistant materials plant production		1992-1993 /first stage/ 1992-1998	Domestic needs will be supplied
18.Renovation of matches production plant	80-100 mln pieces	1993-1994	Production will be decreased by 2 times
19.Textbook ,children book's factory	15 mln USA printing pages	1989-1993	Domestic needs will be supplied
20.Plasma producing w/shop	250 thous.pieces plasm,30 mln capsules	1992-1993	25% of drick import needs will be supplied Contract are being exchanged with China
21.Liquid injection w/shop	350 thous capsuls	1992-1993	180 thous.pricks liquid will be produced in domestic Swiss
22.Biotechnological plant for fraction of protein	10 tons serum/year	1992-1993	albumin,immunoglobylin,alergo-globulin,serum needs will be supplied. The Swedish eqpt is selected.The sides exchanged contract proposals
III.Development of infrastructure			
1.Extension of Tsalin-Uud railway station and establishment of reloading and loading facilities	850 thous	1992-1993	-to improve cooperation with Asian and Pacific regional countries
2.Domestic network of satellite communication in the first stage Radiorelay line in 4 aimak centre,20 somons(Tsayn-Uud, Khalkhgol,Altanbulag) in the second stage	24 earth station 108 telefhone chanels		
40 somons	40 earth station		will be supplied stability
3.Expansion of telephone cable line in Ulaanbaatar,Darkhan	110 mln /ks	1992-1993	It 's important to improve capacity of digital communication

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A	1	2	3
Renovation of Erdenet factory		1992-1995	Production stability will be supplied.Proposal are being exchanged to obtain from Donor countries,Japan,Finland
Copper processing, smelting and purification factory in Erdenet	100 thous tons pure copper	1992-1996	Base of chimestry,power, electronic development will be established Proposal are being to choose machinary from Finland
Copper guide rolling factory	3 thous.tons of copper/year	1992-1994	Domestic copper wire needs will be supplied
3. Iron,machinary production			
-Sponge iron factory in Darkhan	100-120 thous tons of iron	1992-1994	Metallurgical plant in Darkhan will be supplied by raw materials
On the basis of tractor and agricultural machinery repair factory to build the car producing enterprise tion /in Darkhan/	Carry out feasibility study	1992-1994	diesel unit, tractor ,it's spare parts will be produced. Proposal are being exchanged to choose machinery,technology from Japan,Ukrain,Korea

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D.	AGRICULTRAL SECTOR	US$ mill	42.0	5.2		36.5
1	Tractors	pcs	441	50	100	0.9
2	Combains	pcs	50		40	1.0
3	Other agricultural machinery	US$ mill	4.1	0.1	6.0	6.0
4	Spare parts for agricultural machinary	US$ mill	10.3	1.9	14.0	14.0
5	Fertilizers	thousand tonn	38		50	9.3
6	Agricultural chemicals	US$ mill	1.4		1.3	1.3
7	Seeds and planting materials	US$ mill	3.3	1.3	1.0	1.0
8	Medicine for livestock	US$ mill	4.1	1.5	3.0	3.0
E.	CONSTRUCTION SECTOR	US$ mill	107.0	8.0		47.7
1	Steel	thousand tonn	72	2	40	14.4
2	Pig iron pipe	tonn	150		800	0.2
3	Steel pipe	thousand tonn	8	1.6	8	7.0
4	Steel wire	thousand tonn	3.3		1.9	0.9
5	Window glasses	thousand sq.m	600	100	1000	1.3
6	Oil paints	thousand tonn	1264.3		1500	1.9
7	Electrodes	tonn	1463	500	1770	1.3
8	Steel rope	tonn	797.6		1100	0.9
9	Industrial taps and valves	US$ mill	1.0		1.0	1.0
10	Nails	tonn	2560		2500	1.2
11	Radiators (heaters)	thousand sq.m	90		75	1.7
12	Paint thinner	tonn	1090		1200	1.1
13	Chipboard	thousand sq.m	860		2300	1.8
14	Plywood	thousand c.m	3100	900	2500	1.7
15	Bitumen (for roof)	tonn	4800		5000	0.8
16	Roof tiles	thousand sq.m	5920	65	4000	1.6
17	Fireproof bricks and materials	tonn	5974	400	6800	0.6
18	Cement	thousand tonn	46	10.7	30	1.0
19	Floor covering	thousand sq.m	100		140	0.5
20	Cement bags	thousand pcs	3000	500	3200	1.0
21	Special coal for cement factory	thousand tonn	76	30.8	60	3.3
22	Coke	tonn	5500		5500	0.5
23	Galvinized pipes	tonn	1200.0	500.0	1200.0	0.7
24	Others	US$ mill				1.3
F.	PAPER PRODUCTS	US$ mill				6.2
1	Newsprint paper	tonn	3200	498.3	3000	2.0
2	Printing paper	tonn	800		1500	1.1
3	Deep printing paper	tonn	200		200	0.2
4	Writting paper	tonn	318		1500	1.2
5	Craft paper	tonn	450		700	0.4
6	Offset paper	tonn	500		700	0.6
7	Cartons	tonn	1165		1000	0.7

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J.	Food industry	US$ mill	1.5	0.0		3.2
1	Butter	[illegible]	1944	174	2000	2.0
2	Equipment and spare parts	US$ mill	1.5	0.03	1.6	1.2
K.	Forest industry	US$ mill	0.3	0.25		1.0
1	Equipment and spare parts	US$ mill	0.2	0.05	0.5	0.5
2	Raw materials	US$ mill	0.1	0.2	0.5	0.5
L.	GARMENT INDUSTRY	US$ mill	25.0	3.0		18.5
1	Equipment and spare parts	US$ mill	4.1	1.8	3.5	3.5
2	Raw materials	US$ mill	20.9	1.2	15.0	15.0
M.	Other sectors	US$ mill	8.0	1.0		4.5
	TOTAL IMPORTS	US$ mill				543.5

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ANNEX V

AGRICULTURAL SECTOR BACKGROUND PAPER

UNITED NATIONS DEVELOPMENT PROGRAMME

DONORS CONFERENCE
for
MONGOLIA

AGRICULTURAL SECTOR BACKGROUND PAPER

Prepared by

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AGRICULTURAL MANAGEMENT PROJECT

MON/89/007

FOOD & AGRICULTURE ORGANISATION OF UNITED NATIONS

ULAANBAATAR

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ABBREVIATIONS

ASS	Agricultural Supply Service
BAFI	Board of Agriculture and Food Industry
CMEA	Council for Mutual Economic Assistance
COMECON	Alternative abbreviation for the CMEA group of countries
ISCAM	Import Supply Corporation of Agricultural Machinery
MAFI	Ministry of Agriculture and Food Industry
masl	Metres above sea level
mm	Millimetres
MoA	Ministry of Agriculture
ppm	Parts per million
SCC	Supreme Council of Co-operatives
SCMCS	State Committee for Material Technical Supply
WSB	Wholesale Supply Board

MONGOLIAN TERMS

Aimag	Province, largest local administrative unit
Kheseg	Workers brigade for livestock production
Negdel	Agricultural co-operative
Salaa	Crop production unit, sub unit of a crop brigade
Soum	Local Government unit, smallest local administrative unit
Suur	Livestock production unit, sub-unit of livestock brigade
Tasag	Workers brigade for crop production

EXCHANGE RATE

Prior to June 1991	US$ 1.00 = Tugrig 7.10
After June 1991	US$ 1.00 = Tugrig 40.00

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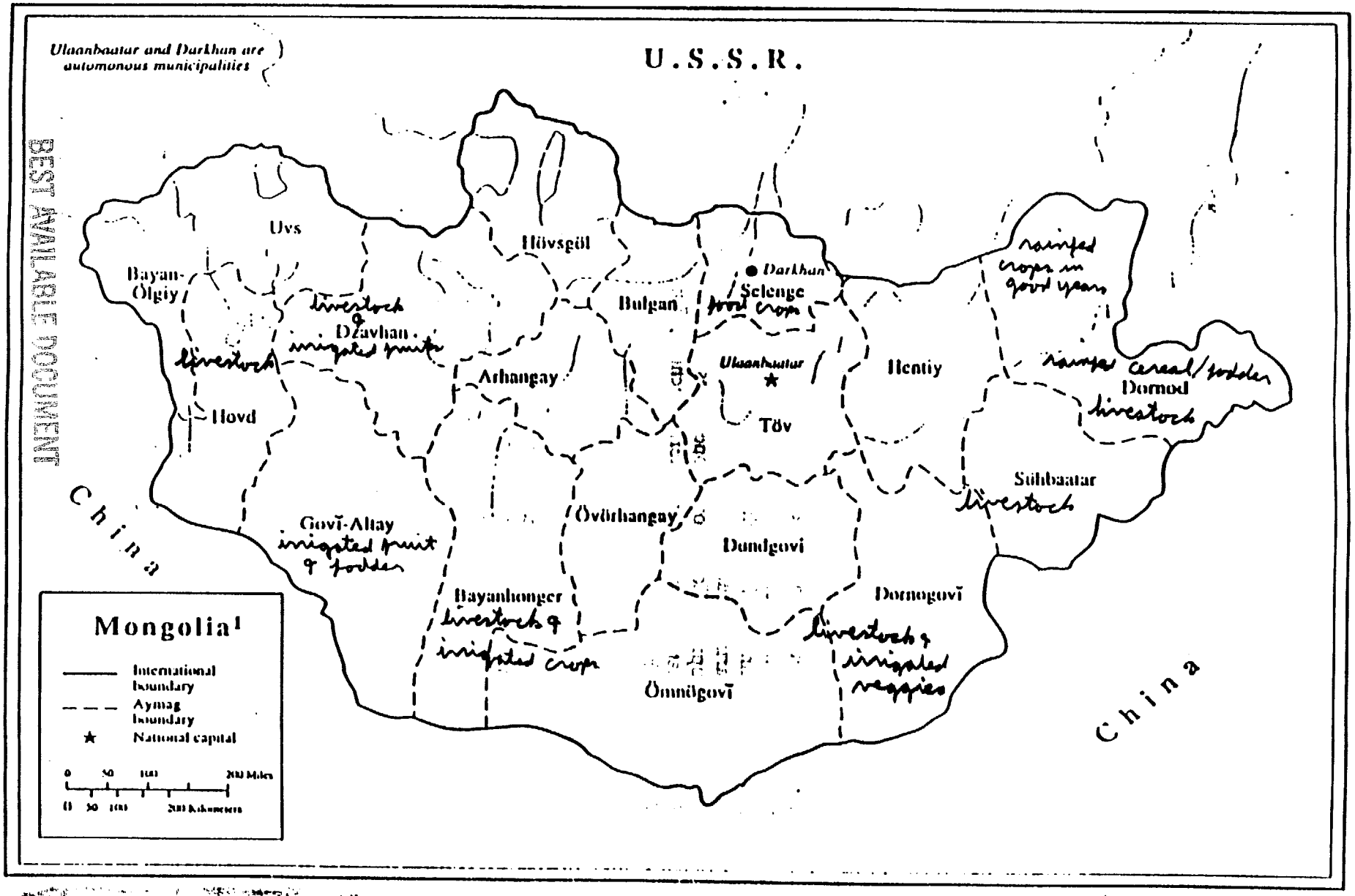
Map 1. Mongolia Showing Aimags (Administrative Regions)



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1. INTRODUCTION

1. BACKGROUND

This review has been prepared as a background paper for the Donors Conference to be held on Mongolia 9-11 October 1991. The work has been undertaken by the international and national staff of the Agricultural Management Project (MON/89/007). It attempts to describe the basic circumstances of agriculture in Mongolia and to set the present proposals for change in an historical context, particularly the period of centrally planned agriculture 1940 to 1990.

The technical data has come principally from the records of the Ministry of Agriculture and in some instances from interviews with staff of Ministries or other Government bodies. Statistical data is drawn from Central Statistical Board publications and should be interpreted with some care as the data reflects only the prior system of centrally planned agriculture and does not in any way encompass the current rapid changes. The sections on meat and milk marketing draw directly from the work of the DANAGRO consultancy team in May/June 1991. The paper also draws on the experience of the FAO/UNDP Agricultural Management Project in the field of farm management in Mongolia during the two years since July 1989.

Sources other than statistical data are generally not acknowledged in the text, however a list of references appears in the bibliography. Various drafts have been read by a number of non-Mongolians with local experience who have provided advice and appropriately critical comments. These contributions are gratefully acknowledged. While the production of this review has been made possible by the support of UNDP and FAO, the responsibility for any opinions, errors or omissions rests entirely with the principal author.

The paper has a number of limitations, most particularly that is was produced in a short space of time. The other limitation is that it has been written at a time when the economic life of the country was being transformed at bewildering speed. In the course of preparing this review there were major changes in a number of the circumstances described. In some instances the changes represent the elaboration and more definitive statement of Government policies on specific issues. In other cases the policies stated would be better seen as policy ideas rather than the firm position of the Government on the particular issue. In the rapidly changing events of 1991 it has not always been possible to distinguish between firm policy and policy ideas or hopes.

It is inevitable that by the time of the Donors Conference in mid October 1991, a number of the policies described in this paper will have evolved further, been amended or simply discarded. Those using this document should therefore base any decisions for action on the circumstances at the time of the conference and not rely on the policy positions represented in the review.

1.2 AGRICULTURE IN MONGOLIA

Total area used for agricultural production is estimated to be 125 million ha or 80 per cent of national land area. The greater part of this area is used for extensive grazing. Total arable land is put at 1.35 million ha with some 800,000 ha or 60 per cent under crops each year and the balance bare fallow. Livestock is the dominant sector of Mongolian agriculture and with the exception of the one per cent of land area used for arable farming, occupies all the agricultural land on native pastures with an extensive semi-nomadic grazing system. Stock numbers as at December 1990 reached almost record levels at 25.9 million head or 54.7 million sheep units. By species these were; camels 538,000, horses 2.26 million, cattle 2.85 million, sheep 15.1 million and goats 5.1 million.

The principal commodities produced are animal products and cereals. The animal products include meat, hides and tallow with smaller quantities of milk and butter. Mongolia is self sufficient in basic foodstuffs of meat, wheat, potatoes and other vegetables. Intensively produced items such as milk, butter, pork, eggs and poultry are under-supplied.

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The problems of agriculture are organisational rather than technical. In the last 40 years the country was transformed into just 326 individual agricultural production enterprises. These were either large agricultural co-operatives (negdels) or state farms. All enterprises were administered by central planners who set output targets and made investment decisions significantly removed from the farm level. The Government now wishes to dismantle this system with a view to making farms smaller privately operated units, though this does not necessarily mean individual ownership of farms. A key problem is that there are few individuals who have any real experience as independent decision makers and managers to operate these newly independent units.

There is a perception that the "vast" grasslands of Mongolia are still an under-utilised resource and that in some way the move to a market driven system will generate development which in turn will lead to an increase the output of livestock and crops. The move to a market economy is in part predicated on the experience of China where liberalising state control led to substantial increases in agricultural output.

What a crock!

This is a view which is open to challenge. Whatever else can be said of centrally planned agriculture, it was technically competent and it drove the system hard. The state took risks which no individual farmer could afford and probably reached productivity levels which were barely sustainable in the long run. Rather than see production rise in a more liberal economy, a more likely outcome of relaxing central control is that production will fall, as farmers are forced to carry the risk in what is a highly risky environment and will seek to protect their position by restructuring herds and cropping patterns in a more conservative, less productive manner.

The centrally planned system suffered all the problems of shoddy equipment, lack of spare parts and poor allocation of resources which have been seen in other CMEA economies. However, the underlying technology employed was essentially sound. The problems of the system were more a lack of economic criteria to allocate resources and more importantly, the lack of a human dimension to encourage effort and initiative.

There are undoubtedly many technical problems in Mongolian agriculture which would benefit from international assistance. However, little will be achieved in improving technical performance until the structural problems of agriculture are resolved. It is unlikely that these problems can be resolved quickly, as the solution lies in a whole generation of farm workers changing the habits of a lifetime and learning to think and act as individual decision makers.

1.3 CURRENT DEVELOPMENTS IN AGRICULTURE

Mongolian agriculture is being transformed as part of the wave of fundamental political, economic and social change which has swept over the country since March 1990. However, little change has yet been felt at farm level. The current year has been very much a continuation of past practices with state orders for all major commodities requiring the greater part of production for the year to be sold to the State at fixed prices. Price controls on several commodities were relaxed from September 1991, however the major impact of change in agriculture will take place during 1992, in the course of a single production year.

Since January 1991 a series of new laws have been adopted, most notably on the ownership of property, the structure of agricultural co-operatives and the privatisation of Government property. An Agricultural Commodity Exchange has been established which is to become the principal medium for the sale of agricultural products and for the procurement of inputs. It is proposed that there will be no state orders for the 1992 year and that the sale of all agricultural output will be at the discretion of producers at prices established in the open market. CHANGED BACK TO STATE BUYS FOR RATION SYSTEM

The Small Hural has approved a series of proposals put forward by the Government for the reconstruction of the agricultural co-operatives. These proposals are the subject of intense debate within the Supreme Council of Co-operatives which has yet to arrive at a clear position on a number of the matters involved.

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The proposals include the transformation of the co-operatives into companies with the existing members taking up the issued shares. The bulk of the co-operative livestock would be transferred or sold to members. The current position is that some 20 to 30 per cent are privately owned. However, if the privatisation is carried through as indicated, the final position will be closer to 80 per cent of the livestock on co-operative land being privately owned.

Under the proposed arrangements the co-operatives will provide services such as veterinary assistance, transport and technical advice to members on a fee paying basis. The management of the co-operatives will play a part in assisting members to sell stock through the Commodity Exchange and will earn a commission for this service. Another proposal under active consideration is that herdsmen should pay a fee for grazing. There is some dispute over whether or not this fee should be charged or who receive the revenue raised. The concept is that the fee would set a value for land use and generate revenue which could be shared between the Government and the co-operatives.

The state farms are to be privatised over a two year period. Workers on the farms are to have a prior right to take up the units in which they work either as groups or as sole traders, with the proviso that existing activities must be continued. Production from these newly established private farms will be sold on the open market. Currently each farm has been asked to put proposals to the Government as to how it should be privatised. To date only a small number of farms have opted to be broken up into small-scale farms. It appears that the majority favour breaking-up the existing very large farms into three or four smaller, but still large, multi-enterprise farming businesses with the workers as wage earning shareholders and an elected management.

1.4 PRIORITIES FOR DEVELOPMENT

1.4.1 The structure of agriculture

The Government is proposing to totally transform a highly organised and tightly regulated system of agriculture to one which responds to the disciplines of the market place. While the general concepts are reasonably obvious, it is by far from clear how the system will actually work. There is little experience of individual decision making for farm business management, nor are there support systems such as banking and credit, or local traders to handle input supply and product sales.

There is a widespread lack of knowledge about many of the basic requirements for operating in a market-driven system of agriculture. Basic business structures, the laws of contract, the rights and obligations of landlord and tenant, using borrowed money and how to sell your own produce are but a few of the concepts which are widely misunderstood or not comprehended at all.

The UNDP/FAO Agricultural Management Project is tackling these issues. For the past year the project has been training a small group of trainers in farm management and business principles. The project has just commenced a wider programme of training for Mongolian farmers and other workers in agriculture, however its resources are far below the scale of the task which must be addressed.

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Agricultural production is a high risk undertaking in Mongolia. The growing period is short, the rainfall erratic and the winters fiercely cold. Until now the Government has carried the risk in agriculture. With the move to private ownership and open markets it is inevitable that the production risk is being transferred to individual producers. This must have some significant social and economic consequences not all of which seem to have been taken into account at this stage. This is particularly so in the case of special areas such as the Gobi which have up till now had significant Government support to offset their inherent technical disadvantages.

The concept of the farm as a self-sustaining business, servicing its employed capital is not well understood. Nor is there much comprehension of the links between risk and reward as a necessary encouragement to investment. There is no clear idea of how to manage the transition

from the previous position of very large production enterprises to some number of smaller enterprises with closer links between management and ownership.

All of these issues need to be drawn together. An overall review of the agriculture sector is needed to link possible patterns of production, ownership, management and marketing into some comprehensible pattern which has realistic prospects of realising national agricultural potential.

1.4.2 Functional Commodity Markets

There are few developed economies in the world which have freely operating agricultural markets. Various forms of intervention are used to manipulate supply and demand and to meet social or political, rather than economic criteria. Mongolia has a number of structural problems to be faced. A widely scattered producer base, one third of the population concentrated in three cities and half spread very thinly over 1.56 million km2. It has mostly high volume low value outputs, an uneven distribution of processing facilities and extremely long transport lines to any export market. While the Government has nailed its flag to the mast of the market economy, it is by no means certain that the requirements for properly operating markets for many commodities can be met in Mongolia.

Another issue to be faced is that of quality in agricultural products. The centrally planned system was driven by quantity, not quality. Most products are in basic under-supply and there is a significant learning process for all involved, especially for those who wish to export. The Government will require assistance in reviewing possible market interventions to maintain a balanced agricultural sector and to establish and improve quality standards.

1.4.3 The Supply of Farm Inputs

The bulk of farm technical inputs are imported. Fuel, fertilizer, machinery and spare parts, veterinary and agro-chemicals and high quality seeds and breeding stock have been imported through the CMEA system and paid for in convertible roubles. This system has collapsed. By way of example, fertilizer imports in recent years have been of the order of 90,000 tonnes, however in 1991 there were only 20,000 tonnes imported. The system for the supply of farm inputs must be replaced with something which is realistic in its expectations and balances needs with available resources.

More urgent however, is the need to provide inputs such as spare parts for existing farm equipment, much of it of USSR origin, to keep it operational while some longer term measures are developed to stabilise the performance capacity of the mechanised sector of agriculture.

1.4.4 Technical Issues

There is a considerable amount of sophisticated technology employed in Mongolian agriculture. Embryo transplants and artificial insemination are but two of the techniques in use for the improvement of animal herds. However, with livestock as the principal element in national agriculture, the key issue for technical assistance is to improve the quantity and quality of fodder for both grazing and intensive livestock.

The intensive, housed animal industries generally operate at a low level of efficiency because the available fodder is insufficient in quantity and low in protein and digestible energy. The grazing livestock are carried through the winter on dry standing pasture and stored hay. Estimates generally put the shortfall of winter fodder at around 40 per cent of optimal requirements. This is not a problem which is amenable to easy solutions. Considerable scientific effort has been devoted to the matter of fodder improvement for many years with limited success. However it remains the key without which, the much desired expansion of agricultural output will not be realised.

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2. AGRICULTURAL GEOGRAPHY OF MONGOLIA

2.1 LAND AREA AND TOPOGRAPHY

Mongolia lies in the northern part of the Central Asian plateau between east longitude 87.44 deg and 119.56 deg and latitudes 52.09 deg and 41.35 deg north. The total area is 1565,000 sq km. The distance from east to west is 2392 km and 1259 km from north to south. The northern border with the USSR is 4673 km in length while the border with China extends over 8158 km.

The main land mass is elevated with an average of 1580 metres above sea level (masl). The highest point is the Munh Hairan peak in the Altai mountain range which is 4362 masl. The lowest point is the Khukh Nuur lowland in the eastern steppe which is 552 m above sea level. The elevation has considerable influence on the natural environment and land use. Livestock are grazed up to 3000 metres with yaks being principally found between 2500 and 3000 metres while camels are the main grazing animal in the low-lying areas. Land distribution by altitude is:

Altitude masl	Percent Area
Below 1000	15.3
1000 to 1500	40.0
1500 to 2000	19.9
2000 to 3000	22.4
3000 to 4000	2.4
Over 4000	0.02

Some 80 per cent of land area can be used for agricultural or pastoral pursuits, 9.6 per cent is forest and 0.9 per cent is covered by water.

Slope has a particular influence on agriculture, especially on crop production. 21.3 per cent of the total area has more than 20 degrees of slope, 11 per cent is in the range 6 to 12 degrees, 42.6 per cent is 3 to 6 degrees and 8.4 per cent has less than 3 degrees of slope. Much of the better crop land has significant slope and is cropped up to 12 degrees of slope.

2.2 CLIMATE

Climate is the over-riding element of Mongolian agriculture. It is characterised by very low temperatures and low and erratic rainfall. Winters are long and cold with an average of seven months with mean daily temperatures below zero. The average annual temperature fluctuates between -5.3 deg C and +4.0 deg C. In the mountainous northern and north-western parts it is below zero while in the south and south-east it is above zero. The lowest recorded temperature is -53 deg C and the highest is +41 deg C.

While absolute temperatures are the obvious indicators of the climatic difficulties for agriculture in Mongolia, the real limit to production is the low levels of incident energy. Despite 260 days of sunshine, total heat units above 10 deg C rarely exceed 2000 and in some districts are less than 1000. With limited incident energy and relatively low rainfall the effective growing period is short, generally from 80 to 100 days though it can vary from 70 to 90 days to 100 to 130 days depending on altitude and location.

The intermediate seasons of spring and autumn are short and even during summer it is possible to get sharp falls in temperature and frosts all of which make agriculture very difficult. Climatic stress, particularly unseasonal frosts, can cause harvest losses of between 10 and 30 per cent of crops. Climatic stress can also cause significant loss of quality, particularly in cereal and vegetable crops.

For successful agriculture under these conditions it is necessary to use short season varieties of grains and vegetables. It is also vital to plant crops as soon as conditions are suitable and to

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harvest grain and vegetables in the shortest possible time, all of which requires considerable mechanisation. It is also important to provide protection for animals where possible to counteract sharp falls in temperature. Low temperatures are the major cause of livestock deaths in the winter and spring due to a shortage of fodder and the poor condition of animals.

The wind speed varies from region to region. In the mountainous northern parts of the country the wind speed is 2 to 3 metres per second. In other parts it is slower while in the Gobi region it is 3 to 4 metres per second or even more. Wind speeds in excess of 5 metres per second can cause significant moisture loss and erosion. Spring is a particularly windy season which can cause significant erosion when cultivating seed-beds and planting crops. Strip cropping at right angles to the prevailing wind is widely practised as an erosion control measure.

The average annual precipitation is 100 to 400 mm. Rainfall distribution differs greatly depending on the natural zone and on the season, though in a general sense rainfall declines from north to south across the whole country. Rainfall distribution is shown in Map 2.

The main rain period for most areas starts in mid-June, though in the Gobi it does not start until July. This means that plant growth is very slow until well into the warmer period which is another restraint on productivity. Some 86 to 96 per cent of precipitation falls in the warm season which continues from April until October with 66 to 78 per cent falling in July and August alone.

Av annual precip'n (mm)	Percent Area
Less than 100	10
100 to 199	40
200 to 299	29
300 to 399	13
Greater than 400	8

In the south and south-west, precipitation decreases and so do the resources of surface and underground water. One benefit of the low precipitation is that there is relatively little snow in the winter. As a result, livestock can remain unhoused for most of the year and are able to feed on standing dry pasture through most of the winter.

2.3 SOILS

The national soil survey records 34 soil types in Mongolia. The principal soil type is dry-steppe chestnut soil which covers some 40 per cent of national area. Other major soil types are brown desert-steppe and grey brown desert soils. A maximum area of 1.7 million ha (1.1 per cent of total area) is considered to be suitable for arable use, compared to the 1.3 million ha currently utilised. The general areas by soil class are:

Soil Class	Percent Area
I	35.0
II	31.1
III	30.4
IV	3.5

The principal crop growing areas are in Tov and Selenge aimags with lesser areas in Bulgan, Hentei and Dornod. Arable soils are generally dark chestnut and chestnut soils which are typically fine light and silty, around 30 cms deep with an organic matter content of 3 to 4 per cent and pH of 6.0 to 7.0. Moisture retention is low and long fallowing is practised with one third of crop area in any year being fallowed to store moisture for the following year. Snow cover is very light so soils are completely frozen in winter. As a consequence, spring wheats are grown rather than winter wheats. Some details on soil characteristics are given in Table 1 on the next page.

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Table 1. Some Technical Data on Arable Soils

Soil Type	Org Matt %	Tot N2 %	Ca ppm	Mg ppm	pH	P2O5 ppm	K2O ppm
Dark brown chestnut soil							
Slightly loamy	3.9	0.20	20.1	2.1	6.8	2.7	11.0
Middle loamy	4.3	0.28	21.5	8.9	6.9	16.3	5.9
Brown chestnut soil							
Slightly loamy	2.4	0.20	18.7	8.8	6.8	16.7	16.0
Middle loamy	2.5	0.20	21.0	9.4	6.9	9.2	17.1
Meadow brown chestnut soil							
Slightly loamy	4.5	0.30	24.0	12.2	6.8	14.5	10.0
Middle loamy	3.5	0.30	23.2	5.4	6.7	5.3	9.7

Source:

Land assessed as suitable for arable use is unevenly distributed throughout the country. Because of climatic effects the location of arable soils is not the same as the areas of crop production. Distribution by aimag is:

Dornod	22.0	Bulgan	4.3	Govi Altai	1.0
Tov	19.0	Dzavhan	3.4	Hovd	0.7
Selenge	16.2	Ovorhangai	3.3	Dundgovi	0.6
Suhbaatar	9.5	Huvsgul	2.9	Omnogovi	0.4
Hentei	6.5	Arhangai	2.3	Bayan Olgei	0.2
Uvs	6.0	Bayanhongor	1.1	Dornogovi	0.1

2.4 VEGETATION ZONES

The combination of altitude, rainfall distribution and soil type has produced six definable vegetation zones or natural regions in Mongolia. These are alpine tundra, mountain taiga, mountain steppe and forest, steppe, desert steppe and desert. These are outlined in Map 3. The principal agricultural areas are the mountain steppe and forest, steppe and desert steppe. Proportions by area are:

Zone	Area (percent)
Alpine tundra	4.5
Mountain taiga	3.8
Forest and Steppe	23.3
Steppe	25.9
Desert Steppe	21.5
Desert	15.4
Interzonal vegetation and lakes	5.1

2.5 NATURAL REGIONS FOR AGRICULTURE

To more readily represent the different combinations of altitude, rainfall and soil type, Mongolia can be divided into five natural regions and 18 sub-regions. The five regions are Hangai-Khuvsgul, Selenge-Onon, Mongolian Altai, Central and Eastern steppe and the Gobi desert. The regions and sub regions are shown in Map 4 and a brief description of each is set out below.

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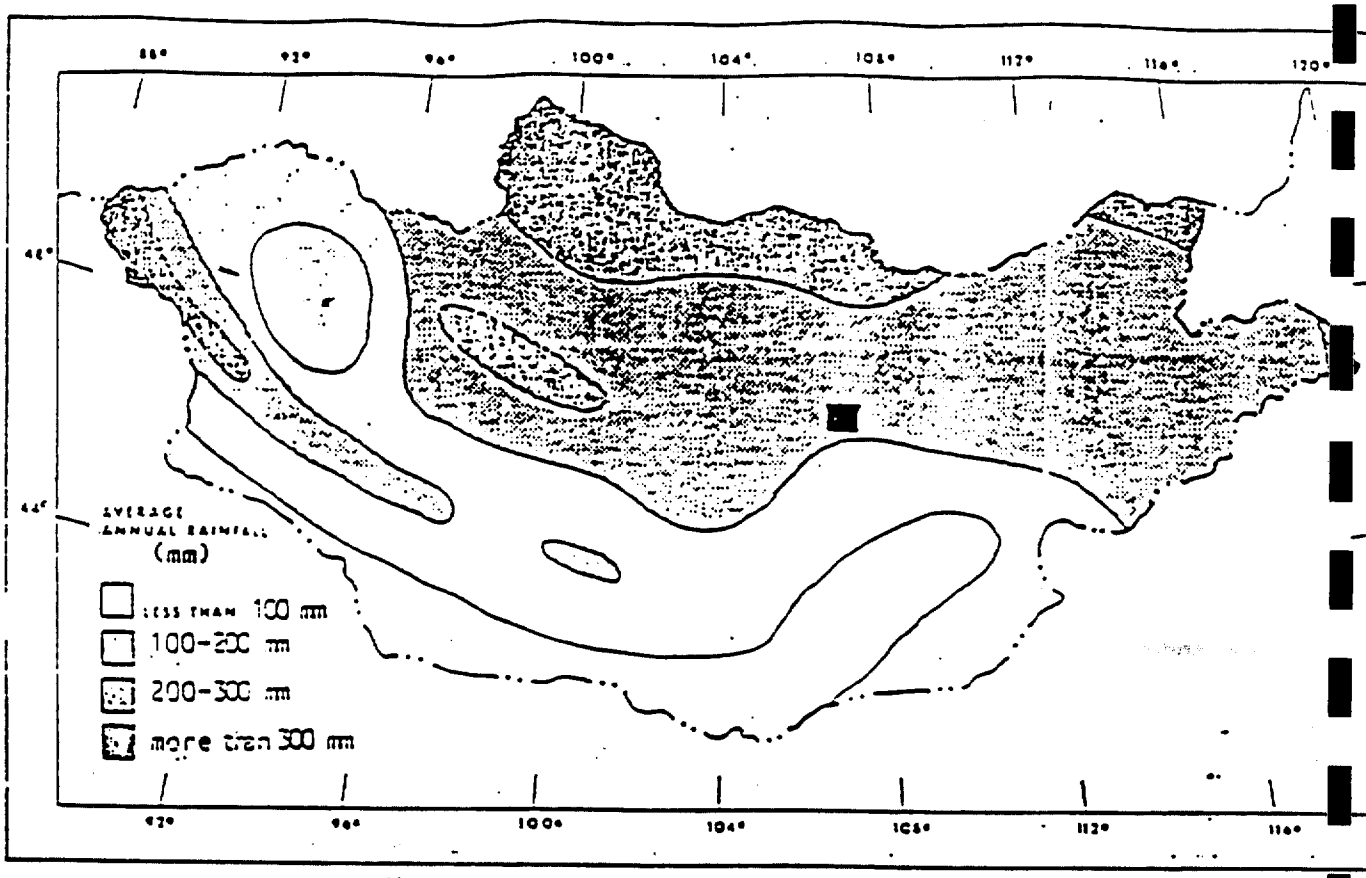
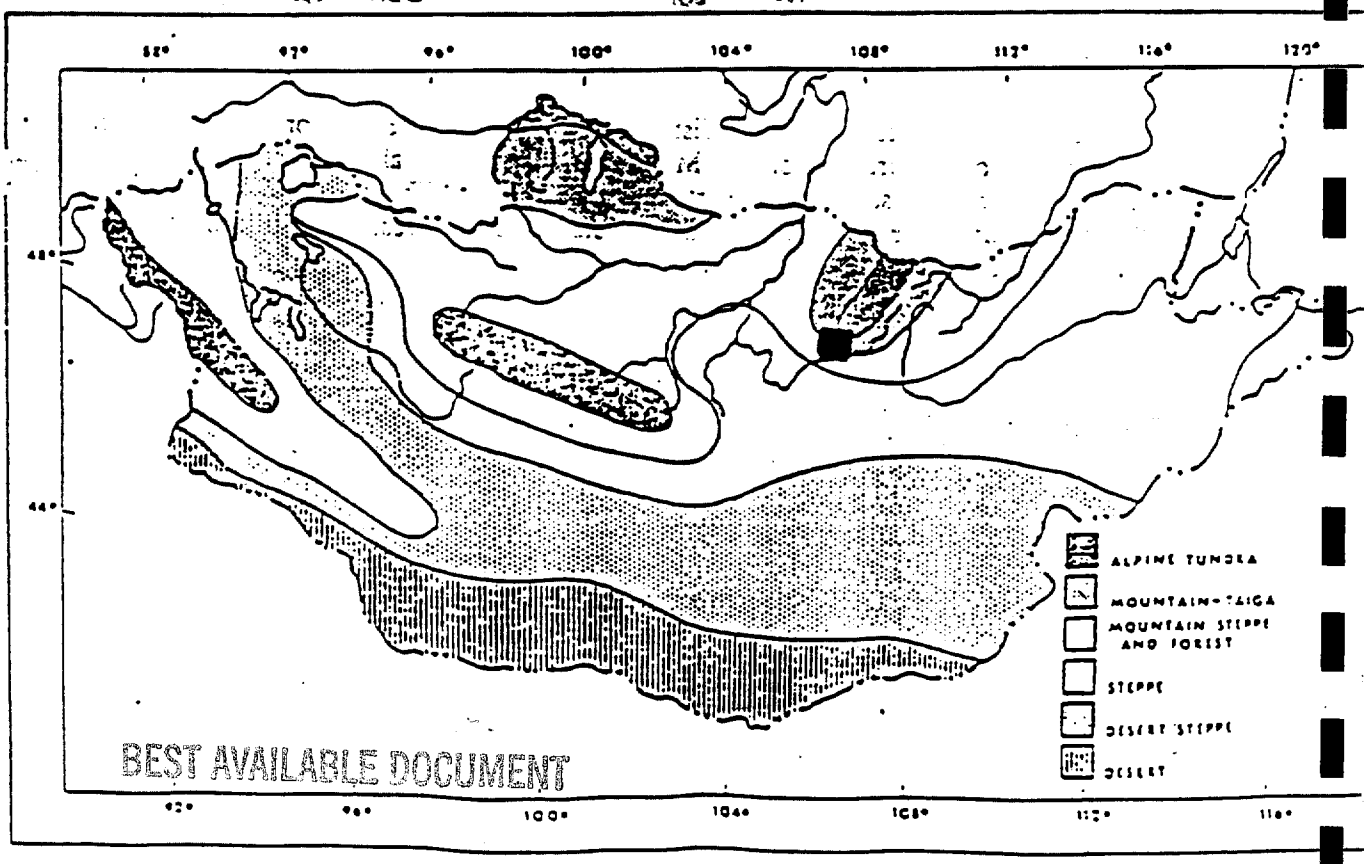
Map 2. Annual Rainfall Distribution in Mongolia



Map 3. Vegetation Zones in Mongolia



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A. Hangai-Khuvsgul Region

The Hangai-Khuvsgul region is situated in the north-west of the country. It is a high altitude forest area with deep valleys and many lakes. The northerly location and altitude make this a permafrost area and there is no underground water. It can be divided into 5 sub-regions.

1. The meadows and valleys of central Hangai where the major activities are yaks, cattle and sheep.

2. The Bulnai forest-steppe and arid steppe areas. Most suitable activities are sheep, cattle and fodder production.

3. The Khuvsgul mountain, taiga, forest and steppe regions. Major activities are production of yaks, cattle and reindeer.

4. Western Hangai steppe and arid steppe areas. Sheep, early-ripening cereals and fodder production are the most suitable agricultural activities.

5. Southern Hangai steppe and arid-steppe and semi-desert areas are suitable for sheep and cattle activities, early-ripening grain and fodder crops.

The principal climatic details of the Hangai-Khuvsgul region are given in Table 2.

Table 2. Climatic Information Hangai-Khuvsgul Region

Zone	Av Elev '000 masl	Mean Annual deg C	Temp Jan deg C	Temp Jul deg C	Heat Sum >10 degC	No of days	Frost free days	Precip tation mm	Snow Cover mm	Wind Speed m/sec
1	3.0	-2.5:5.0	-20:-24	8:15	400:1400	70: 90	60: 80	>400	>15	2:4
2	2.5:3.0	-5.0:7.5	-20:-24	6:13	400:1400	70: 90	60: 80	300:400	>15	2:4
3	2.2:3.0	-5.0:7.5	-24:-30	15:19	1400:2000	90:110	90:110	200:250	>15	2:4
4	2.0:2.5	0.0:2.5	-16:-20	15:19	1400:2000	80:100	80:100	200:250	>15	2:4
5	2.0:2.3	0.0:2.5	-16:-20	15:19	1400:2000	80:100	80:100	200:250	>15	2:4

B. Selenge-Onon Region

This region is located in the north-central area of the country. It is a broad flat floored basin draining to the north and is the principal cropping area. The Selenge-Onon region can be divided into 4 sub-regions.

6. Selenge forest and steppe sub-region is suitable for cattle and sheep activities and rainfed crop production. The Selenge valley if the largest crop area in the country.

7. Onon low mountains arid steppe sub-region is suitable for rainfed crop production and cattle and sheep activities.

8. Khentei mountain forest and steppe sub-region is suitable for cattle production and rainfed cropping.

9. Ulz-Tuul steppe and arid steppe sub-regions are suitable for sheep, cattle, early-ripening grain and fodder production.

Principal climatic details of the Selenge-Onon region are given in Table 3.

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Map 4. Natural Zones for Agriculture

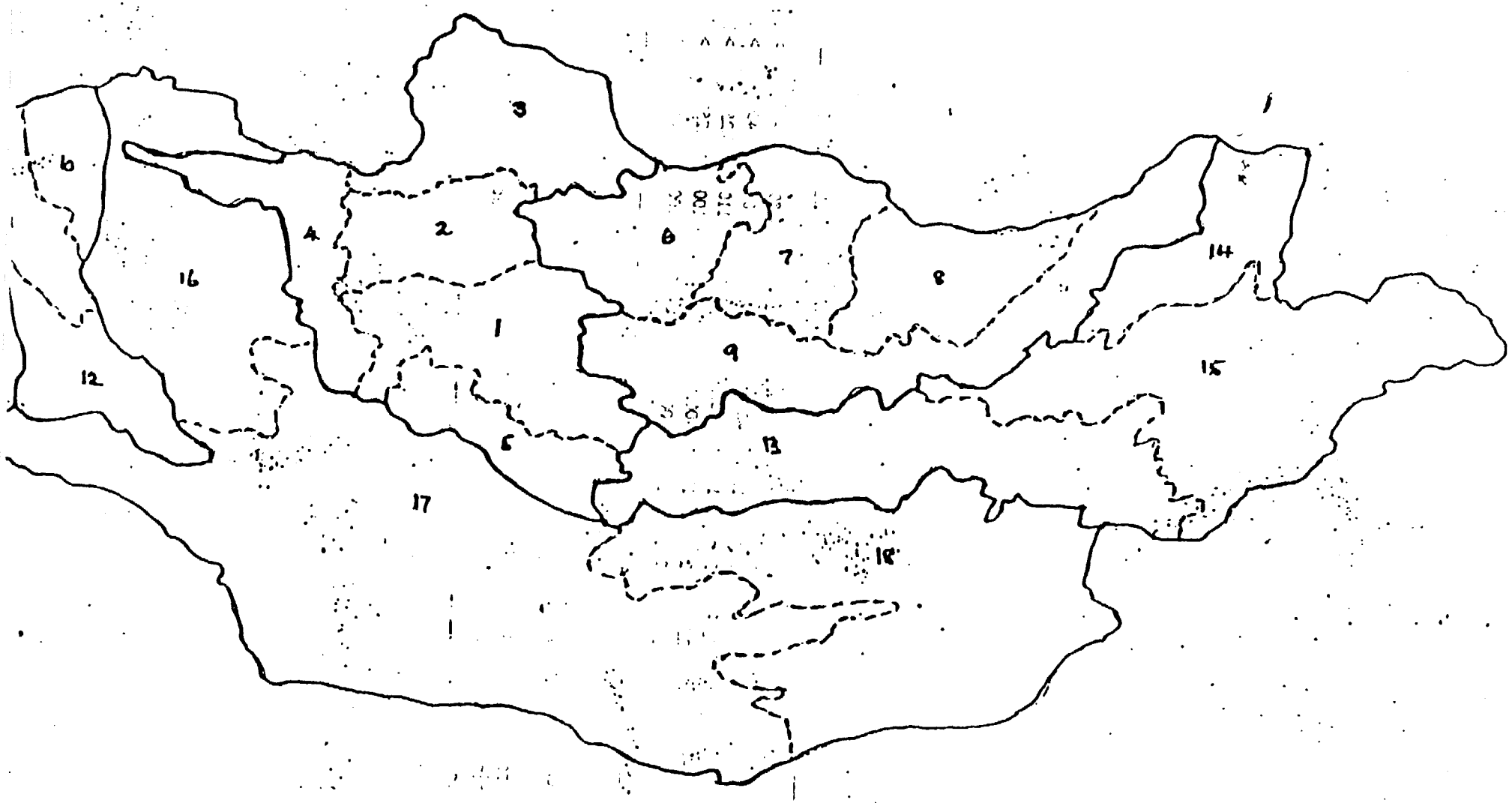

Table 3. Climatic Information Selenge-Onon Region

Zone	Av Elev '000 masl	Mean Annual deg C	Temp Jan deg C	Temp Jul deg C	Heat Sum >10 degC	No of days	Frost free days	Precip tation mm	Snow Cover mm	Wind Speed m/sec
6	1.5:2.0	2.5:5.0	-20:-24	15:19	1000:2000	80:100	100:120	300:400	5:10	4:6
7	1.5:2.2	0.0:2.5	-16:-19	15:19	1400:2000	70: 90	80:100	250:400	5:10	4:6
8	1.5:2.2	2.5:5.0	-20:-24	13:15	1000:2000	70: 90	100:120	300:400	5:10	4:6
9	1.5:2.0	2.5:5.0	-20:-24	13:15	1000:2000	80:100	100:120	300:400	5:10	4:6

C. Mongolian Altai Region

This is the high mountain region at the far western end of the country. It is divided into 3 sub-regions.

10. Harhira and Turgen mountains arid steppe areas are suitable for sheep and goats and cattle.

11. Central Altai meadow and steppe sub-region is suitable for yaks which are the prevailing class of cattle, also sheep and goats. The season is so short that only early-ripening fodder crops can be produced.

12. Southern Altai steppe sub-region is suitable for livestock production, irrigated fruit and berry, melons and fodder production.

Principal climatic details of the Altai region are given in Table 4.

Table 4. Climatic Information Altai Region

Zone	Av Elev '000 masl	Mean Annual deg C	Temp Jan deg C	Temp Jul deg C	Heat Sum >10 degC	No of days	Frost free days	Precip tation mm	Snow Cover mm	Wind Speed m/sec
10	3.5:4.0	-2.5:5.0	-20:-24	8:13	400:1000	<70	60: 80	400:500	>15	2:6
11	1.5:2.0	0.0:2.5	-16:-20	19:22	2000:2600	100:120	120:140	400:500	>15	4:6
12	2.5:3.0	0.0:2.5	-16:-20	15:19	1400:2000	90:110	80:120	400:500	5:10	2:6

D. Central and Eastern Steppe Region

This region covers the broad flat treeless plains eastern Mongolia. The area is divided into 3 sub-regions.

13. Southern part of Central Halha is suitable for sheep, goat and cattle production.

14. Kherlen-Khukh-Nuur in the north is suitable for sheep and cattle production. Rainfed crops can be produced in good years.

15. Menen-Dari'ganga arid steppe region is suitable for sheep and goat raising and rainfed cereal and fodder crop production.

Principal climatic details of the Central and Eastern Steppe region are given in Table 5.

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Table 5. Climatic Information Central and Eastern Steppe

Zone	Av Elev '000 masl	Mean Annual deg C	Temp Jan deg C	Temp Jul deg C	Heat Sum >10 degC	No of days	Frost free days	Precip tation mm	Snow Cover mm	Wind Speed m/sec
13	0.9:1.5	0.0:2.5	-20:-24	15:20	1400:2000	100:130	110:140	150:250	5:10	4:6
14	0.5:1.1	0.0:2.5	-20:-24	19:22	2000:2600	90:110	120:140	150:250	5:10	4:6
15	0.9:2.0	0.0:2.5	-20:-24	19:22	2000:2600	>130	120:140	150:250	>5	6:8

E. Gobi Desert Region

The Gobi desert region covers the whole southern section of the country. It is divided into 3 sub-regions.

16. Great Lakes lowland semi-desert and arid steppe sub-regions are suitable for sheep, goat and camel production, fruit and berries with melons on irrigated fields.

17. Gobi-Altai mountain-steppe, semi-desert sub region is suitable for goat, sheep, camel and irrigated crop production in oases.

18. Galbyn Gobi semi-desert, desert areas are suitable for camel, sheep, goat, irrigated vegetable, melon activities.

Principal climatic details of the Gobi Desert region are given in Table 6.

Table 6. Climatic Information Gobi Desert Region

Zone	Av Elev '000 masl	Mean Annual deg C	Temp Jan deg C	Temp Jul deg C	Heat Sum >10 degC	No of days	Frost free days	Precip tation mm	Snow Cover mm	Wind Speed m/sec
16	0.7:1.3	0.0:2.5	-20:-24	19:22	2000:2600	90:110	120:140			2:4
17	0.8:1.4	>2.5	>16	>23	3000	>130	>140			6:3
18	0.7:1.0	>2.5	-16:-20	20:23	2600:3000	>130	>140			4:8

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3. THE STRUCTURE OF MONGOLIAN AGRICULTURE

3.1 BASIC AGRICULTURAL DATA

Total area used for agriculture is 125 million ha or 80 percent of national land area. Of this, 1.37 million ha or just over one per cent of total agricultural land area is cultivated each year with around 60 per cent or 800,000 ha under crop and the balance as bare fallow. The remaining land area is native pastures used for extensive grazing on a semi-nomadic basis. Details of agricultural land use at various times since 1960 are summarised in Table 7.

Table 7. Agricultural Land Use ('000 ha) 1960-1988

Land Class		1960	1970	1980	1985	1990
Arable land	- Sown	266	455	704	790	786
	- Fallow	267	289	478	564	585
s/total arable land		532	744	1182	1354	1371
Natural pastures		140151	139939	123405	123233	124285
All agricultural land		140683	140683	124587	124587	124587

Source: National Economy of the MPR for 70 Years Tables 4.8 and 4.11 Central Statistical Board

Livestock grazing is the dominant sector of agriculture. In 1990 livestock numbers climbed to near record levels of 25.9 million head. Stock numbers have varied over time. In the 60 years since 1930, peak numbers recorded were 26.2 million head (55.7 million SU) in 1940 and lowest numbers 20 million (44.9 million SU) in 1945. The significance of the current peak stock numbers is that since 1957 some 1.3 million ha of the best land has been transferred to the crop sector, so that current numbers probably represent historically high grazing pressures. Details of individual classes of stock and their relative importance expressed as sheep equivalents (SU) are set out in Table 8.

Table 8. Livestock by Class 1990 (No of head and sheep equivalents)

Stock Class	Breeding Females	Percent Breeders	Other Stock	Total	Sheep Unit	Total SU	Dist % as SU
Camels	141	26	397	538	9.0	4842	8.9
Horses	564	25	1698	2262	6.0	13572	24.8
Cattle	1127	40	1722	2849	6.0	17094	31.3
Sheep	7786	52	7297	15083	1.0	15083	27.6
Goats	2426	47	2700	5126	0.8	4101	7.5
Total	12044		13814	25858		54692	100.0

Source: National Economy of the MPR for 70 Years Tables 4.8 and 4.11 Central Statistical Board

The principal commodities produced are animal products and cereals. The animal products include meat, hides and tallow with smaller quantities of milk and butter. Cereal production is predominantly wheat with much smaller quantities of barley, rye and oats. Fodder crops are grown for silage and better quality hay. Mongolia is self-sufficient in the basic foodstuffs of meat, wheat, potatoes and other vegetables. Milk production from native cattle is very seasonal, so that despite a mechanised dairy sector with imported cattle in heated housing, there are significant shortfalls in the winter spring period. Other intensive products such as pork, poultry and eggs are also undersupplied. The principal agricultural exports are meat, leathergoods, camel wool and cashmere. Details of the production of the principal commodities over the five year period 1986-90 and for 1990 are given in Table 9.

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Table 9. Agricultural Production, average 1986-90 and actual 1990

Product	Unit	Average 1986-90	1990	Av Prodn 1990 kg/head popln
Meat	'000 t DW	237.9	248.9	119.9
- Beef	'000 t DW		66.2	
- Mutton/Goat	'000 t DW		132.3	
- Pork	'000 t DW		7.9	
Sheep wool	'000 tonnes	19.2	21.1	
Camel wool	tonnes	2737.0		
Cashmere	tonnes	1327.0		
Milk	million litres	306.1	315.7	152.1
Butter	'000 tonnes	4.6	4.4	2.1
Eggs	million	32.2	38.0	17.9
Cereals	'000 tonnes	786.1	718.3	346.1
- Wheat	'000 tonnes	632.5	596.2	
- Other	'000 tonnes	153.6	122.1	
Potatoes	'000 tonnes	134.0	131.1	63.2
Other Vegetables	'000 tonnes	50.4	41.7	20.1

Source: National Economy of the MPR for 70 Years Tables 4.4/5/6 Central Statistical Board 1991

The total population of Mongolia is 2.044 million persons, of which two-thirds live in rural areas. Only 43 per cent are officially rural dwellers, the remaining 23 per cent living in the rural towns and settlements. The agricultural workforce accounts for 29.5 per cent of all employment which is well down on the 47 per cent of 1970 and 61 per cent of 1960.

3.2 THE ORGANISATION OF AGRICULTURE

Traditional Mongolian agriculture was almost entirely based on nomadic livestock production with private herds grazed on common land. It was a system which changed little in a thousand years. Despite its antiquity it was a very stable system where man and his livestock were in equilibrium with their principal resource, the vast open grasslands of the Central Asian steppes.

It was a highly developed and organised system with complex inter-relationships between the people and land management to provide equality of grazing rights (within the bounds of overall structural inequality) and protection of the grazing lands. The country was subdivided into 72 grazing areas each of which encompassed at least some higher and lower altitude grazing land. These grazing areas were grouped within four regions or banners, each ruled by a local Khan. Much of the livestock was in large herds belonging to wealthy men or monasteries who, under the feudal system, owned numbers of herdsmen to care for their stock.

Following the collapse of the Manchu dynasty in 1911, the Mongolian Khans declared their independence from China. Ten years later in 1921, the Communist party overthrew the Khans and seized power, though it was not until 1940 that it had sufficient control of the country to make radical changes to the agricultural system. In the 1930's the Communists attempted to collectivise the herdsmen but were bitterly resisted and abandoned the attempt. The emphasis then switched to the formation of co-operatives which culminated in the period 1956 to 1959 with all the herdsmen who had not yet joined a co-operative, handing over their livestock and becoming members of an agricultural co-operative.

The agricultural co-operatives are essentially an adaption of the traditional system of land management. The whole country is divided into 18 Aimags (administrative regions or provinces) which in turn are subdivided into 299 soums or administrative districts which are roughly

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equivalent to rural shires or counties. As a general rule the land allocated to one co-operative is the same as that of a soum, though not always so. This arrangement differs from the historical land allocation system in that soum boundaries are more generally based on administrative criteria rather than land use. Because the co-operatives are built on the traditional Mongolian grazing system, they dominate the livestock sector of agriculture with some 80 per cent of all livestock.

An important element in the agreement whereby the herdsmen handed over their livestock to the State was that every family was entitled to keep 50 head of livestock (75 head in the Gobi regions) to provide for their own food needs. In 1989 these levels were increased to 75 and 100 head respectively. As at December 1990 around one third of all livestock including over 40 per cent of the sheep and cattle were privately owned. This core of private livestock spread over all grazing families will be a significant factor in the current attempts to establish a privately operated, market driven system of agriculture.

In the 1940's a start was made to introduce arable agriculture with the establishment of the first state farms. However, the major thrust into arable farming came in 1959-60 with the Virgin Lands Programme. In the space of few years 500,000 ha were brought under the plough, an area which has steadily expanded to the present level of 1.37 million ha.

The main thrust for the development of the arable farming sector has been by establishing state farms. These are mainly directed towards cereal and fodder cropping and intensive livestock production not suited to the natural pasture grazing system. The intensive livestock farms include pigs, poultry and dairy production from either imported pure-bred high production stock or crosses between imported and local stock. Depending on the amount of suitable land within the co-operative area, the co-operatives undertake arable farming, particularly cereals and fodder crops, though it amounts to only one fifth of national crop production. The allocation of land between grazing and arable use and arable land between state farms and co-operatives is given in Table 10.

Table 10. Distribution of Arable Land between State Farms and Co-operatives('000 ha) 1960-1988

Item		1960	1970	1980	1985	1990
Total arable land		532	744	1182	1354	1371
Sown Areas by Sector						
- State Farms	- area	205.8	342.8	556.9	636.4	na
	- per cent	77.5	75.4	79.1	80.6	
- Co-operatives	- area	59.7	111.8	147.1	153.2	na
	- per cent	22.5	24.6	20.9	19.4	
Total Sown Area		265.5	454.6	704.0	789.6	786.4

Source: Central Statistical Board of the MPR

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3.3 AGRICULTURAL ENTERPRISE STRUCTURE

To comprehend the current proposals for change in Mongolian agriculture, it is necessary to look in some detail at the centrally directed system which has been in place for the past 40 years. All but the oldest of the present agricultural workforce have spent their lives working within the system and a major task of introducing change will be to get people to develop different perspectives than those of a centrally planned agriculture.

In the Communist system there were four forms of agricultural enterprise, the two most important of which were the agricultural co-operatives (negdel) and the state farms. There were also two smaller groups of enterprises, agricultural service enterprises and inter-agricultural co-operative organisations. In 1990 there were 255 co-operatives, 73 state farms and 28 other organisations. The scale of these operations can be gauged in terms of a national agricultural

area of 1.26 million sq km divided into only 328 agricultural enterprises. Details of the distribution of enterprises since 1940 are set out in Table 11.

Table 11. Mongolian Agricultural Enterprises by Form of Organisation 1940 to 1990

Enterprise Type	1940	1960	1970	1980	1985	1990
State Farms - General	10	25	32	49	52	53
- Fodder production			10	13	17	20
subtotal State farms	10	25	42	62	69	73
Agricultural Co-operatives	91	354	272	255	255	255
Agricultural Service Enterprises		17	17	17	17	17
Inter-Agric Co-op Organisations					11	9
Total Agricultural Enterprises	101	396	331	345	352	356

Source: Central Statistical Board

In the centrally planned system the agricultural business units were the co-operatives, the state farms and the special organisations, all of which were multi-activity operations. They were the smallest units in the Mongolian agricultural economy which had both the necessary resources to complete the production cycle and were able to make choices on resource allocation.

The state farms were responsible directly to the former Ministry of Agriculture and Food Industry (MAFI), now the Ministry of Agriculture (MoA), while the agricultural co-operatives answered to the Supreme Council for Co-operatives (SCC). This body however was chaired by a Deputy Minister of Agriculture so that there were close managerial and planning links between the two principal branches of agriculture. This position has changed with the SCC becoming an independent body in 1990 under the new Government.

At the Aimag (provincial) level, each Aimag had a Board of Agriculture and Food Industry (BAFI) which was the local arm of MAFI with 20 to 30 staff and a similar organisational structure of technical and administrative departments as the Ministry. Each BAFI was responsible for the operation and supervision of the agricultural enterprises within its Aimag. Details of the relationships and line of authority which existed are shown in Figure 1. Since late 1990, the BAFI has been reduced to a small department of 4 to 6 staff within the Aimag administration.

Within the co-operatives all the assets other than the land belonged to the members. The members were divided into groups representing the various livestock husbandry or farming tasks and all were paid according to the work done. Surplus earnings of the co-operative were used to generate further investment or were returned to members as additional income.

The agricultural co-operatives had large areas of land. Within the co-operatives, the brigades form the basis of the local communities which may be substantial. By way of example, the Tsatsral (Hotont) co-operative in Arhangai aimag has a total area of 212,000 ha, 641 members and a total population of 2445. It has 98,800 head of livestock, equivalent to 257,000 sheep units. Total crop land is 8,400 ha with 5,600 ha in cultivation. Of this cultivation area there is 4,900 ha under wheat and 700 ha under a variety of fodder crops.

The agricultural enterprises were comprised of a number of sub-units, known as brigades which were generally based on a single form of farm production such as livestock or cropping. For livestock production they were called kheseg and may have even be more specialised, concentrating on sheep only. The cereal cropping brigades were known as tasag. The brigades however were not economically self contained because they lacked certain resources. They generally did not have transport or machinery repair and service capability. These services were provided by the enterprise together with the management to ensure the orderly use of the communal resources and the general co-ordination of production.

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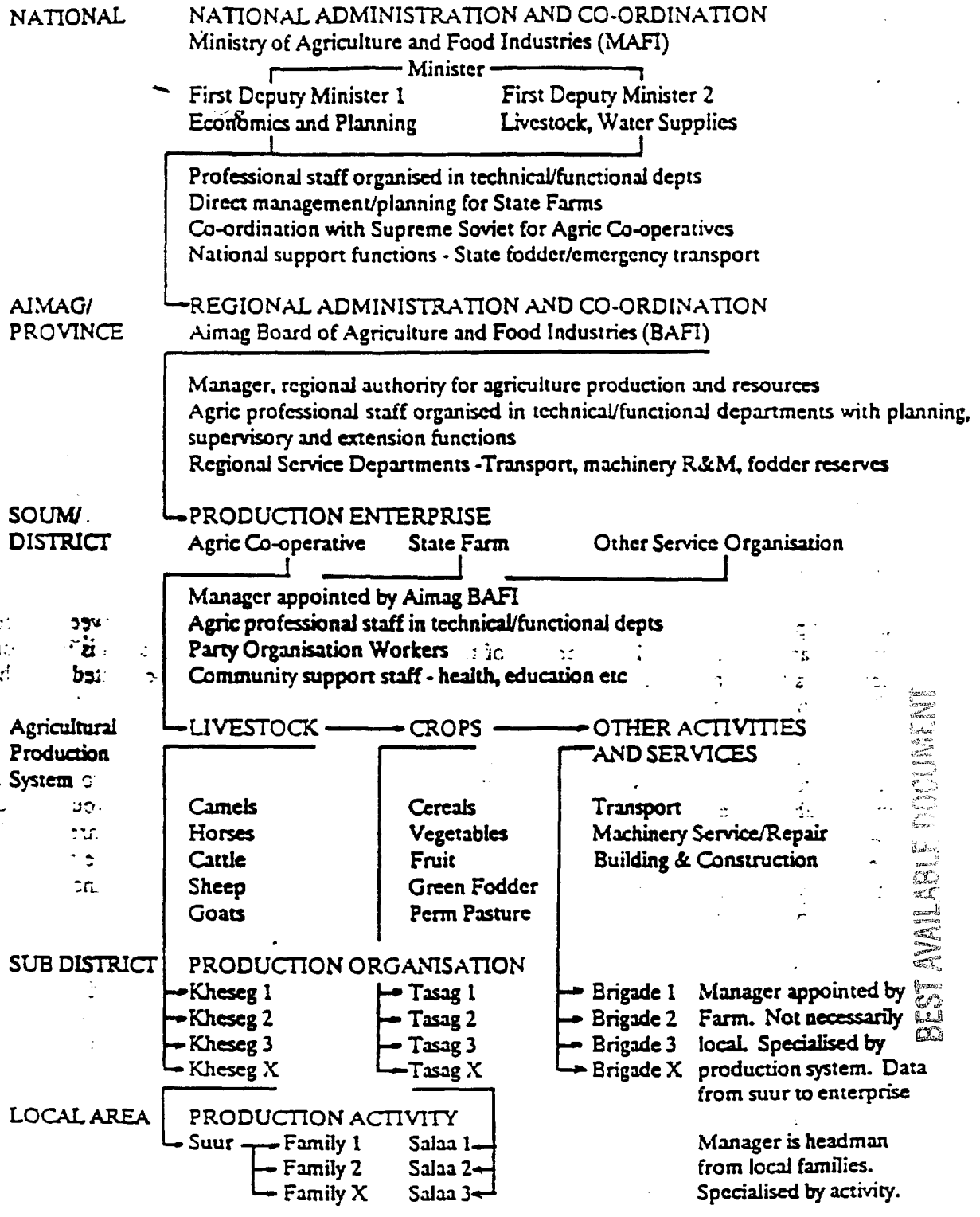
Brigades were made up of a number of smaller units known as suurs for livestock production or salaas for crop production. Within the livestock kheseg each suur was generally highly specialised, performing only one part of the production process, so that the output of the kheseg was dependant on each suur fulfilling its particular obligation.

Figure 1 Organisation and Management of Agriculture under Central Planning



Suurs are the basic unit of agricultural work and usually comprise two or three and up to five families who are often related. The suur essentially belongs to the livestock sector, where groups of herdsmen and their families move together through the cycle of the seasons and all members of the family take part in the work.

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Typically a sheep suur might consist of two brothers and their wives and children. Stock will comprise 350 breeding ewes with 315 lambs at foot and 10 rams. In addition there might be 10 head of cattle and 20 horses. A cattle suur might have 85 cows, 20 young stock, 4 bulls, 25 horses and 30 sheep.

The cows (or mares or ewes) would be milked for three months during the summer. The sheep would be shorn in July and the sale stock drafted off between August and October for droving to the meatworks. Hay will be made in August and September on an area previously set aside from grazing for this purpose and stacked by the winter housing. In the late winter and spring the horses and cattle and especially any yaks will be combed to harvest the surplus winter hair for sale.

The family will have started the summer grazing season in May by moving out to the far end of their area and slowly moving back towards the winter camp, to arrive by October or November. During this period they may move five to eight times in a prearranged pattern as the pasture is grazed out. By the end of October or early November they will be settled in the winter camp in relative proximity to the co-operative or state farm centre, where pasture will have been conserved through the summer period. Here they have sheds for the sheep and goats and perhaps some cover for the cattle together with the hay reserves. The horses will remain unhoused and without supplementary feed year-round.

The suur would report to the manager of the tasag. He in turn would answer on technical matters to the Chief Zootechnician (Animal Husbandry Specialist) of the co-operative or state farm and to the co-operative or state farm manager on general matters. The suur would have been given part of the production target of the kheseg for the year, expressed in terms of kg of wool and meat, litres of milk or other appropriate physical measures. This would be delivered by the suur to the headquarters of the co-operative or to the Aimag centre where the representative of the state buying organisation would record the delivery and note the quality according to pre-set standards.

In the cropping sector, the suur is termed a unit or salaa and will comprise between three to seven men and up to 10 or 12 depending of the activity. While the cropping salaa is "men only" rather than a family activity, it is quite common for the men in such a unit to be related or to have family ties to one another.

Typically a crop salaa would manage between 800 to 1200 ha with two thirds under crop and one third in bare fallow. They would have their own items of equipment allocated from the state farm; probably three 75HP crawler tractors and one 50 HP wheel tractor. There would typically be two ploughs, five cultivators, a snow sweeper, five seed drills a spray cart and three combine harvesters. At least one of their number would have some mechanical skills and be responsible for the daily servicing and repair of the equipment. Major repairs and maintenance were the responsibility of the central workshop on the state farm or co-operative.

The salaa would be given specific technical advice by the Chief Agronomist of the state farm or the co-operative and would be supplied with seed from the central seed store and fertilizer (if available) from farm stocks. Which fields were planted and the organisation of the harvest would be closely supervised by the Chief Agronomist, so that the salaa members had little freedom of choice to do things their own way.

Until 1988 all the workers on co-operatives or state farms were paid fixed wages which were specified for various jobs. In the mid 1980s a new system of wages was designed where the rates were differentiated according to which area of the country the enterprise was located and further differentiated according to the assessed difficulty of every task. The result was a vast and complicated set of wage rates which made it difficult for individuals to know what they would get paid for what work and was generally unpopular.

In 1988 the Government, searching for new ways to link work and reward, introduced the leasing system, whereby a suur or salaa could lease their productive assets (livestock or machinery) for a fee expressed in terms of physical output. The unit could keep or sell any production above the

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predetermined level. The results of the introduction of the leasing system were extremely variable.

Though the system was voluntary, a number of Aimag administrations attempted to push all their enterprises into adopting it. The problem was to assess what was a reasonable trade-off between the fixed wage rates and the production target. This was particularly so with the crop salaas. In some instances the final arrangement was that the state farm guaranteed that the crop workers would not earn less than the specified wage, but they had the chance to earn a production bonus if the crop was good. The leasing system represented a halfway house between state control and private farming, though it suffered from a lack of experience among administrators in how to construct the leases to be equitable to both parties.

A key problem for the enterprise management in the centrally planned system was that while the enterprise was capable of making decisions about resource allocation in an economic sense, these decisions did not finally rest with the enterprise. In making decisions on resource allocation, enterprise managers faced two restrictions.

Firstly there was the line of authority. Enterprises were under the direction of the Board of Agriculture and Food Production (BAFI) of their Aimag. Each Aimag was a pyramid where a number of enterprises (co-operatives and state farms) were managed by the Aimag BAFI as if they were a large multi-activity farm. These Boards in turn were directed by the Ministry of Food and Agriculture (MAFI) where the 18 Aimags were managed by the MAFI head office as if the country were one great big farm. From the point of view of management decisions, at each level managers collected and analysed information for decision purposes. However as no manager at any level had final decision authority, the data just passed up the line, getting further from the action as it went. Secondly, there were targets. MAFI and the State Committee for Economic Planning set targets for output from each agricultural enterprise which were generally set at levels which required all the available resources of the enterprise. As a consequence, enterprises had little real choice in resource allocation or business decision making.

These two restrictions combined to create a further problem, which was that the system separated the planners from the performers. Planning was an end in itself rather than an integral part of the overall production process. The producers; that is the managers, the farm workers and herdsmen, were separated from the vital experience of linking production decisions to essential matters such as availability of inputs, market prospects, prices or production risks.

The system was output driven. The output targets recognised the net impact of uncertain inputs and climatic externalities but left no room for the manipulation of the production system for more cost efficient production. Outputs were achieved regardless of cost so long as they were technically possible. Outputs were also directed at social as well as economic goals which further distorted the allocation of resources.

It can be argued that the system was driven by a set of rational economic criteria, which were those of the State rather than the individual. However, in the light of the plans of the present Government for a privately operated, market driven system of agriculture, the rational criteria for resource allocation and the measures of economic efficiency will change. With decisions made at the local level by individuals, the criteria for decision making will become more local and more personal than national and as a consequence the pattern of agriculture may well change.

3.4 RISK AND RISK MANAGEMENT

A major problem for planning any new structure for Mongolian agriculture is how to manage production risks. Agricultural production in Mongolia is a high risk activity. Climatic stress imposes severe potential limits on productivity and occurs in an erratic and unpredictable manner. As a consequence, the rational approach to resource allocation in agriculture is not so much to maximise productivity or income, but rather to minimise the penalties from risky outcomes.

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The traditional Mongolian animal husbandry system appears to have been highly risk averse. It was substantially a non cash system producing food for the nomadic herdsmen and their families. As a low technology system entirely dependant on the availability of natural pasture, it was almost entirely input driven. It stressed mobility to maintain access to adequate pasture supplies, the preservation of reserve pasture for winter feed, mixed herds of camels, horses, cattle, sheep and goats to maintain variable response capability to external pressures and carrying stock to older ages within herds for continuity of food supply and greater survival capability.

The present livestock system within the co-operatives has maintained the traditional mobility of livestock production, though it has rearranged the grazing areas. The original 72 grazing districts with both high altitude and lower areas have now given way to 255 grazing areas which are more restricted in terms of their range of altitude and climatic or geographic zone and hence of summer and winter pasture. The other change in the system from the traditional mode is that it became output driven. That is, State targets imposed choices of action on herdsmen that they may not have otherwise made.

As a result of central planning, livestock herd structures became managed on a more risky basis. While the greater specialisation allowed closer management of individual herds it was accompanied by an increase in the percentage of breeding females in order to maximise the productive capacity of the herds. Except for camels and horses where there were adult working males, cattle, sheep and goat herds were close to the maximum possible number of breeding females consistent with the offtake of young stock at reasonable sale weights. With breeding females and young stock being the most at risk from physiological stress, these herd structures had the least natural defense against climatic stress.

The overall changes in the management of livestock enterprises have had the effect of increasing the exposure of families to risk. That is, individual families who are the basic decision makers, were moved away from the traditional self sufficiency in animal based foods and mixed herd structures. They were involved in herds whose age and sex composition are more risky than the traditional system and generally had only one class of animals under their direct management. Their defense against this increased risk was a greater dependence on communal assistance and capital investment.

The present situation with livestock herds is a direct consequence of the output driven, centrally imposed system of production. This has created a more risky situation than might have been expected to be the case if individual herdsmen had been left to their own choice and were dependant on their own resources.

The Government is proposing to abolish centrally imposed targets after the 1991 season and allow herdsmen freedom of choice in what is produced and sold. One consequence of this position must be expected to be that the composition of herds will change with a smaller proportion of breeders and a greater mixture of age groups which will result in less annual offtake, at least in the short run, than was the case under the command system of agriculture. This effect could be seen in its simplest terms as a return to the old Mongolian ways of herd management. In reality however, it would be more a reflection of the shift from central risk taking back to private risk taking.

Communal assistance and capital investment has been up till now, a State function. It is the State which has increased the risk at the suur level and the State which has attempted to manage the risk offsets. The State has provided the capital and made the decisions on the allocation of resources for risk aversion strategies and accordingly, retained the right to manage those strategies.

The nature of the risks and how they are carried is different with crops only in that the crop salaas appeared to carry little or no personal risk from crop failure. As crop production was largely a function of state farms, the risks attached to crop production were mostly carried by the State.

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The current move towards crop salaas becoming technically and financially independent must result in changes in crop production decisions based on the degree to which they will be exposed to the risk of financial loss. Certainly crop prices will need to rise to ensure that there is a reasonable chance of making a return on the invested capital and a reasonable living for the crop producers. There will be a problem in that crop yields are highly variable between years. Producers will need to learn to accumulate working capital in the better years to tide them over the poor years.

Deciding how production risk will be shared between producers and consumers must be a major task in determining the shape of any new system of agriculture in Mongolia. This largely revolves around a new marketing system for agriculture which offers producers a chance to recoup the real cost of production and to obtain a real return on investment and reward risk taking.

3.5 AGRICULTURAL MARKETING

Under central planning there were no official agricultural markets in Mongolia. The Government owned the farms and was the monopsonist buyer. Prices were set at the lowest average cost of production which meant that many farms made losses. Certain forms of production such as liquid milk were highly unprofitable at the Government prices. In these circumstances the Government would make compensatory payments to the loss making farms from time to time. There were no penalties for continued losses which were simply allowed to accumulate. Because production was linked to state targets which were set at, or just above, the productive capacity of most farms, there was little surplus production to form the basis of any private trading.

In 1991, state targets were set at the beginning of the year for all enterprises. The Government is requiring the enterprises to fulfil these targets, though it is not clear what penalties might be incurred by any enterprise which fails to meet its target.

The Government has foreshadowed that for the 1992 production year there will be no state targets and prices of the principal commodities will be freed. As a vehicle to link producers, processors, traders and consumers it has established an Agricultural Commodity Exchange, chaired by a former Deputy Minister of Agriculture. Trading on the Exchange is to be carried out by brokers representing producer or consumer interests. The Exchange is in Ulaanbaatar, though brokers are expected to have representatives at country locations. It is by no means clear however, how this exchange will work or how rapidly it will be able to establish equilibrium price levels for important commodities.

A freely operating market for fresh meat and vegetables is already beginning to emerge, with direct producer-consumer links. The market prospects for stored vegetables, potatoes and onions, has yet to be tested. The success of an open market in these commodities may rest on creating competitive access to the storage facilities and better links to a yet to be competitive retail sector.

Some commodities such as milk and eggs will remain in chronic short supply for the foreseeable future and it is hard to see how supply and demand can be matched without some form of intervention. For commodities such as wheat and barley, where there is nominal national self-sufficiency, Government may be forced to intervene to establish a price which will encourage producers to plant sufficient area to meet national needs.

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3.6 FUTURE FARM STRUCTURES

In Mongolian agriculture the suur or the salaa is the focus for management of work and the application of improved technology. There are no sole producers in the sense of individual farmers as in many western countries, however because the suur or salaa is the basic level of decision making in agricultural production, agriculture can still be considered as being essentially a family activity.

In searching for a new structure for agriculture, one prospect is to build "family" farms around suurs or salaas who will own livestock or farm machinery and who will lease land or pay grazing rights for access to pasture in some specific area. Land has never been privately owned in Mongolia. However, the Government is contemplating private ownership of house allotments in the towns and possibly blocks of 10 to 50 ha for vegetable production.

One pointer to the future is the break-up of Bayancogt state farm. In April 1991 the management and workers of the farm voted to break it into 38 separate enterprises and this proposal was accepted by the Government. The original farm was some 80,000 ha with 28,000 ha of crop land, some vegetable land, 100 ha of irrigation, a 1200 cow intensive dairy unit, 25,000 sheep, 1500 horses and a small piggery. It had a central workshop, three grain dressing centres, a flour and feed mill, a transport unit, two construction units and a bakery.

The workers resolved that as far as possible they would create mixed farms rather than single activity enterprises. They created 28 individual farms, being 20 cereal/sheep farms, three intensive dairies and four intensive crop farms to produce vegetables or fodder and a piggery. There were eight service centres covering grain dressing, machinery repair and supply, transport, the flour and feed mill and two construction units. In addition there were the bakery, the soum centre (local government administration) and the Bayancogt firm.

The 20 cereal growing farms had a total of 232 workers, an average size of 1200 ha of crop land, 300 sheep and 25 horses and a pro-rata share of the farming plant. The 1200 cow dairy was divided into three units. Each dairy had 70 workers and received 400 milkers, 350 young stock, 1200 ha of crop land for fodder production, 720 sheep, 80 horses and some farming plant. All units, whether farming or service units received some livestock. This included a large allocation of stock to the soum centre (district administration) from which it will provide food for pensioners, the school hostel and the social club.

The ex-manager has set up a service unit which he calls the Bayancogt firm. He hopes to generate income for the firm by representing the various farms in the purchase of inputs and the sale of product. The farm had purchased a computer which he hopes to take over and use to provide bookkeeping services for the farms.

At this stage it is far from clear on what basis the assets of the farm have been handed over to the workers. The livestock and plant could be leased, sold on terms or treated as a gift. While individual parcels of crop land are demarcated, the arrangement for the sharing of the grazing land between the various enterprises is not clear.

The alternative to the "Bayancogt" model is the "Bayanchandaman" model. This farm has proposed that it will subdivide into four multi-enterprise farming businesses with the workers as wage earning shareholders and with an elected management team. As the farm is larger than Bayancogt, each of the four businesses will still be large by any standards. It is by no means certain whether this model will achieve any of the efficiency gains which were supposed to be created by breaking up the old structure. It is perhaps not surprising that the Bayanchandaman model is more popular than the Bayancogt model as it closer to the farming structure with which everyone is familiar.

The agricultural co-operatives are the dominant force in livestock production. Eighty per cent of all the livestock are found on co-operatives, of which 60 per cent are Government property and 40 per cent privately owned. Since its national conference in June 1991, the Supreme Council for Co-operatives has developed its policy on privatisation which it intends to have in place for the 1992 production year.

It is proposing that all co-operatives will be transformed into limited companies with a share capital and that the existing members will be able to take shares in the new company. It is understood that the Government has transferred ownership of the publicly owned livestock to the individual co-operatives and they in turn will be able to transfer or sell the bulk of these animals to their members.

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These transactions will be directly linked to the Government proposal to issue every citizen with vouchers to the value of Tg 10,000. These will be in the form of two certificates, the red certificate or small privatisation worth Tg 3000 which can be used to buy real assets, in this case livestock and the blue certificate or large privatisation worth Tg 7000 which can only be used to buy shares in an enterprise.

The Council is proposing that all co-operative members will be able to use their small certificate to purchase some of the co-operative livestock. It expects that 30 per cent of existing co-operative stock will be transferred in this way. The proposals suggest that a further 30 to 40 per cent of the livestock will be sold for cash with the proceeds becoming part of the assets of the co-operative company. There will be some preferential right to purchase this class of livestock. Existing members will be entitled to buy 60 per cent, a further 30 per cent will be allocated on the basis of length of membership of the co-operative, while the remaining 10 per cent will be sold to members of the local community who are not herdsmen members, such as teachers, medical workers and drivers.

The final result will be that of the 80 per cent of national livestock on the co-operative land, some 80 per cent will be privately owned while the co-operatives will retain 20 per cent. The reasons given for the retaining of some stock is that this will be the superior breeding stock and will represent a national nucleus herd which will continue under central management. Whether this is a valid argument is a moot point.

The Co-operative Council is expecting that co-operative members will use their Tg 7000 large privatisation coupon to purchase their share in the company which will replace the co-operative. At this stage it is not clear what the face value of the shares will be, nor whether the issue price will bear any relationship to the asset backing of the shares.

There is a move towards the proposed co-operative companies providing services to members on a fee paying basis. These will include veterinary services, technical advice on animal husbandry, breeding stock, transport for moving gers and building materials for livestock housing. The co-operative would continue to assist the Soum administration to provide certain social services such as school accommodation, cheap food for pensioners and maternity hostels.

The co-operative will generate income from the fee for service. It also expects that at least some co-operatives will act on behalf of members in selling produce or buying farm inputs and that it will charge some form of percentage fee for such services. In addition the co-operatives propose to charge a grazing fee for all livestock based on a sheep unit. The fee rate will be set by the Land Tenure Institute which will evaluate all land and establish levels for all regions. The fee will be divided between the Government and the co-operative, though the basis of the division is not known. The Government will establish special reserve areas such as stock routes which will remain under public ownership and administration.

The soum administration has been separated from the co-operative management. Previously state and economic matters were intermingled at the level of the co-operative administration. In future, the soum officers will handle all civil administration and the co-operative management will limit themselves to running the business. Medical, education and social services for the communities will be administered by the relevant national Ministries.

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4. PROBLEMS AND PROSPECTS IN THE AGRICULTURAL SECTOR

4.1 LIVESTOCK PRODUCTION

4.1.1 The present situation

There has been considerable development in agriculture over the past 30 years. The traditional extensive pastoral system was strengthened by investment in infrastructure such as winter housing for stock and the development of wells and water supply. Intensive animal husbandry was developed to increase the production of milk, meat and eggs. The Virgin Lands programme of the late 1950s brought 500,000 ha of land into arable farming, which has steadily increased to the present area of 1.35 million ha. The national livestock population is currently at near record levels of 25.9 million head, of which 12 million head are breeding stock.

Agriculture accounts for 20 per cent of the national income and 43 per cent of exports. Per capita consumption of meat is 89 kg dressed weight and 150 litres of milk. Average wool production is 1.4 kg per sheep and one cow on a mechanized dairy farm produces 2200 to 2500 litres of milk.

The official view is that despite these advances the resources of the extensive animal husbandry sector have not been fully utilized. It is considered that the inadequacies of the centralised planning and purchasing systems, erroneous agricultural pricing policies and deficiencies of the veterinary service and breeding work have combined to limit the development of agriculture and growth of agricultural production and have aggravated the social problems of agricultural workers and herdsmen. As a consequence of Government policies, agriculture has been unprofitable which has sapped the independence and willingness of producers to take the initiative in developing production.

Capital investment in agriculture has often been inefficient, in that it has not been based on strictly economic criteria. Much effort and capital has been used to establish large over-centralised complexes for intensive production of animals which were not well suited to the harsh climatic conditions of Mongolia. The highest priority must be the improvement of technical knowledge and managerial competence in the production of better quality fodder and in the operation of intensive farming systems.

4.1.2 Development Trends

Looking ahead for the next five years, Government plans anticipate the number of livestock will remain at around 26 million head which will represent an annual production of approximately 500,000 tonnes liveweight of meat and 27,000 tonnes of wool.

There has been a policy for some time to establish closer links between production and processing of animal products, particularly for the local processing of meat in country areas. With this purpose in view, a study is to be undertaken by FAO in 1991-92 to examine the feasibility of establishing small-scale low capacity slaughter houses with refrigerated storage in country areas to reduce the long distance droving of animals to slaughter points. As a separate issue, but following the same policy concept of local processing in country areas, some 8000 tonnes of wool will be retained for processing in the countryside to satisfy local needs in felt and felt boots.

The Government wishes to encourage the improvement of livestock quality, to raise productivity per head and to protect the national gene pool. To this end it will set up a unified national breeding service. It wishes to stimulate an increase in meat production through the raising of local high liveweight breeds of sheep such as the Mongolian fat-tail, Uzemchin, Barga and Torguud.

It is hoped to expand the area of distribution of wool producing local breeds such as Bayad, Gov'altai, Baidrag, Sartuul and Sutai. Joint venture arrangements in co-operation with other

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countries for the local production of high quality woollen items will be sought . It is planned to breed fine and semi-fine wool sheep at 26 farms and cross-breeding with imported merino breeds will be carried out to improve the quality of wool. The target is to raise wool output by up to 3 kg per head.

In the 28 years from 1960 to 1988 there have been some underlying changes in the structure of the national grazing livestock herd. In 1960 horses comprised 31 per cent by livestock equivalents of the national herd and camels 15 per cent. By 1988, absolute horse numbers had remained almost unchanged but in relative terms had declined to 25 per cent of the national herd, while camel numbers had declined by 26 per cent in absolute terms to comprise only 10 per cent by livestock equivalents. By contrast cattle numbers rose from 22 per cent to 31 per cent and sheep numbers from 24.5 per cent to 27 per cent as livestock equivalents. These changes reflected both Government priorities for production as well as the relative profitability of the various branches of livestock production.

Within these changes there has been an additional restructuring between public and private ownership. Cattle numbers as livestock equivalents rose from 37 per cent in private ownership to 47 per cent while sheep rose from 15 per cent to 18 per cent. Privately owned horses rose from 33 per cent to 43 per cent while camel ownership dropped from 35 per cent to 14 per cent.

Horses are raised for breeding, the production of milk, for stock work and for racing. They provide the greater part of the winter meat supply in rural areas. In addition some 50,000 head have been exported live for meat supply to the USSR representing around 15 per cent of total meat exports. To improve the overall quality of horses, auctions of stallions will be opened to improve access to superior breeding stock.

It is considered that there is a need to revive camel activity to increase production of wool and milk, especially for herdsmen and their families in the Gobi region. There is also scope to increase the use of camels as draught animals. Attempts will be made to establish joint ventures to manufacture camel hair items which will be able to meet world standards.

It is hoped to increase beef production. At two or three farms, Limousin cattle will be cross-bred with the Kazakh white head breed for foundation stock. An embryo transplant venture has been established with interests from the USA with the aim of raising milk yields per cow on intensive dairy farms to 4500 litres per year or by 35 to 40 per cent. Small-scale farms with 25 to 30 cows will be created through the provision of small-scale technology loans to individual farmers as an adjunct to the existing larger dairies .

Cashmere production has significant export potential for Mongolia. The principal technical problem is that the breeds which produce the best quality have the lowest yield. Greater resources are being devoted to increasing technical performance and the area of distribution of pedigree breeds is being expanded. Sales of improved dams and sires need to be organised.

Attempts will be made to develop intensive livestock production including pig, chicken, duck geese and rabbit raising together with bee-keeping in co-operation with foreign countries.

4.1.3 Small Industries

At present livestock breeding is based on pastures and serves purely as a source of raw materials. The processing of primary products is generally highly centralised with only three meatworks and ten flour mills for the whole country, most of which are in or near the three principal cities. Considerable cost is incurred in moving raw material to these centralised processing units and in transporting finished product back to consumers in the countryside.

As with the local processing and storing of meat, it is Government policy to develop small-scale units for the milling of grain for flour and milk processing for butter making and the production of powdered milk for winter consumption. Additional attention is needed in the development of small-scale by-product processing with items such as duck feathers, pig hides and the production of meat and bone meal and home industries such as cashmere spinning.

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The biggest single problem for intensive animal production is a serious shortage of good quality feed. In particular there is a lack of high protein feeds such as pulses or fodder legumes. The development of domestic production of improved fodders is an urgent necessity for improving milk output in particular.

4.1.4 Technical Upgrading

There has been substantial investment in agriculture, particularly in buildings and machinery. However much of this has been poorly maintained and is worn out, or at least out-of-date. Considerable reinvestment or re-equipping of farms will be necessary to maintain, let alone improve output.

As at the end of 1989, total capital invested in agriculture was reported by the Central Statistical Board as Tg 7197 million. The Ministry of Agriculture have detailed figures at the same date which show total assets employed on state farms as Tg 3480 million. State farms undertake 80 per cent of crop production. In addition they have all the mechanised dairies and intensive piggeries and as a result have the greater share of the investment in buildings and machinery. The co-operatives have much less investment in buildings, but have 80 per cent of the livestock. Details of the total investment in state farms is given in Table 12.

Table 12. Capital Assets of State Farms in Mongolia at year end 1988 to 1990

	1988		1989		1990	
	Tg million	percent	Tg million	percent	Tg million	percent
Productive Sector						
Building & Improvments	1618.2	47.1	1663.9	47.8	1650.4	50.5
Machinery	910.7	26.5	916.3	26.3	874.6	26.8
Inventories	40.4	1.2	45.1	1.3	48.1	1.5
Livestock	284.2	8.3	296.2	8.5	238.1	7.3
Other	3.3	0.1	3.0	0.1	18.8	0.6
Subtotal	2856.8	83.2	2924.5	84.0	2830.0	86.6
Non-productive Sector						
Building & Improvments	546.3	15.9	532.3	15.3	425.1	13.0
Inventories	9.5	0.3	10.0	0.3	6.9	0.2
Other	20.8	0.6	13.5	0.4	6.2	0.2
Subtotal	576.6	16.8	555.8	16.0	438.2	13.4
Total	3433.4	100.0	3480.3	100.0	3268.2	100.0

Source: Ministry of Agriculture

The largest poultry farm in the country in Ulaanbaatar is in need of environmental controls for its layer houses and improved feed storage and mixing facilities. It also is in need of better quality parent stock. Many other poultry ventures suffer from extremely low productivity. The technology and know-how of piggeries needs to be modernised to eliminate waste. An agreement was reached for assistance in this field with the USSR and Bulgaria, but it is now uncertain to what extent this will be carried through.

There are 41 mechanized dairy farms which operate to provide urban areas with milk. The buildings are in a poor state of repair, equipment is worn out and their future reliable operation is precarious. There are four new large-scale dairies under construction based on a decision made under the previous Government. It is likely that these will be the last of such farms to be built. Instead, it is likely that small farms will be developed. There is an embryo-transplant unit being developed at the Talbalag unit of Jargalant state farm with American technology which will be used to breed improved quality Friesian/Holstein cows. This will require the purchase of donor cows from abroad and the assistance of specialists for the training of personnel. There is a need for machines producing dairy products, butter, yoghurt, ice-cream and milk powder in country areas, so that the local population can have access to dairy products.

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The intensive dairies in the six Hangai and Central zone aimags which serve Ulaanbaatar have a serious shortage of good quality processed feeds for their milking herds. Significant improvements are needed in both the quality of the ingredients used in manufacturing such feeds and in the composition of the manufactured feeds themselves.

A shortage of winter fodder for extensive grazing animals is arguable the largest single problem for national agriculture. Scientists have estimated that an additional 50 fodder units per sheep carried through the winter are necessary to improve survival rates. While this is only 10 per cent of annual fodder needs, it is crucial in the feed deficit period of late winter/early spring. The problem is both in the quantity of fodder and in the quality. The numbers of animals which can be carried through the winter are limited by the available quantity of stored hay. Attempts to develop and improve intensive animal industries, particularly dairying, pig and poultry production are restricted by the low quality of the available animal feeds.

The livestock water position in the Gobi and steppe regions is a major limitation on the utilisation of the extensive pastures in these areas and on the survival rates of existing stock. It is estimated that Tg 380 million are required to improve the position to satisfactory levels. Of this sum Tg 75 million would be required for exploration for underground water, Tg 145 million for construction works and Tg 160 million for the repair of old wells.

There are currently several major management problems concerning fodder production for livestock. The move to the livestock leasing system and requiring herdsmen to provide their annual operating expenses from their own resources, has meant that herdsmen have been reluctant to order as much fodder as before. As the apparent market for fodder has decreased, the state fodder farms are refusing to produce fodder without advance orders. In addition, the Aimags and especially the agricultural co-operatives have drastically reduce sowing of crop for silage and green fodder and herdsmen are not buying green fodder because of high prices. Aimags and co-operative farms display interest in hay only in the case where the state agrees to cover their transport expenses.

There is serious concern that on present indications there will not be enough grain for manufacture of processed feeds by the period 1995 to 2000. A further aspect of the problem is that enterprises producing concentrated pelletised feeds have worn out [redacted] equipment, and spare parts are not available. As a consequence it is not possible to produce integrated and pelletised fodder at full capacity.

There is considerable scope for the mechanization of the extensive pastoral system. Pastoral livestock herding is based mainly on manual work, though according to estimates of specialists, some 26 out of 80 regular tasks can be mechanized. To improve the efficiency of pastoral production and the productivity of individual herdsmen it is therefore important to use labour-saving small-scale technology where possible, develop mechanical technology suitable for Mongolian conditions and design equipment which can be domestically produced.

Rural electrification is another serious issue. The problem of the energy supply to the rural population occupies an important place in the state electrification policy. The provision of electricity for herdsmen is seen as important in meeting their everyday needs and improving their lifestyle. Along with the purchasing from abroad of solar electricity generators and solar batteries it is necessary to organize domestic production of wind and bio-gas generators and solar batteries. It is also necessary to organize repair works for this alternative technology.

4.1.5 Veterinary Services

Veterinary boards and laboratories have been set up in all aimags and veterinary brigades in all soums (local administrative areas). The country used to import about 20 kinds of medicinal preparations worth some Tg 10 million to fight animal parasites. However in recent years, due to price increases and the lack of funds, the quantity purchased has not been sufficient, nor have they been received on time.

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The bio-combine laboratory at Songino was built in 1973 with technical assistance from Hungary. No technical renovation has been carried out at the laboratory since its construction 18 years ago. Equipment is worn out and spare parts are not available. The position with spare parts and chemicals is so critical, that production will have to be suspended by the end of 1991 unless supplies are received before that time. Local Aimag and town veterinary laboratories require Tg 150 million or US$ 3.8 million for the purchase of ultra-centrifuges, moniescent microscopes and chromatographic apparatus.

Of late, some veterinary organisations and newly established firms have started producing some herbal preparations. In the absence of modern technology traditional folk medicine methods will be used for the treatment of animals.

4.2 CROP PRODUCTION

4.2.1 Current Situation

In the short period of 30 years crop production has become an independent branch of agriculture occupying an important place in satisfying domestic needs in wheat and cereals and supplying the grazing industry with fodder. The annual arable area is 1.3 million ha. During the last five years the annual harvest has included 800,000 tonnes of grain and 130,000 to 160,000 tonnes of potatoes and vegetables together with the preparation of over 500,000 tons of fodder.

Between 1958 and 1960 there was a large programme to open up virgin land for grain production. In the haste to open up new land some areas which were unsuitable were ploughed and then abandoned. Soil conservation measures were not taken from the beginning and crop production was developed by increasing area rather than by intensifying or improving yields.

Tractors, harvesters and other agricultural machinery manufactured in the Soviet Union are the basis of national production. At present there are some 11,000 tractors, including 8400 wheeled and 2600 crawler tractors and 2500 NIVA harvesters employed. Table 13 sets out the current stock of key items and the estimates of the purchase requirements over the ten years 1991-2000.

Experience over many years has show that under Mongolian climatic and production conditions the MTZ type wheeled tractors are the most suitable. The DT-75 caterpillar and T-150K wheeled tractors are not used to capacity.

Table 13. Existing National Stock of Agricultural Machinery 1991 and plans for new purchases 1991-2000

Item	Existing Stock			Planned Purch		
	No	New Val Tg m	Av Life yrs	No	USSR Tg m	Other Tg m
Tractors						
Crawler DT75	2632	145	12.5	1240	107	
Wheel T150+K700	489	76	11	200	40	
Belarus Wheel	7827	170	12.8	2000	112	
S/t Tractors	10948	391	3440	219	40	
Combine Harv	2496	170	9.4	1100	120	12
Reaper	2007	23	10	1000	50	

Source: Ministry of Agriculture

Crawler tractors have an effective life of 9-11 years however the cost of repairs and maintenance over this period is two to three times the initial price. They will service 533 ha/year which is 56

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per cent of the rated work capacity. Grains and other crops are harvested by SK-5 harvesters which are better suited to Mongolian conditions.

In recent years the total imports of direct inputs of fuel, fertilizer and chemicals for agriculture total some Tg 290 million at the pre 1991 devaluation exchange rate. Annual fuel requirements for agriculture in the three years 1987-89 averaged 90,000 to 95,000 tonnes of diesel fuel, 60,000 to 70,000 tonnes of petrol and some 6000 tonnes of oil. As at May 1991 there were sufficient supplies of diesel fuel, however petrol and engine oil were crucial problems.

Mongolian soils are low in natural fertility. In addition to fully utilizing local fertilizers, between 50,000 and 60,000 tonnes of fertilizers need to be imported. Details of the average quantity and value of fuel, fertilizers and chemicals used in agriculture over the three years 1987-89 are given in Table 14.

Table 14. Average Usage of Fuel and Fertilizer in Agriculture 1987-89

Item	State Farms tonnes	Co-ops tonnes	Total Qty tonnes	Total Value Tg '000
Fuel				
Diesel	44980	49460	94440	128439
Benzine	18735	46701	65436	98154
Oils	2900	3384	6284	28558
Lubricants	57	28	85	325
Total	66672	99573	166245	255476
Fertilizer				
Nitrogen	26049	5256	31305	15026
Phosphorous	16401	3150	19551	12806
Potash	2953	390	3343	1170
Total	45403	8796	54199	29002
Agricultural Chemicals				
Herbicides	366	161	527	4215
Seed dressing	85	60	145	1302
Total	451	321	672	5517

Source: Ministry of Agriculture

With the critical lack of foreign exchange there will be virtually no fertilizer imported for the 1991 crop year. Nor will there be much in the way of agricultural chemicals for pest control. Looking ahead, resolving the fertilizer problem will require the application of foreign technical knowledge in the production of mineral fertilizers. It will also require organizing the domestic production of fertilizers using waste materials such as unused poultry feathers, sediments of waste water from the bio-combine and waste from stone-cutting enterprises. However, weeds will still need to be controlled by chemical methods with herbicides.

Annual purchases from the USSR of agricultural machinery, spare parts, seeds, fertilizers and fuel have been of the order of Rbl 66 to Rbl 70 million. In 1991 an agreement was reached for the purchase of US$ 33 million worth of these items, however only US$ 3.5 million worth of materials of the US$ 19.0 million worth agreed upon were actually bought. Prices of some spare parts have increased considerably. For example, spare parts which previously cost Rbl 1 have now reached US$ 1.5. The price of tractor wheels has increased by a factor of 5 to 6 times.

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4.2.2 Development Trends

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It is estimated that to satisfy flour and grain needs over the next ten years will require not less than 1.34 million ha of arable land to produce 990,000 tonnes of grain in 1995 and 1.08 million

tonnes in the year 2000. In the five years 1986-90, average yields were 1.25 tonnes/ha. The 1995 target is 1.38 tonnes and in 2000, 1.5 tonnes/ha. To achieve these increases will require greater use of fertilizers, soil conservation measures and the application of intensive technology.

If these targets are achieved it should be possible to supply 395,000 to 450,000 tonnes of wheat and produce 265,000 to 300,000 tonnes of flour. In future it is hoped that it will be possible to meet per caput flour needs by reducing the amount of grain supplied for fodder enterprises. Considering the variability of climate and the consequent considerable variability in crop production from year to year, it is important to store some grain in abundant years and to set up permanent state reserves.

The question of mechanised grain dressing centres is of great significance. Instead of the existing large centralised seed cleaning complexes, small localised units are needed. The local production of some widely used spare parts for these centres is a key issue. In particular the manufacture of chains, conveyor belts, plough discs and saws. It is estimated that it will be necessary to spend some Tg 40 million in this area to support the production of grain and fodder crops.

At present there are 140 irrigation systems with an area of 33,500 ha. Much of the area is in poor condition and in need of renovation. Irrigated production has considerable potential for the production of sugar beet, oilseeds, green crop for silage, vegetables and flax. In the warmer areas of the Gobi it may be possible to produce tobacco and rice.

Investment in potato and vegetable production needs to be strengthened and storage capacities must be increased. The production of pickled, dried and tinned vegetables must be considered. The estimated investment is of the order of Tg 15 million.

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5. AGRICULTURE IN THE NATIONAL ECONOMY

Prior to 1921, Mongolia was a simple agrarian economy with a feudal system of government. The greater part of the population were semi-nomadic herdsmen living and working in a lifestyle scarcely changed in a thousand years. The Sukhebator Revolution of 1921 ended the feudal system and the control of the country from China. However, it set in train a period of nearly 20 years of political instability while the Communist Party struggled to establish its hold on the country. It was not until 1940 that the Communist Government was able to embark on a strategy of economic change.

During the 1940s, a national industrialisation strategy was adopted. However, the development of industry increased rather than reduced the significance of agriculture in the economy. Prior to industrialisation, the role of agriculture had been to supply foodstuffs to the people and raw materials for export. After the development of a national processing capacity, the livestock based agriculture became a main supplier of raw materials to the light and food industries as well as producing for direct consumption.

Until the adoption of a firm socialist policy by the Communist Government, the majority of the population lived in the countryside directly employed in agriculture, either as owner operators or working for large livestock owners. Under the centralised Communist system the position was reversed with all agricultural workers being employees of the State. At the same time Government pursued a policy of rapid development of mining and construction industries which needed a large labour force and led to a significant growth in the urban population. The new Government is now faced with a serious problem of urban unemployment in these industries.

Despite industrialisation, agriculture still remains one of the important sources of employment for a considerable part of population. In 1940s, 97 per cent of the population lived in the countryside and 90 per cent of the workforce in the production sector of the economy was employed in agriculture. By 1975 when the population was 1.4 million, these figures were 54 per cent and 57 per cent respectively. In 1989, in a population of 2.1 million, rural population was 43 per cent and agriculture provided 41.2 per cent of productive sector employment or 29.5 per cent of total employment.

The increasing number and urbanization of the population generated a demand for a wider range of foodstuffs, particularly bread and milk products which in turn led to the development of more intensive systems of agricultural production such as dairy, pig and poultry farms which were new to Mongolian agriculture. Agriculture still has a significant role in the provision of food for the people and raw materials for light industry and food factories. More than 75 per cent of the raw materials and other inputs for leather and shoe factories, wool processing mills, milk and bakery plants are from agriculture. 43 per cent of exports are agricultural, mostly livestock products.

Despite the significant place of agriculture in the economy, the country cannot provide all the required foodstuffs. At present the country has shortages to estimated demand of 55 per cent in milk products, 75 per cent in vegetable and fruit and 50 per cent in eggs. Other foodstuffs needed are sugar, vegetable oil and fruit products which can be supplied only through imports. In addition the supply of medicine is very poor. These factors have a serious impact on the health of the population.

Economic statistics in socialist economies are not strictly comparable to their nominal equivalents in western countries. The statistics used in this review are those published by the Central Statistical Board. These figures may not necessarily be the same as those published by other sources such as the World Bank or the IMF.

In collating economic statistics in socialist countries, economic activity is divided into productive and non-productive sectors. The productive sector includes all activities which directly produce goods or services such as industry, agriculture, construction, transport, communications and trade and supply. The non-productive sector includes housing, science, education, arts, health, sports, insurance and administration, including Government.

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In 1919 agriculture was the main branch of the national economy and produced 87.3 per cent of national income. By 1940 it had fallen to 61 per cent, 40.0 per cent in 1975 and 19.9 per cent in 1989. Table 15 sets out the structure of Gross National Product between 1980 and 1989.

Table 15. Structure of National Income (percent) at Current Prices

Sector	1980	1985	1988	1989
Industry	29.3	32.6	33.5	33.8
Agriculture	15.0	16.2	19.1	19.9
Construction	6.1	5.0	7.1	7.1
Transport	10.1	10.1	10.0	9.0
Communication	1.1	1.4	1.5	1.5
Trade & Supply	36.3	33.0	27.0	26.9
Other	2.1	1.7	1.8	1.8
Total	100.0	100.0	100.0	100.0

Source: "Mongolian Social and Economic Development 1989" Central Statistical Board 1990

Table 16 sets out data for Gross National Product for the same period but at constant 1986 prices.

Table 16. Gross National Product (Tg Million) at Constant 1986 Prices

Sector	1980 Tg ml	1985 Tg ml	1988 Tg ml	1989 Tg ml
Industry	1575.2	2390.0	2604.6	2902.3
Agriculture	1004.9	1348.1	1367.1	1556.3
Construction	342.1	381.0	563.1	617.2
Transport	480.7	658.5	786.3	774.3
Communication	52.5	93.6	119.6	129.5
Trade & Supply	1365.0	1770.8	2129.9	2327.4
Other	119.4	134.7	142.0	154.9
Total	4939.8	6776.7	7712.6	8461.9

Source: "Mongolian Social and Economic Development 1989" Central Statistical Board 1990

Table 17 sets out the structure of capital assets in the productive sector by sub-sector between the years 1980 and 1989 as percentages of national investment.

Table 17. Structure of Capital Assets at year end (per cent) by Productive Sector at Current Prices

Sector	1980 percent	1985 percent	1988 percent	1989 percent
Industry	28.4	33.1	29.9	31.5
Agriculture	19.7	15.8	14.2	13.7
Construction	2.3	2.6	4.5	3.5
Transport	10.6	8.5	9.5	9.5
Communication	1.2	1.6	1.6	1.6
Trade & Supply	3.9	3.2	3.1	3.8
Other	0.0	0.0	0.0	0.0
s/tot Prod Sect	66.1	64.9	62.8	63.5
Non-productive Sector	33.9	35.1	37.2	36.5
Total Assets	100.0	100.0	100.0	100.0

Source: "Mongolian Social and Economic Development 1989" Central Statistical Board 1990

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While overall investment in agriculture rose by Tg 2530 million or 54 per cent in the ten year period, the proportion of national capital invested in agriculture declined from just under 20 per cent at the end of 1980 to just under 14 per cent by the end of 1989.

Table 18 sets out the value of the capital assets in both the productive and non-productive sectors by sub-sector at current prices.

Table 18. Capital Assets at year end (Tg million) by Productive Sector at Current Prices

Sector	1980 Tg ml	1985 Tg ml	1988 Tg ml	1989 Tg ml
Industry	6739.2	12929.4	14809.4	16508.4
Agriculture	4666.6	6174.1	7039.3	7196.9
Construction	552.7	1024.9	2207.3	1822.2
Transport	2507	3325.2	4701.2	4985.1
Communication	289.7	625.1	778.4	813.8
Trade & Supply	914.4	1250.6	1516.9	2005.2
s/tot Prod Sect	15669.6	25329.3	31052.5	33331.6
Non-productive Sector	8022.7	13724.6	18422.3	19143.7
Total Assets	23692.3	39053.9	49474.8	52475.3

Source: "Mongolian Social and Economic Development 1989" Central Statistical Board 1990

The country's agricultural development has remained stagnant for a number of years. Animal husbandry is very much dependent on environmental and climatic conditions and remains an extensive pastoral system. For many years losses of adult stock have not been lower than 800,000 per year (4.5 per cent) and losses of new born stock more than 1 million (10 per cent).

The only fertilizers and pesticides available are fully imported. There are no sophisticated methods of control against many of the endemic infectious and parasitic diseases of livestock which cause heavy loss in productivity. Every year agriculture needs Tg 290 million to Tg 310 million of imported products such as machinery, spare parts, seed, fertilizers, fuel and chemicals. This is 16.5 per cent of imports excluding consumer items and raw materials.

Mongolia must import a wide range of raw materials for industry as well as finished and semi-finished goods. The largest item is machinery, equipment and spare parts followed closely by fuel, mineral and other raw materials. Mechanised agriculture is wholly dependant on imports for machinery, fuel, fertilizers and chemicals.

Table 19. Principal Imports by Value (Tg million)

Sector	1980 Tg ml	1985 Tg ml	1988 Tg ml	1989 Tg ml
Machinery, vehicles, equipt	539.6	1182.7	1002.2	850.6
Fuel, minerals, raw matls	392.4	935.6	1111.1	783.9
Chemicals, fertilizers	102.7	191.6	185.3	179.5
Construction materials	30.2	47.1	47.6	65.8
Non-food raw materials	39.1	92.0	110.7	115.1
Food raw materials	47.1	46.7	3.1	23.6
Food products	137.8	204.4	237.3	220.0
Consumer goods	342.2	562.2	612.4	627.5
Total	1631.1	3262.3	3309.7	2866.0

Source: "Mongolian Social and Economic Development 1989" Central Statistical Board 1990

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Mongolia has operated a significant trade deficit for some years which has been covered by foreign financial assistance, particularly grants and soft loans from USSR and the CMEA bloc. As a consequence there is a substantial debt to the USSR which increased substantially in the five years 1986-90. In common with other CMEA countries, Mongolian exports were valued in so called "convertible roubles".

Table 20. Principal Exports by Value (Rbl million)

Sector	1988 Rbl ml	1989 Rbl ml	1990 Rbl ml
Heavy Industry & Mining	197.1	209.4	211.8
Agriculture:			
- raw and unprocessed	107.1	97.9	88.4
- semi-processed	34.9	34.4	12.9
- processed products	83.9	93.9	88.7
s/total agriculture	225.9	226.2	190.0
Confectionary	1.3	1.0	
Other primary products		4.1	1.8
Construction materials	15.0	9.3	10.7
Philately		9.8	9.8
Gold	1.7	1.7	1.6
Other	56.3	24.5	17.0
Total exports	497.3	486.0	442.7
Total Exports Tg million	2200.9	2148.2	1959.5
Total Imports Tg million	3309.7	2866.0	2742.2
Deficit: Imports - Exports	1108.8	717.8	782.7
Agric:Total Export (percent)	45.4	46.5	43.0

Source: Central Statistical Board records

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6. POPULATION AND EMPLOYMENT IN AGRICULTURE

6.1 POPULATION

Since the 1940's Mongolia has had one of the highest rates of population growth in Asia. The 1989 census estimated the total population as 2.044 million persons which was double the figure recorded in the 1963 census and three times the 684,000 recorded in 1925. As a consequence of this rapid growth, half the present population are under 25 years of age. The Communist government encouraged a rapid expansion of the population and provided incentives to those with large families. The aim was to increase the workforce to underpin the Government's industrialisation policies.

One consequence of the industrialisation policies has been the growth of cities and towns, particularly Ulaanbaatar, Darkhan and Erdenet. As a result of the growth of these cities, the rural population is said to have declined from 78 percent in 1956 to 43 per cent in 1989. Details of the population distribution based on census data for the years 1956 to 1989 are set out in Table 21.

Table 21. Distribution of Rural and Urban Population

Item		Unit	1956	1963	1969	1979	1989
Population	- Urban	'000	183.0	408.8	527.4	817.0	1166.1
	- Rural	'000	662.5	608.3	670.2	778.0	877.9
Total		'000	845.5	1017.1	1197.6	1595.0	2044.0
Percentage Rural		%	78.4	59.8	56.0	48.8	42.9

Source: National Economy of the MPR for 70 Years, Table 2.4 pp15 Central Statistical Board 1991

The uneven distribution of people between city and country dwellers is supposed to be one of the features of modern Mongolian society. However, the figures as presented may be somewhat misleading. The fact is that two thirds of the population live outside the three main cities. Details are given in Table 22.

Table 22. Distribution of population between principal cities and rural areas 1980 and 1990

	1980				1990			
	Total No	Towns No	Rural No	Rural %	Total No	Towns No	Rural No	Rural %
Cities								
Ulaanbaatar	431.3	380.3	51.0	11.8	575.0	536.6	38.4	6.7
Darhan	56.4	42.9	13.5	23.9	88.6	80.1	8.5	9.6
Erdenet	40.7	20.4	20.3	49.9	58.2	48.5	9.7	16.7
s/t Cities	528.4	443.6	84.8	16.0	721.8	665.2	56.6	7.8
Aimags	1152.8	252.2	900.6	78.1	1427.3	369.3	1058.0	74.1
Total Population	1681.2	695.8	985.4	58.6	2149.1	1034.5	1114.6	51.9
Distribution per cent								
- Cities	31.4	63.8	8.6		33.6	64.3	5.1	
- Rural areas	68.6	36.2	91.4		66.4	35.7	94.9	

Source: National Economy of the MPR for 70 Years, Table 2.7 pp16-17 Central Statistical Board 1991

The distribution of urban and rural population is better understood when it is realised that the figures for "urban" areas include all those living in the country towns and that these are not large towns. In the 1989 census, the 18 aimag centres accounted for 369,500 people or an average of 20,500 per town. A further 106,400 lived in a number of smaller towns or settlements,

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presumably soum centres. These towns are the focus for the semi-nomadic communities and are well integrated into the countryside. Both the previous and the present Government have policies to develop more food processing and storage in local areas to minimise the cost of food production and to improve the living conditions of those in the country settlements. Many of those living in these towns own some livestock and for all families, a part of the food supply comes from direct contact with producers.

6.2 RURAL WORKFORCE

In 1990 total employment in agriculture and forestry was estimated at 191,500 persons or 29.5 per cent of the total workforce and 41.2 per cent of the employment in the material production sector. Total employment in agriculture has remained remarkably stable at 180,000 to 200,000 persons over the 20 years since 1970, though these levels were down by 20 per cent on the figure for 1960. The data is in Table 23.

Table 23. Structure of the Mongolian Workforce 1960 to 1990

Employment Category	1960	1970	1980	1990
Material Production				
Agriculture	254.2	181.9	202.7	189.4
Forestry		1.2	0.9	2.1
subtotal Agric and Forestry	254.2	183.1	203.6	191.5
Other Material Production	109.4	129.2	184.7	273.0
Total Material Production	363.6	312.3	388.3	464.5
Agric/Forestry in Matl Prodn %	69.9	58.6	52.4	41.2
Total Non Material Production	54.4	75.1	122.9	184.2
Total Workforce	418.0	387.4	511.2	648.7
Agric/Forestry in Workforce %	60.8	47.3	39.8	29.5

Source: National Economy of the MPR for 70 Years Table 2.12 pp21-22 Central Statistical Board

The fall in agricultural employment from 1960 to 1970 can be attributed to improvements in applied technology and greater mechanisation. Since then it has been relatively stable and is likely to remain so, at least in the short to medium term Within the agricultural workforce of 189,400 persons, it is estimated that some 142,700 persons (75 per cent) were herdsmen or members of livestock suurs. The remaining 46,700 workers were involved in crop production, intensive livestock, ancillary services and as office workers, technical experts and managers on the agricultural enterprises.

Most agricultural work practices treat labour as an abundant resource. Average livestock numbers per worker is probably of the order of 500 sheep equivalents, but that is not surprising given the fact that all stock are herded daily and that milking of mares and cows on the steppe is all by hand.

The availability of labour for agricultural work varies between districts. In many areas of the forest and steppe there appears to be some degree of under-employment, while in the Gobi districts labour is very scarce. It is reported that some negdels in the eastern Gobi are willing to offer considerable financial assistance to young men willing to take up life as a herdsman. In searching for ways to improve the productivity of agriculture, it is superficially attractive to look for more labour saving techniques and to substitute capital for labour. However in the present circumstances capital is probably a more scarce factor of production than labour.

The age structure of workers in agriculture appears to be quite sound and in line with the relatively young age structure of the general population. Sixty per cent of the workforce in agriculture and food industry were under 34 years of age, 22.6 per cent between 35 to 49 years, 16.2 per cent 50 to 59 years and only 1.4 per cent over 60 years.

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While the number of young workers is encouraging, the low percentage of older workers should be seen in the context that all workers were salaried employees of the State and there were adequate retirement benefits available for rural workers which is not always the case in other countries.

Table 24. Age Structure of Workers in Agriculture and Food Industry 1990

	Under 16 yrs	16-24 years	25-34 years	35-49 years	50-59 years	Over 60 yrs	Total Workers
Total	1832	56214	98009	59030	42367	3600	261052
Distribution %	0.7	21.5	37.5	22.6	16.2	1.4	100.0

Source: Ministry of Education

6.3. AGRICULTURAL EDUCATION AND TRAINING

In common with countries around the world, the agricultural workforce in Mongolia is restructuring. With universal literacy and increasing levels of education, young people have greater opportunities to leave the farm sector. Universal education has had beneficial consequences for agriculture. There is a wide spread of educational background in the agricultural workforce, but over 60 per cent have more than primary schooling. From the data in Table 25 it can be seen that one third of all workers have primary schooling only, while a further third have completed 8 years of schooling and 13 per cent have 10 years. Only 3.6 per cent are classified as uneducated. Of the remaining 16 per cent, 8.5 per cent have some skills training, 4.6 per cent are trained technicians and three per cent are university graduates.

Table 25. Education Level of Workers in Agriculture and Food Industry 1990

	Higher Educn	Special Tech	Vocat Tech	Secndy Yr 10	Secndy Yr 8	Prim -ary	Unedu cated	Total Workers
Total	7751	12018	22186	34579	87710	87530	9279	261053
Distribution %	3.0	4.6	8.5	13.2	33.6	33.5	3.6	100.0

Source: Ministry of Education

The transfer from a centrally planned to a market-oriented economy has produced changes at many levels throughout Mongolian social and economic life. The system of education will need to undergo some changes to accommodate the following new circumstances:

- Qualifications will no longer be the main criterion for employment. Promotion will be on merit and through performance on the job.

- The replacement of many large-scale enterprises with many small-scale enterprises has led to the transfer of specialists to other jobs.

- Children are now allowed to leave at the end of primary school. It is currently quite common for the children of herdsmen to leave school at this early age to assist in the family herding activities.

- There is a shortage of teaching personnel and teachers are not being trained.

There are five levels of formal education available in Mongolia.

- Primary school, Forms 1-4
- Incomplete secondary school, Forms 5-8

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- Complete secondary school, Forms 8-10
- Specialised secondary schools, 6-12 years
- Agricultural University (College)

For primary schooling is conducted by private, co-operative and state schools. Years 1 to 4 embrace children aged 7-11 years. At this stage they should have learned to read and write in Mongolian national script, but little more. There is currently a trend for children of herdsmen and farm workers to leave school to go into agricultural work after finishing 4th form. Previously, education was compulsory up to years 7 or 8 and only after that could young people leave school to enter the workforce or help with the family livestock activities. It is however possible for children with four-year education to improve their educational standards from home study.

Secondary education embraces teenagers (13-18 year-olds) with the majority being in state schools. Children of this age group can have full-time or external education. A proportion of students will transfer to the next stage of education while the remainder will join the workforce. At the end of year 10 young people must choose between higher education and physical work.

There are specialized secondary schools which conduct courses for the further training of qualified workers and for improving farmers' skills. These schools are state or co-operative and charge tuition fees. They take in men from the ages of 18 to 35 and women from the ages of 18 to 30. There are two kinds of such schools; those which conduct long term training of specialists for periods of six months up to 1 year and those which conduct 14 to 60 day short courses. There also may be zonal schools or schools organized at production units.

The teaching program and curriculum must be in line with the Law on Education and other relevant legislation. Technical knowledge and farm management should be taught in these schools. These lessons will be taught at an advanced theoretical and practical level by specially trained teachers.

The principal higher education training institution for agriculture is the Agricultural Institute, now the Agricultural University. This institution has offered three to five year degree and diploma courses in agronomy, animal husbandry, veterinary medicine, agricultural engineering, accountancy and economics. Most find employment in Government departments or as specialists on state farms or agricultural co-operatives. Details of graduate and diplomate employment by specialty are given in Table 26.

Table 26. Tertiary Trained Employment in Agriculture by Category and Training Level 1990

Specialist	Higher Education			Paraprofessional/Technician		
	Male	Female	Total	Male	Female	Total
Veterinarians	733	268	1001	1714	1396	3110
Zootechnicians	688	239	927	909	958	1867
Agronomist	287	156	443	273	386	659
Agric Engineer	382	33	415			
Agric Mechanic				569	108	677
Accountant	237	191	428	598	823	1421
Economist	476	264	740			
subtotal	2803	1151	3954	4063	3671	7734
Others not elsewhere included			3797			4284
Total			7751			12018
Dist Male/Female %	70.9	29.1	100.0	52.5	47.5	100.0

Source: Ministry of Education

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The main campus of the University is in Ulaanbaatar though a decision has been made to set up four subsidiary colleges in country areas based on existing agricultural scientific organizations and technical schools.

Eligible candidates will be young men aged 18 to 35 and women aged 18 to 30. Education to secondary special or higher level will be required for entry. Entrants will either be school leavers or people with appropriate work experience . Tuition is available for full-time, part-time and external students.

The organizing of continuing education courses for graduates and the training of teaching staff for this purpose is currently seen as a priority task under the present rapidly changing circumstances for specialist employment. Curriculum will include English lessons, computer programming, theory of the market economy, marketing and management. In addition the Agricultural University proposes to organize local courses in country areas based on the specific agriculture of the particular region. In future a considerable part of training will require the payment of fees.

Table 27 sets out the details of enrolments by speciality at the Agricultural University for 1990. There were a total of 1836 students of whom 1510 were Mongolian nationals, 42 non Mongolians and 284 external students. The animal sciences attracted nearly half the students (717) with 314 in veterinary science and 403 enroled in animal husbandry. Agricultural engineering was the second largest individual speciality with 325 students while agronomy attracted 284 students. Agricultural economics (241), agricultural commodities (82) and preliminary courses accounted for the balance of enrolments.

Table 27. Students Enroled at the Agricultural University 1990-91

Course	Students	I	II	III	IV	V	VI	Total
Veterinary Science	National	68	80	76	91	72		387
	Non Mon	2	2	6	8	9		27
	subtotal	70	82	82	99	81		414
Animal Husbandry	National	60	66	61	65	62		314
	Non Mon		5	2	7	1		15
	External			23	29	22	30	104
	subtotal	60	71	86	101	85		403
Agronomy	National	37	25	51	35	61		209
	External			17	29	19	10	75
	subtotal	37	25	68	64	80	10	284
Agric Engineering	National	31	43	58	61	50		243
	External			23	26	33	23	105
	subtotal	31	43	81	87	83		325
Agric Economics	National	76	89	50	26			241
Agric Commodities	National	22	21	20	19			82
Preliminary Courses	National	34						34
Total enrolments	National	328	324	316	297	245	0	1510
	Non Mon	2	7	8	15	10	0	42
	External	0	0	63	84	74	63	284
	Total	330	331	387	396	329	63	1836

Source: Agricultural University

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7. AGRICULTURAL MARKETING AND SUPPLY IN MONGOLIA

7.1 THE SUPPLY OF AGRICULTURAL INPUTS

The Mongolian centrally planned system of agriculture lasted for some 35 years. Under this system the State took responsibility for all of the agricultural sector including production, distribution and sale of commodities as well as the supply of the principal agricultural inputs. Central control of supply was effected through the State Committee for Material Technical Supply (SCMTS). The system operated under complex regulations which required a large organisation with an equally large staff.

Mongolia produces almost no technically sophisticated agricultural inputs and is almost wholly reliant on supply from outside. While the new Government might wish to change this situation, it is clear that imported inputs will continue to play a vital role in the Mongolian agricultural economy. For most of the period of Communist rule after the 1940s, the Agricultural Supply Service (ASS) was the sole importer of agricultural inputs and was supervised by the SCMTS. The ASS has been a monopoly supplier of agricultural inputs and as a result the whole system has been very inefficient.

The ASS imported almost 100 per cent of agricultural machinery, chemicals, fertilisers and some of the seeds required in the country, which until now have come mainly from USSR and other former COMECON states. ASS received orders for imported goods from individual agricultural enterprises at least two years before they were delivered. Based on the orders made by state farms and co-operatives, ASS requested transferable currencies from Government to buy the required goods from outside. Once the goods were received they were then distributed to all agricultural enterprises through ASS local agencies.

During 1988 there were significant organisational changes within the country. As part of these changes the SCMCS was liquidated and the ASS was transferred to the supervision of the Ministry of Trade and Industry and became relatively operationally independent. Although this organisation has been partially changed, it still retains its monopoly position and is not very efficient. One current idea to create an efficient supply system within the country is to break the organisation into several competing parts. In 1991 the Government decided to bring the ASS under the supervision of the Ministry of Agriculture. At present the function and role of the ASS as well as its organisational structure is still not very clear and is the subject of significant debate. The organisational structure of the ASS is set out in Diagram 2.

The procedure for the supply of agricultural inputs required each agricultural enterprise (farm) annually to submit a list of agricultural machinery, fertilisers, chemicals and other inputs needed to the Agricultural Department of the aimak (provincial) administration. The aimak administration would aggregate the requirements of these items for its own area and forward them to the Ministry of Agriculture. The Ministry of Agriculture then calculated the total requirement of agricultural inputs to be imported and gave this to the Import Supply Corporation of Agricultural Machinery (ISCAM).

ISCAM estimated the hard currency requirement for these items and submitted it to the Ministry of Trade and Industry where the hard currency limit to be spent for the year was approved. This limit never covered all the requirements of the state farms and co-operatives.

With the other COMECON countries in crisis, the former procedure for trade on a transferable rouble basis has collapsed. Unfortunately Mongolia is not able to trade on a hard currency basis. As a consequence one of the biggest problems facing agriculture is the lack of new machinery, spare parts, fuel and other imported inputs needed for the current production year.

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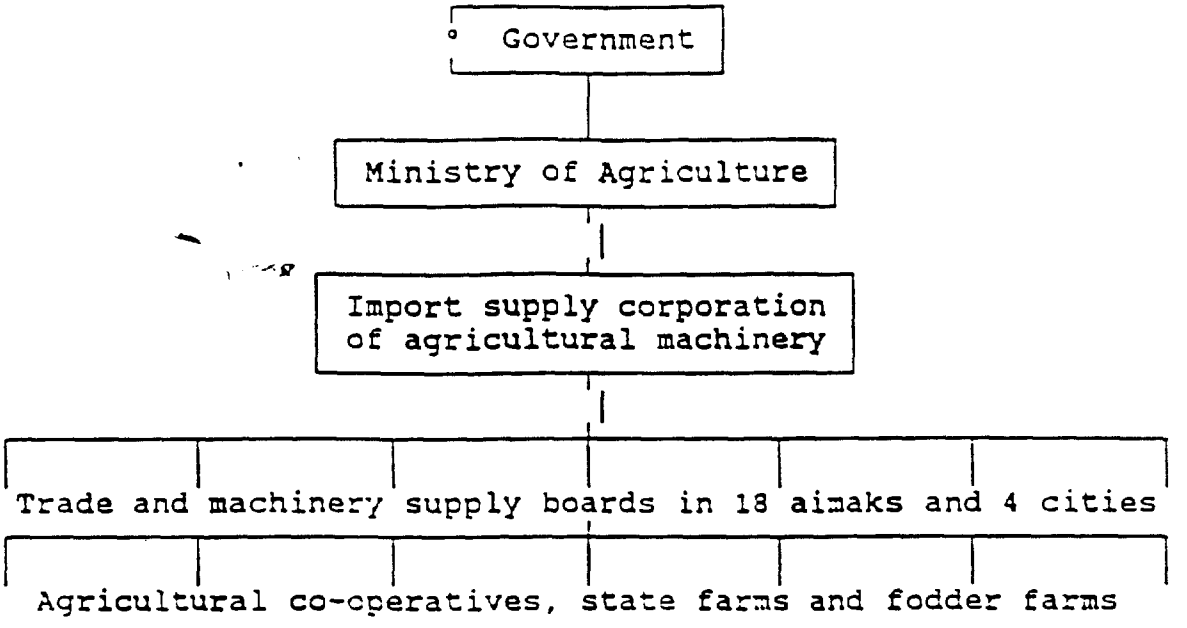
Figure 2. The organisational structure of ASS 1991

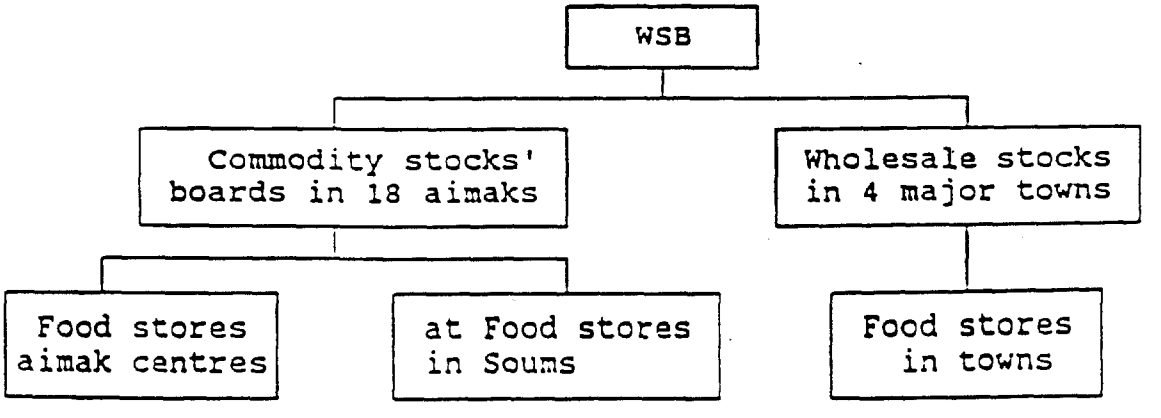


7.2 THE MARKETING SYSTEM FOR AGRICULTURAL PRODUCTS

Although the Government has officially declared the adoption of an open market economy, in the current transition period (1991) the State has retained control over the production and marketing of the principal agricultural commodities. For 1991 there are state orders (production targets) for meat, milk, wool and wheat for individual state farms and co-operatives. At the same time the Government has guaranteed the market for the production under state orders and has established the purchase price paid to producers. As a result of the price changes throughout the economy in January 1991, the prices of principal agricultural commodities were increased, though only in line with other price changes.

The Ministry of Trade has been responsible for the marketing of all commodities. The current national annual turnover of trade is Tg 11 billion, half of which goes on foodstuffs which underlines the importance of agriculture in national economy. The Wholesale Supply Board (WSB) is answerable to the Ministry of Trade and Industry. This board has local branches in all Aimaks and supplies the country with food through these branches. Figure 3 sets out the structure of the WSB:

Figure 3. Structure of the Wholesale Supply Board



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7.3 MEAT AND LIVESTOCK MARKETING

7.3.1 Livestock and Meat Production

Livestock production is a major part of Mongolian agriculture. Total grazing livestock numbers were estimated to be 25.868 million head as at December 1990 which is the third highest total on record. Annual meat production is of the order of 500,000 tonnes liveweight. Data on total livestock slaughtering and meat production are given in Table 28.

Table 28. Livestock Slaughtered and Meat Produced 1990

Species	Total No at Dec 90 '000 head	No Animals Slaughtered '000 head	Liveweight tonnes LWt
Cattle	2849	614	156000
Sheep	15083	7815	297000
Goats	5126	2090	64800
Camels	538	27	10800
Horses	2262	11	2700
Pigs	135	81	8100
Total	25993	10638	540000

Source: State Food Industry Corporation

7.3.2 Organisation of Livestock and Meat Marketing

The livestock and meat market has been controlled by the State with stock being sold on the hoof on a liveweight basis to the State Meat Organisation. Until the recent establishment of the Agricultural Exchange there has been no official open private market for livestock, though there was some unofficial trading. Small numbers of superior breeding stock have been sold from special herds on certain state farms for livestock improvement.

The production and marketing of meat has been regulated by state order. The state order for meat for 1991 was around 216,000 tonnes of liveweight out of an estimated national production of 540,000 tonnes. The breakdown of supplies under state order is given in Table 29.

Table 29. The distribution of state ordered meat for 1991

Total state order for meat	tonnes LWt
Direct export	20000
Abattoirs and meat processing factories	98045
Local consumers	63561
Total meat production ordered by the state	181606
Total horses to be delivered for sale	head
Direct export	35000
Slaughterhouse	4890
Other	13810
Total horses to be delivered to the State	53700

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Source : Ministry of Trade and Industry

Meat production is a highly seasonal activity. The lambing and calving season is in the late winter and early spring (March to May). Animals gain weight through the six months of the summer and autumn, though this effectively comes to a halt by November. The majority of animals are grass fattened, though there are several state fodder farms in the vicinity of Ulaanbaatar which

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produce fodder crops for the feed-lot fattening of slaughter stock for periods of 30 to 40 days. Two of these farms, Attar and Nohorlol, north west of Ulaanbaatar in recent years have each put through some 160,000 sheep and 40,000 cattle, though numbers are said to be down by half in 1991.

Animals are walked to the main meatworks for slaughter. The location of the meatworks is shown in Map 5. Some cover distances of up to 1000 km. Animals for droving were sold to the State Meat Organisation based on the weight at time of delivery which was usually early in the summer season, so that the weight gain through the summer grazing accrued to the State Meat Organisation rather than the producers. In some circumstances co-operatives were able to organise their own droving so that they received the benefit of the weight gain, however private stock had to be sold at the early season weight. It is not certain what procedure will apply in the open market from 1992.

7.3.3 Meat Processing Facilities

Local slaughtering is carried out at aimag and soum centres. This is generally late in the season when the carcases can be frozen in the open air and then carted by road to the central storage facilities. In aimag and soum centres individual households buy meat through the retail shops or can buy live animals direct and have them slaughtered on contract.

The market for meat is divided between the five major abattoirs and local killing. There are three big abattoirs (Ulaanbaatar, Darhan and Choibalsan) and two meat processing factories (Sayshand and Uliastay) in the country with a combined annual production of some 63,000 tonnes of meat. Much the largest abattoir is in Ulaanbaatar with the other two at Darhan in the north and Choibalsan in the east. These are strategically located to draw from as wide a catchment area as possible and all are accessible to the national railway grid for export purposes.

These factories must meet the demand of at least 700,000 urban people (Ulaanbaatar 570,000, Darhan 70,000, and Choibalsan 25,000) with an estimated demand for dressed meat of 30,800 tonnes. The total cold storage capacity of these enterprises is 19,500 tonnes, of which 15,000 tonnes is in Ulaanbaatar, together with additional ice stores. Given the highly seasonal pattern of livestock intake for slaughter there is an effective shortfall in storage capacity of 11,000 tonnes of meat. This amount is generally kept in poor conditions and stored meat often spoils during the summer.

As a general rule the abattoirs and meat processing factories do not debone and classify meat, but transfer it to trade organisations as whole carcases. The department stores break up the carcases themselves, though there is no effort made to separate prime cuts. Meat is generally sold at three different prices depending on grade. The exception to this is the abattoir in Ulaanbaatar which each year debones and classifies 1500 tonnes of meat, though out of a total annual production of 36,000 tonnes this represents only 4.1 per cent of throughput. Consumers prefer deboned and classified meat however there are problems with the supply of bags and twine and other machinery and equipment for handling and packaging.

Ulaanbaatar Abattoir

The plant in Ulaanbaatar is a slaughter and meat processing complex comprising an abattoir with processing lines for the manufacture of sausages, meat canning and the treatment of by-products. The capacity of the complex, is 1,000 cattle, 8,000 sheep, 2,000 goat and 300 pigs per shift. The abattoir was built in 1968 and is badly in need of renovation and refitting.

All slaughter stock are purchased on state order. The catchment covers ten aimags and draws from distances up to 1000 kms. Most stock are moved by drovers but some are brought in by rail. The factory organises the supply routing. 40 per cent of the contract price is paid in advance to suppliers. There are two prices for live animals; feedlot or grazed. The abattoir has yard space for 20,000 animals with water. Live weight average 260 kg cattle and 40 kg sheep. The killing out percentage is cattle 48 per cent, sheep 40 per cent. The plant employs 2000 persons at peak periods.

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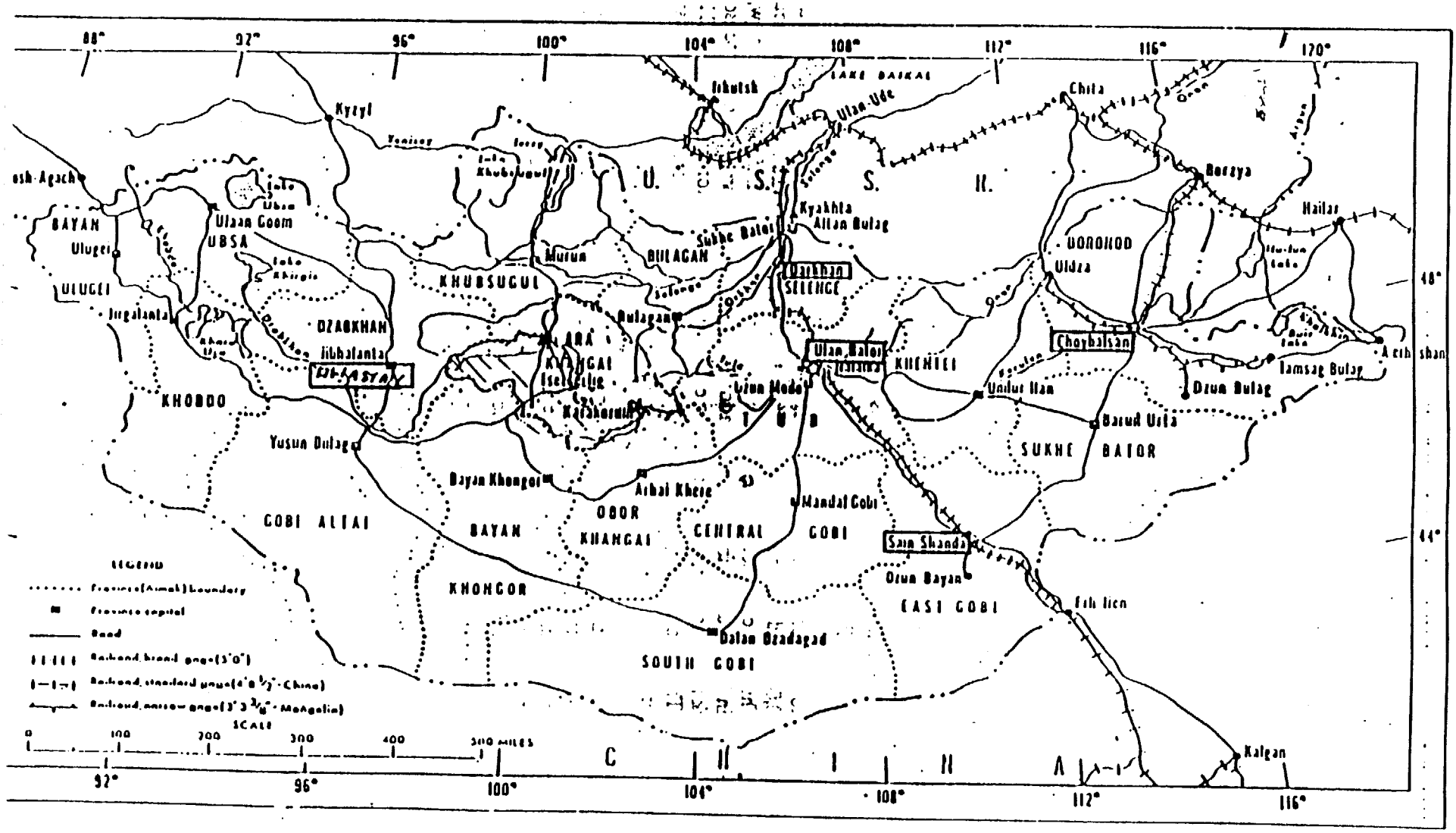
Map 5. Location of Principal Meatworks and Transport Routes



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Annual production of processed products is 4000 tonnes of sausages, 1200 tonnes dumplings, 15 million cans of cooked meat (170 gramme and 430 gramme) and meat and bone meal.

The abattoir sells its output to retail state shops in Ulaanbaatar. Cattle are cut in quarters, sheep are sold whole. When they sell meat to the trade organisations prices are set at a fixed discount to the retail prices. In the past the Ulaanbaatar abattoir has exported up to 60 per cent of carcase output to COMECON countries, but this has been falling over last two years.

Darhan

The plant is a meat combinant complex located in Darhan and built in 1974 with technical and financial assistance from Hungary. The production capacity per eight hour shift is 200 cattle and horses, 2000 sheep and goats, 25-30 pigs, 50 tonnes of meat products, 3 tonnes of sausages, 0.2 tonnes dried blood and 0.5 tonnes meat and bone meal. The cold store capacity is 3200 tonnes. More than 50 per cent of the production of the plant is exported.

Choibalsan

The plant comprises a meat combinant located in Choibalsan and built in 1970 with technical financial aid from Bulgaria. The capacity per eight hour shift is 200 cattle and horses, 1500 sheep and goats, 25 pigs, 50 tonnes meat products, 2 to 3 tonnes of sausages, one tonne of soap and casings. Cold stores have a capacity of 3000 tonnes. The factory is on a spur railway line to the USSR and more than 50 per cent of the production is exported.

Saynshand

The Saynshand plant is an abattoir for local meat consumption in the province. The plant has slaughter capacity of 5 tonnes per eight hour shift and carcass cold store capacity of 700 to 800 tonnes.

Uliastay

The plant in Uliastay is an abattoir for local meat consumption in the province. The plant has a slaughter capacity of 5 tonnes per eight hour shift and carcass cold store capacity of 300 to 400 tonnes.

7.3.4 Meat Prices

Purchase price from the producer as well as wholesale and retail prices for meat are standard prices determined by the Government. Producers sell their meat on a liveweight basis at the farm gate. For beef and mutton there is one price regardless of grade, while horse meat has three grades Wholesale price is the same for every quality of meat, while the retail price recognises three levels of quality. The quality estimation is based mainly on fat cover of the meat and average liveweight of a head of livestock as Mongolians like fatty meat. Details are set out in Table 3.

Live animals are purchased at a farm gate price based on liveweight at time of sale. Droving costs are carried by the State Meat Organisation or the abattoir which expects to recover the cost through the weight gain during the droving period, which may be four to eight weeks or even more in some cases. There is different price applicable for the animals brought to the slaughterhouse by the livestock holder.

The wholesale price includes costs of freight from the abattoir to the retail outlet. A calculation based on quantities purchased and sold and on the prices applied indicates that the sales revenue only covers 60 to 65 per cent of the cost of the animals purchased, entailing a cash loss of some Tg 450 million annually on a country wide basis. To this should be added wages, costs of power and water, transport to retailers, depreciation, etc.

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The Government Resolution No 20 of January 1991 increased mutton and goat meat purchasing prices by 60 per cent, the price of horse meat tripled and beef doubled. Camel meat price was not set by the Government and must be negotiated between producers and consumers. There have been some attempts to sell deboned meat classified into many parts, however because of lack of packing materials only a small percentage of total meat sold by the Ulaanbaatar abattoir is processed in this way.

Table 30. Meat Prices (Tugrig/kg)

Product	Quality	Supplier Price at Abattoir Tg/kg LWt	Wholesale Price Tg/kg LWt	Retail Price Tg/kg DWt	Estimated Open Market Price Tg/kg DWt
Beef	I	4.953		12.00	
	II			10.80	Approx 35.00
	III			8.40	
Sheep	I	3.680		14.40	
	II			12.60	Approx 45.00
	III			10.40	
Goat	I	3.156		10.40	
	II			10.00	
	III			8.40	
Horse	I	1.520		11.20	
	II	1.406		9.00	
	III	1.292		7.00	
Camel	I	2.400		8.40	
	II			8.00	
Pork	I			16.00	

Source:

5. Meat Exports

Live animals and meat have been significant export items for many years. The main items for export are:

- Live animals, cattle beef, sheep, goats and horses from the western and north-western aimags of Bayan Ulgii, Uvs, Hovd as well as from Huvsgul. The animals are exported on hoof to the USSR. Live animal export is arranged by the Government Storage.
- Carcasses from cattle, sheep and goats to the USSR and Bulgaria. The Choibalsan abattoir in the east plays an important role in the carcase export trade as it is on the railway to the USSR and in a relatively unpopulated area of the country.
- Casings to the USSR, Germany, France, Netherlands, Yugoslavia and Bulgaria.
- Hides are exported to the COMECON countries. Finished leather products are being exported to European countries with an increasing trend, it appears.

While changes in the former trade structure with the COMECON countries will force Mongolia to look for new markets for its export meat trade, it is likely that Russia will remain a significant potential market if it can find the currency to sustain the trade. Mongolia has a significant natural advantage as a supplier of meat to eastern Russia and Siberia.

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7.4 CEREALS

7.4.1 Cereal Production

Annual planted area for grain production in Mongolia is of the order of 800,000 ha with a further 400,000 ha of bare fallow for the following season. Total grain production can range between 600,000 and 800,000 tonnes depending on seasonal conditions. Average annual production for the five years 1986-90 was 706,300 tonnes with 575,300 tonnes of wheat, 92,700 tonnes of barley, 32,800 tonnes of oats and 5,500 tonnes of other grains, mostly rye with some triticale. The principal producing areas are in the northern aimags which have better rainfall. Selenge and Tub aimags have 56 per cent of all production and Bulgan aimag to the west has 12 per cent. Table 31 shows the distribution of the grain harvest by aimag for the period 1987-89. The linkage between production and milling capacity can be seen in Map 6.

Table 31. Cereal Harvest by Aimag 1987-89

	1987		1988		1989		3 yr Av	Dist
	'000t	t/ha	'000t	t/ha	'000t	t/ha	'000t	%
Arhangai	39.7	1.15	28.5	0.82	46.7	1.27	38.3	5.1
Bayan Ulugei	0.7	0.85	0.8	0.78	0.8	0.89	0.8	0.1
Bayanhongor	0.1	0.39		0.8	0.1	1.00	0.1	0.0
Bulgan	72.9	0.95	88.2	1.23	112.4	1.56	91.2	12.1
Govi Altai	1.0	1.56	0.7	1.19	0.8	1.33	0.8	0.1
Dornogovi								
Dornod	15.4	0.42	45.2	1.18	65.6	1.64	42.1	5.6
Dundgovi								
Dzavhan	18.2	0.77	11.6	0.5	6	0.28	11.9	1.6
Uvurhangai	29.9	1.56	15.7	0.82	25.2	1.25	23.6	3.1
Omnogovi								
Suhbaatar	11.6	0.86	13.4	0.98	17.9	1.19	14.3	1.9
Selenge	211.3	1.27	323.4	1.82	199.3	1.1	244.7	32.6
Tub	177.7	1.33	139.6	0.98	206.9	1.28	174.7	23.3
Uvs	26.7	0.82	27.2	0.84	36.1	1.07	30.0	4.0
Hovd	3.7	1.11	2.1	0.63	3.2	1.03	3.0	0.4
Hovsgol	20.1	0.87	36.2	1.62	35.9	1.58	30.7	4.1
Hentei	34.4	0.88	42.2	1.06	57.9	1.35	44.8	6.0
Total	663.4		774.7		814.8		751.0	100.0

Source: Central Statistical Board MPR National Statistics 1989

Details of the crop production for 1990 are summarised in Table 32 and greater detail on the utilisation of the crop is given in Table 33.

Table 32. Total Grain Harvest and Distribution 1990

	Wheat	Barley	Oats	Peas	Rye	Triti -cale	Rape seed	Maize	Total
Used on Farms	58.1	14.6	3.2	0.5	0.6				77.0
Held for seed	95.8	23.0	14.6	0.2	0.9				134.5
Sale to State	372.1	41.7	9.7		0.7				424.2
Total harvest	526.0	79.3	27.5	0.7	2.2	0.0	0.0	0.0	635.7
Distribution %	82.7	12.5	4.3	0.1	0.3				100.0

Source: Ministry of Agriculture Board of Crop Production Policy

Just over 60 per cent of total wheat production goes to the flour-fodder mill combinants while 6 per cent goes to fodder farm plants. The balance is held for seed and used on farm. About three

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per cent of barley goes to the brewery/vodka combinant, 25 to 30 per cent to the flour/fodder combinant for concentrate feeds and 35 per cent to the fodder farm plants for mixed fodder for further processing.

7.4.2. Organisation of Grain Marketing

Two thirds of all grain produced goes into the marketing chain and is purchased by the state. The system is highly organised and starts each year with the annual plan. At the beginning of the year every state farm or co-operative prepares a detailed plan of its inputs and outputs for the forthcoming year and submits this plan to the Ministry of Agriculture or to the Supreme Council for Co-operatives as appropriate. Finance for the production enterprises is based on these plans. In the first instance they receive short or long-term loans from the State Bank. In addition they will sign a "supply" contract for their planned production with grain buyers, which means the flour and fodder mill combinants.

Producer prices for grain are fixed at very low levels which has left almost all state farms and co-operatives in a poor financial position. Profitability was limited by the policy of fixed prices for outputs while the cost of inputs significantly increased. As a consequence of their limited earnings, the production enterprises have been chronically short of working capital and in need of seasonal finance to fund their variable production costs. This finance has been obtained by the flour-fodder mill combinants making advance payments to the grain growing farms before the harvesting period. The total advance payments are between 25 per cent to 70 per cent of contract value.

Until 1990, the interest rate for short term loans from the State Bank was 1 to 2 per cent. The flour/fodder combinants could afford to borrow funds at such rates to finance the state farms and co-operatives. Forward payments on sale contracts were one of several ways by which the Government organised outside finance for the production farms. There were several other kinds of incentive or grant systems for financing state farms with established commercial banks. However the interest rates are now very high and the farms find it impossible to operate under such a system.

7.4.3 Harvest and Delivery Organisation

The entire grain harvest is organised by the State Harvesting Commission (SHC) which is a Government body chaired by the Minister of Agriculture. In late July and early August, representatives from the SHC and the Chief Agronomist from each state farm or co-operative together make an estimate of the yield and the expected harvesting date. Based on this figure, the SHC issues a list matching producers and buyers and allocating the likely amounts of grain. Also based on this figure, the state farms and co-operatives order the required number of trucks and trailers for their on- and off-farm transport needs. The SHC has the power to requisition transport from any source. It allocates all the available trucks to the producing farms who then make direct arrangements with the particular transport organisation.

Harvesting grain crops in Mongolia starts by mowing and wilting the crop for three to five days. The crop is then windrowed and headed with a combine harvester. Because the straw is often too green for clean heading, the grain is dressed a second time with electric dressers in open air grain dressing centres. The grain dressers have a capacity of 25 tonnes per shift and are an additional cost in handling grain between the field and the mill as well as a further organisational bottle-neck. On delivery to the mill all grain is tested for moisture, gluten content, percentage of dressings and density (kg/litre). Grain which fails to meet the pre-determined standards is either downgraded from milling to feed quality or rejected outright.

The farm is responsible for the cost of cartage from the field to the grain dressing centre. Cartage cost from the grain dressing centre to flour or fodder mill is paid by the millers. Each year the grain harvest involves 4600 trucks and 2600 trailers to transport the national crop. Transport cost of the flour/feed mill combinants is about 8.2 per cent of their total costs.

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7.4.4 Grain Utilisation

Of the total receivals of grain, some 260,000 tonnes is used for flour milling to produce 200,000 tonnes of flour. This covers 80 per cent of total flour needs and the balance must be imported. In addition 93,000 tonnes of concentrates, bran, pelletised feed and pollard, are produced.

Table 33 shows the production and distribution of cereals by individual item. In 1990, the flour mills received and processed 262,100 tonnes of grain which was almost 50 per cent of total production. The table also shows the production and distribution of grain to individual end users by individual grains. Similar information for the years 1988 and 1989 are given in Table 36 at the end of this section.

Table 33. Distribution of Total Grain Harvest 1990

	Wheat	Barley	Oats	Peas	Rye	Triti -cale	Rape seed	Maize	Total
Distribution									
Flour Mills	262.1								262.1
Feed Mills	75.9	28.3	4.9						109.1
Seed Reserves	3.8		1.3						5.1
Food Factory	9.8	3.3							13.1
Piggeries	3.0	1.2							4.2
Poultry	7.0	2.5							9.5
Plant Protection									0.0
Biocombinant	0.1		0.7						0.8
Other farms	2.4	1.0	1.2		0.7				5.3
Other fodder	8.0	5.4	1.6						15.0
Total	372.1	41.7	9.7	0.0	0.7	0.0	0.0	0.0	424.2

Source: Ministry of Agriculture, Board of Crop Production Policy

The Corporation of Flour and Feed Milling Enterprises has a monopoly on flour and fodder making in the country. It has ten flour and feed mills distributed throughout the grain growing areas in the north of the country. Eight of these are combined flour and fodder mills, there is one flour mill in Ulaanbaatar and one fodder only mill at Baruunharaa. In addition there are 20 state fodder farms each of which have fodder processing plants which consume some 15 per cent of total grain production. The distribution of the milling capacity and the catchment areas of the various mills are shown in Map 6. Storage capacity is a problem. National grain storage capacity can be summarised as:

Location	Quantity
Flour and feed mill combinants	293000
State farms and co-operatives	112400
State Seed Storage	45300
Total	450700

Most farms have some secure storage capacity in brick stores, but few can store more than their seed needs for the following year under cover. Total supply of grain to the mills over the three years 1988-90 was an average of 397,900 tonnes, while total storage for the ten mills is between 293,000 and 315,000 tonnes a year. There is thus a shortfall of 20 per cent in storage capacity at the mills which results in waste and poor quality flour. Table 40 sets out the storage capacity and actual amount of grain received and processed by individual flour mills and enterprises for the years 1986 to 1990.

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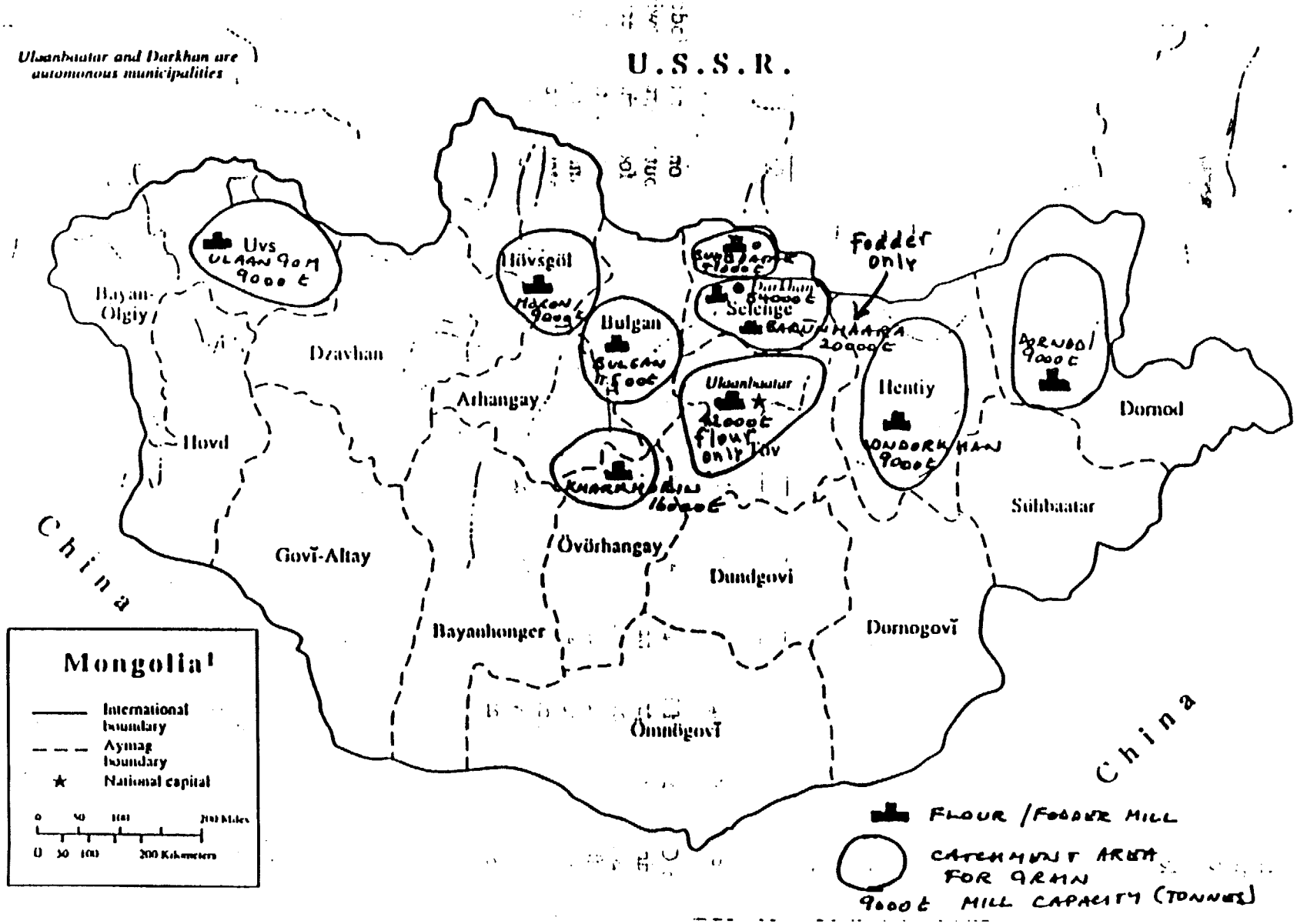

Map 6. Distribution of Grain Milling Combinants in Mongolia

Losses from the shortage of grain storage capacity at the flour/fodder mill combinants is about 5 to 7 per cent. Average losses on the state farms and co-operatives is 8 to 11 per cent. The principal reasons given for the on-farm losses are:

- Adverse weather
- Lack of concrete floors in the grain dressing centres
- Not enough combines to complete the harvest on time, or bad condition of combines leading to frequent breakdowns and delays
- Breakdowns of grain dressing machines
- Negligence of workers in dressing centres. These are mostly unskilled workers or soldiers and students.

Table 34. Supply of Grain to Flour and Feed Milling Combinants

Combinant	Prod Cap '000 t	Store Cap '000 t	1986 '000 t	1987 '000 t	1988 '000 t	1989 '000 t	1990 '000 t	Five Yr Av '000 t
Ulaanbaatar	42.0	64.0	110.8	72.9	47.5	115.1	67.4	82.7
Suhbaatar	41.0	82.0	74.4	57.3	109.4	58.4	50.4	70.0
Kharkhorin	16.0	12.0	28.7	29.2	23.0	35.8	32.6	29.9
Bulgan	11.5	38.7	26.6	24.2	27.0	28.1	25.5	26.3
Ulaangom	9.0	4.0	20.3	11.5	14.5	17.5	8.1	14.4
Dornod	9.0	7.0	6.8	3.0	19.5	38.9	14.4	16.5
Moron	9.0	6.5	26.5	8.5	15.5	14.8	18.2	16.7
Ondorkhaan	9.0	4.0	23.2	17.2	21.6	24.2	22.8	21.8
Darhan	54.0	82.0	135.2	86.0	153.4	79.1	62.8	103.3
Barunhaara		12.0	28.5	16.7	11.4	14.8	10.3	16.3
Total	200.5	312.2	481.0	326.5	442.8	426.7	312.5	397.9

Source: Corporation of Flour and Feed Milling Enterprises

Average production of the flour mills is 200,000 tonnes of flour of different qualities which are sold to consumers through trade organisations. Most of the flour produced is packed and sold in 70 kg sacks. A few years ago the trade organisations started to package the flour in a 2-4 kg sacks but this is only available in Ulaanbaatar and the other major towns. Since rationing started in February 1991 including flour, the production of packaged flour has stopped. Details of the production of flour by individual mill are given in Table 35.

Table 35. Production of Flour and Concentrates by Mill 1989 and 1990

Combinant	Flour Plan	Flour Actual	Flour P/A %	Concentrates Plan	Concentrates Actual	Concentrates P/A %
		1990				
Ulaanbaatar	46000	47351	102.9			
Suhbaatar	43000	32572	75.7	18200	18337	100.8
Kharkhorin	17000	13534	79.6	12000	11185	93.2
Bulgan	11000	11026	100.2	9000	11057	122.9
Ulaangom	10100	10176	100.8	3500	3824	109.3
Dornod	9000	9155	101.7	6000	5831	97.2
Moron	10300	10532	102.3	10000	10629	106.3
Ondorkhaan	8810	9057	102.8	7600	7786	102.4
Darhan	52000	43712	84.1	4000	4931	123.3
Barunhaara				20000	17630	88.2
Total	207210	187115	90.3	90300	91210	101.0

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Table 35. Production of Flour and Concentrates by Mill 1989 and 1990 (cont)

Combinant	Flour Plan	Flour Actual	Flour P/A %	Concentrates Plan	Concentrates Actual	Concentrates P/A %
1989						
Ulaanbaatar	46000	47495	103.3			
Suhbaatar	42500	42541	100.1	18200	19107	105.0
Kharkhorin	16000	14058	87.9	12000	12003	100.0
Bulgan	10000	10755	107.6	9000	9131	101.5
Ulaangom	10000	10218	102.2	3500	3688	105.4
Dornod	8000	8432	105.4	6000	6150	102.5
Moron	10000	10209	102.1	9000	9318	103.5
Ondorkhaan	8000	8209	102.6	6000	6254	104.2
Darhan	51900	47968	92.4	8000	8792	109.9
Barunhaara				20000	20115	100.6
Total	202400	199885	98.8	91700	94558	103.1

Source: Corporation of Flour and Feed Milling Enterprises

Yield of main product from flour milling in the Ulaanbaatar flour mill combinant is 75 to 78 per cent. Overall average yield of flour and by-products from 1000 tonnes of wheat is:

Product	Qty (tonnes)
Flour - Premium grade	120
Flour - First grade	330
Flour - Grade II	310
Baby food	20
Bran (animal feed)	200
Total	980

The Corporation of Flour and Feed Milling Enterprises buys grain from farms at the set Government price and sells the flour at retail sale price less a fixed percentage. There are three different retail prices for flour depending on quality.

The mills have been built at strategic locations in the growing areas so that there are direct geographic links between individual producers and local mills. It will be a problem to break up the Corporation of Flour and Feed Milling Enterprises so that there is genuine competition between mills.

If the mills are competing for supplies it implies that grain will be hauled out of the natural catchment area of one mill to supply one in another catchment area. The immediate impact of this will be an increase in marketing costs to be deducted from growers' returns or passed on to consumers. The other problem is that most mills are working to full capacity or even above capacity and have no surplus storage. Under these circumstances there seems to be little incentive to compete vigorously for product.

There are currently 53 state farms producing cereals and 20 state fodder farms which collectively account for 80 per cent of crop area or just over 1 million ha including fallows. The Government plans to break these farms into smaller units, though the size is as yet indeterminate. Based on the break-up of Bayancogt state farm into units of 1200 to 1500 ha of crop land, there are potentially some 700 to 1000 crop farms not including the 300,000 ha of crop land on the co-operatives.

This would create a situation where there were 1000 growers who were unevenly spread around the countryside and whose market was tied to 10 mills each of which was unable to significantly increase its intake without substantial new investment. This is not a prospect which augurs well for a strong open market.

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The other matter which may be difficult for the open market to resolve is creating price confidence among producers. Up till now all producers knew the price of cereals in advance, even if it was considered to be too low. There will be a problem for producers making planting decisions based on an uncertain price which is assumed to be set by an open market. It may be more appropriate for Government to look at some form of intervention mechanism. This could be a producer selling co-operative or a marketing board which negotiated prices with the millers based on defined quality standards and with a view to balancing the needs for an adequate producer price and reasonable consumer prices.

Table 36. Distribution of Total Grain Harvest and 1988-90

	Wheat	Barley	Oats	Peas	Rye	Triti -cale	Rape seed	Maize	Total
1988									
Used on Farms	40.6	15.3	7.4	0.7	0.9				64.9
Held for seed	98.9	22.6	15.0	0.5	1.4	0.1	0.1		138.6
Sale to State	476.5	54.2	11.1		0.7				542.5
Total harvest	616.0	92.1	33.5	1.2	3.0	0.1	0.1	0.0	746.0
Distribution									
Flour Mills	340.3								340.3
Feed Mills	97.8	43.0	1.5		0.4				142.7
Seed Reserves	13.5	1.0	1.8						16.3
Food Factory	9.1	3.6							12.7
Piggeries	3.1	0.7							3.8
Poultry	4.6								4.6
Plant Protection	2.5	1.8							4.3
Biocombinant	0.2		0.2						0.4
Other farms	2.5	0.8		5.0		0.3			8.6
Other fodder	2.9	3.3	2.6						8.8
Total	476.5	54.2	11.1	0.0	0.7	0.0	0.0	0.0	542.5
1989									
Used on Farms	37.7	15.0	7.2	0.8	1.7	0.1			62.5
Held for seed	104.4	20.7	13.3	0.1	0.5				139.0
Sale to State	473.2	62.2	15.0	0.7	1.0				552.1
Total harvest	615.3	97.9	35.5	1.6	3.2	0.1	0.0	0.0	753.6
Distribution									
Flour Mills	350.8	--							350.8
Feed Mills	83.2	46.8	4.1	0.2	0.4				134.7
Seed Reserves	13.2		2.0		0.6				15.8
Food Factory	10.2	2.8							13.0
Piggeries	1.3	1.7		0.2					3.2
Poultry	6.6	0.9		0.3					7.8
Plant Protection	1.3	4.9						6.2	
Biocombinant	0.9								0.9
Other farms	3.2	1.1	4.0						8.3
Other fodder	3.4	4.0	4.0						11.4
Total	473.2	62.2	15.0	0.7	1.0	0.0	0.0	0.0	552.1

Source: Ministry of Agriculture, Board of Crop Production Policy

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7.5 MILK AND MILK PRODUCTS

7.5.1 The Dairy Industry

Milk is a major traditional food source for Mongolians. It is prepared in various forms, particularly in the summer when meat is in short supply and year round it is taken as a drink flavoured with tea and salt. The demand for milk is high and is estimated by Government as a national average of 270 kg per capita, varying from under 200 kg per capita in inner urban areas, up to 320 kg per capita in the mountainous regions.

With a total production of 312 million litres of milk (1990) and a population of 2.1 million, current actual production is 149 litres per capita. Approximately half the population live in cities and towns with the three cities of Ulaanbaatar, Darkhan and Erdenet accounting for 705,100, a further 361,000 living in the Aimag (provincial) centres and 106,000 in soum (local government) centres. Some 930,000 people live nomadically in the rural areas.

Collection and effective utilization of approximately 260 million litres of milk produced during the summer months by the nomadic herds is a major concern of the Government. Approximately two thirds of this milk is at present consumed by the rural population in various forms, the cream from the balance is separated in units which follow the herds and the fat is recovered in the form of butter in soum centres. Butter production from between 80 and 90 million litres of milk converted by this system was 4829 tonnes in 1989 and 4405 tonnes in 1990.

There is a substantial loss of protein and other milk solids in the skimmed milk from the rural separation system which is not at present recovered, although formerly the skimmed milk was converted to casein for export to the USSR. The Government is seeking new export markets for this protein in the form of sodium caseinate, which can be dried in the existing spray dryer in Ulaanbaatar during the winter when milk for drying is not available.

Based on Government calculations of demand, the requirement for Ulaanbaatar alone is about 90 million litres per year, however supply to all major cities is at present limited to approximately 50 million litres. Only 15 per cent of the total milk supply is collected for the major cities due to the nomadic movement of the greater proportion of the national herd. Dairy products are therefore in major shortage in the urban areas in which about half the population live.

The milk production systems have a significant influence on the supply to the four largest processing units. They receive excess milk in summer but are unable to meet consumption demands in winter due to insufficient supply. Industrial milk processing is constrained by a shortage of supply in relation to traditional demand, the vastness of the country creates inherent difficulties in collection and the extreme seasonality of production causes lack of adequate supply of milk in winter. With the exception of a small quantity of sheep and goat milk, only cow's milk is processed industrially.

7.5.2 Milk Production Systems

Eighty five per cent of the national milk supply is produced under extensive grazing in the rural areas, however this milk cannot feasibly be collected for use in the liquid milk market. It is therefore either consumed directly by the rural population or made into butter in the regional towns. Production from the nomadic herds is seasonal, with the maximum volume occurring in the short summer period from June to September. The grass steppes which provide year round grazing for the animals are snow covered from October to early May.

An intensive husbandry system in simple and mechanised dairies with higher production yields is operated on state farms and co-operatives near to urban areas. In "simple" dairies cows are housed in semi covered yards during the winter and fed on hay and concentrates. The cows are hand milked and produce approximately. 1200 litres/yr. Milk production tends to fall to a very low level during the winter months.

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The "mechanized" dairies are large-scale units where cows are kept in heated stalls with mechanized silage feeding and machine milking. Approximately 20,000 cows are currently kept in the 41 mechanized dairies, 24 of which, together with 36 simple dairies, supply milk to the factory in Ulaanbaatar. The cows are kept in units of 200, 400, 800 or 1200 cows, with total standings for 22000 cows. Thirty six of the units are on state farms and six on agricultural co-operatives. There are five new units currently under construction. Other mechanized and simple dairies supply the milk processing combinants in Darkhan, Erdenet and Choibalsan which serve the populations of those cities.

Milk production from the intensive system is also seasonal with a ratio of approximately 3:1 between the summer peak and the winter trough. The yield of cows kept in simple and mechanized dairies is higher than that of grass-fed Mongolian cattle, though is still low by world standards. In the mechanised dairies average yields are of the order of 2,000 to 2,500 litres, though some cows are reported yielding up 4,000 litres during a 300 day lactation. Details for the three years 1988 to 1990 are summarised in Table 37.

Table 37. Yield per Cow in Mechanised Dairies (litres/year) 1988 to 1990

	Ulaanbaatar	Choibalsan	Darkhan	Erdenet	Other	Total
No of mechanised dairies	24	2	6	1	8	41
1988	2256	2269	1923	2569	N/A	2236
1989	2190	2883	1939	2477	N/A	2210
1990	2211	2005	1577	2188	N/A	2101

Source: Ministry of Agriculture

The principal reason for the low yields is the quantity and quality of the feed. Cows are tied in heated units for nine months of the year and fed on cereal silage, sometimes with the addition of peas, sunflower or maize, hay and low quality concentrates. During the short summer period from early June to mid September the cows are moved to grazing areas where in addition to unlimited access to indigenous unimproved pasture, they are supplemented with cereal silage. Labour productivity is poor with only 4 to 8 cows being cared for by each worker. The milking is done by women who currently work a long day with a spread of 14 hours.

There is a State Breeding Centre which provides some frozen semen from a small stud. Many of the units either produce fresh semen or rely on natural service. There is a small amount of inter farm trade in breeding animals. Cows are milk recorded monthly in an attempt to identify superior animals. Entire bulls run with many of the herds and it is difficult to ascertain how many of the calves born are sired by these bulls. Approximately half of the animals are Friesian type of Soviet and GDR origin with individual animals giving yields of up to 6000 kgs per lactation.

Table 38. Comparisons of Dairy Breed Figures 1989

No Farms	Breed	No Head	% of herd	av. yield
16	Friesian Type	10800	49	2690
16	Simmental	6600	30	2128
5	Steppe Red	2200	10	2193
4	Alatel	2400	11	2788

Source: Ministry of Agriculture

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There are four main disease factors of dairy cattle, tuberculosis, foot and mouth disease, brucellosis and leucosis, which are being tackled with varying degrees of success. Tuberculosis and foot and mouth disease appear to have been eliminated and there is a policy for annual

testing of reactors. The situation with brucellosis is far less satisfactory. There is widespread use of Strain 19, even among adult animals which can lead to false positives. Testing is carried out at least annually and positive reactors are slaughtered or kept in isolation. Leucosis is a potential problem which is being tackled with a policy of three monthly testing of suspect animals and then isolation of infected animals.

Four main problems with dairy production can be identified. The majority of animals fail to milk to their genetic potential due to a shortfall in both the quality and quantity of winter feed. There is work needed on identifying species and technologies to improve the quality and quantity of winter feed. Calf mortality is high and could be reduced by concentrating resources on rearing females only.

A shortage of spare parts for machinery affects both the daily running of the dairy units and fodder conservation. Adequate supplies of spare parts should be stored at strategic sites. The electricity supply to the dairies is poor and affects both milk production and the working conditions of the milkmaids. Standby generators should be provided at those units currently without them.

7.5.3 Milk Production

Total milk produced is given in Table 39.

Table 39. Total Milk Production 1988-1990 million litres (not including horse or camel milk)

	1988	1989	1990
Supply to major cities	48.2	51.5	48.1
Used for butter	N/A	88.9	81.4
Rural consumption	N/A	178.9	182.7
Total Production	299.0	319.3	312.2

Total utilisation of milk between liquid and manufacturing in the aimag centres is given in Table 40.

Table 40. Production and Utilisation of Liquid Milk by Aimag 1990 ('000 litres)

	Total Production	Liquid Milk	Other Products
Arakhangai	10231.1	9994.9	206.7
Bayan Olgi	1340.7	290.8	8.6
Bayanhongor	3236.0	3074.0	49.0
Bulgan	6997.3	6536.2	58.6
Govi Altai	483.9	451.1	21.2
Dornogobi	86.6	58.4	1.8
Dornod	3280.4	2888.4	13.6
Middle Gobi	528.0	450.0	23.0
Zavhan	3952.5	3325.2	97.1
Ovorhangai	3981.3	3419.3	76.5
Omnogobi	30.4		
Suhbaatar	1558.8	1422.1	17.3
Tov	949.5	766.6	40.4
Uvs	3710.0	3040.1	25.4
Hovd	1740.8	935.2	129.2
Hovsgol	9703.7	8795.8	38.6
Hentei	5536.1	4231.4	
Total	57316.7	49679.5	837.4

Source: Ministry of Agriculture

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All milk is initially purchased by the State Purchasing Authority, which issues supply contracts to both the nomadic herdsmen and the dairy farms on behalf of rural district butter making centres, the industrial processing factory and the Aimag units respectively. Table 41 provides data on milk supplied from farms for urban consumption. The urban milk supply statistics shown in Table 41 indicate that up to 78 per cent of the urban milk supply is produced by the mechanized dairies. The dairies are thus of vital importance in the supply of milk for 70 per cent of the total population.

Table 41. Milk Supplied by Farms for Urban Consumption 1988-90 ('000 litres)

	Ulaanbaatar	Choibalsan	Darkhan	Erdenet	Total
1988					
Milk from mechanized dairies	27690	1824	3728	2618	35860
Milk from simple dairies	9659	829	1709	117	12314
Total Milk Supply	37349	2653	5437	2735	48174
1989					
Milk from mechanized dairies	29323	2341	4166	2764	38594
Milk from simple dairies	10334	604	1651	268	12857
Total Milk Supply	39657	2945	5817	3032	51451
1990					
Milk from mechanized dairies	29341	1724	4394	2210	37669
Milk from simple dairies	8916	299	1191	N/A	10406
Total Milk Supply	38257	2023	5585	2210	48075

Source: Ministry of Agriculture

7.5.4 Milk Collection

Milk for the major cities is collected in bulk from mechanized dairies and from milk collection centres by the dairy factory or Combinant. The Ulaanbaatar factory has its own fleet of 164 insulated road tankers of 3,500 litres or 4,500 litres capacity and collects milk from 24 mechanized dairies and 9 milk collection centres within a radius of 300 kilometres.

Milk collection from the mechanized dairies and simple dairies is typically twice per day. The task is made more difficult by unpaved roads and the internal roads on the farms, which are in a poor state of repair with consequent delays. Inwards transport from the furthermost farms to the Ulaanbaatar dairy can take up to six or seven hours. All milk from the mechanized dairies is mechanically cooled before collection during the winter.

The farms supplying the milk collection centres are responsible for providing transport from the farm to the centre. The milk collection centres are generally in poor condition with equipment poorly cared for and they lack attention to housekeeping and cleanliness. The laboratory equipment does not seem to be used.

As an example, the milk collection centre at Bayanchandman, 63 km from Ulaanbaatar, is equipped with a weigh bowl for milk reception, plate heat exchangers cooled by well water which enables cooling to 10 degree C and insulated storage tanks. It has simple testing equipment for acidity and butterfat. The storage capacity is 14,000 litres, however, the maximum throughput is given as 26,000 litres per day, which requires a tank vehicle from Ulaanbaatar dairy to be on site during reception to provide extra capacity. The milk collection centre is situated near the main road and received milk from three State farms at a maximum distance of 144 km.

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7.5.5 Prices

The prices for milk and milk products in Ulaanbaatar were deregulated as from 1 September 1991. However it is worth examining the pricing system which prevailed up to that time to understand how far removed many actions of the prior Government were from the "market economy". Prices for raw milk were standard throughout the country with only minor variations in respect of quality parameters. Until September 1991 the basic producer prices were:

Winter (1.10 to 30.5)	Tg 5.00 per litre
Summer (1.6 to 30.9)	Tg 1.80 per litre

Retail prices paid by consumers were also seasonally determined for pasteurized milk, viz:

Winter (1.10 to 15.7)	Tg 4.00 per litre
Summer (16.7 to 30.9)	Tg 3.00 per litre

It is worth noting that under this system milk retailed for Tg 4.00/litre in the winter, notwithstanding that the milk factory paid the producers Tg 5.00/litre. That is, the factory picked up the milk, pasteurised it and delivered it to retailers for a direct loss of Tg 1.00/litre, quite apart from the operating costs of the transport, processing and delivery system. The official Government prices for all milk products which were in force up to 30 August 1991 are given in Table 42.

Table 42. Officially Controlled Prices for Dairy Products

Product	Season	Unit	Retail Price Tg/litre	Wholesale Price Tg/litre
Pasteurized milk in bulk 3.2 % butterfat	Winter	litre	3.00	2.73
	Summer	litre	4.00	3.64
Pasteurized milk in cartons/sachets	Winter	litre	3.40	3.09
	Summer	litre	4.40	4.00
Sterilized milk		litre	5.20	4.73
Yoghurt		litre	4.00	3.64
Sour cream 30 per cent butterfat		kg	10.40	9.46
Sour cream 40 per cent butterfat		kg	15.20	13.83
Butter High quality		kg	27.00	24.57
Butter Grade 1		kg	24.00	21.84
Powdered milk 25 per cent butterfat		kg	32.00	29.12
Infant formula milk powder 15 per cent fat		kg	28.80	26.21
Infant weaning food		kg	17.40	17.40
Infant diet product		litre	4.00	4.00
Infant vegetable food		kg	5.60	5.60
Infant protein supplement		kg	7.00	7.00

Source:

The dairy factory or Aimag unit gave an officially prescribed "discount" to retail shops which varied between 9 and 11 per cent of the consumer price. The dairy considered this "discount" to be an operating cost and there appeared to be no concept of a "net" selling price to the shops.

In recognition of the loss inherent in the winter pricing structure, the Government provided a support payment to the Ulaanbaatar dairy (only) to cover the cash loss generated by the difference between the winter purchase and consumer selling price. The subsidy was Tg 1.00 litre for the total quantity of milk budgeted to be received during the winter period. Government subsidy was not available to the Aimag units, as it was assumed that other forms of foodstuff production in these combinants were profitable.

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The pricing system did not appear to be based on commercial principles and was apparently social in concept. A comparison of the purchase price of milk and sales revenues based on 1990 actual milk receipts and product volumes indicates that the factory incurred a cash loss equivalent to about 50 per cent of its total milk purchase cost. This loss would however, have been reduced by about 30 per cent after the subsidy was received from Government.

Total operating losses would have been much greater when all costs are considered, such as wages, packing materials, milk transport inwards and outwards, factory and general overheads, energy and depreciation. The price being paid at the farm gate for milk was reasonable when compared with international standards at the official rate of exchange for the tugrig, however, consumer prices were very low. The Central Milk Factory survived by being directly subsidised by the Government. There are no spare parts for the greater part of the packaging equipment and these are also very expensive to buy.

7.5.6 Distribution System

The Ulaanbaatar factory delivers directly to 109 shops and 21 restaurants and public kitchens every day of the year. No delivery charge is levied. Other customers are the six hotels, eight hospitals and a total of 92 State enterprises, schools, kindergartens and military units, which pick up produce from the factory. All deliveries are made against a contract, which stipulates the quantity and nature of the products, the time of delivery and the duration of the contract.

The factory has only a limited availability of chilled trucks and no freezing trucks. Delivery therefore takes place at night for most products, to shops which generally lack refrigeration facilities. During the summer when a substantial proportion of the population of Ulaanbaatar moves to summer camps, milk is delivered to the camps in bulk tankers.

A number of Aimag centres have a dairy unit as part of a multi-product food processing complex. There are 14 such units, with a further three planned to be constructed, which will leave only one province, Suhbaatar without a dairy unit. Three of the existing units at Darhkan, Choibalsan and Erdenet, are larger than the majority, with annual capacities of 5.0, 3.0 and 1.5 million litres.

The Darkhan dairy unit has a capacity of 20 tonnes per day. and was designed to supply the population of Darkhan city (80,000). The milk supply problems are similar to those in Ulaanbaatar, with up to 38,000 litres being received in the summer, and only 6000 litres in the winter at the lowest point. Milk supply is from six mechanized dairies, each with standings for 800 cows and a number of simple dairies. Demand is inverse to supply, with the winter demand at 12,000 litres/day and the summer demand falling to between 6,000 and 7,000 litres/day. The winter demand has in the past been met by recombining with imported milk powder, however this is no longer available.

7.5.7 The Ulaanbaatar Dairy Factory

Production Capacity

This is the only dairy processing factory in Mongolia and was constructed with assistance from the USSR and has been in operation since 1985. A Danish spray drying plant of 150 kg/hr powder capacity was installed in 1989. The processing capacity of the factory was stated as 200,000 litres per day on a two shift basis, however it could not be confirmed whether this figure included the capacity increase afforded by the installation of the spray dryer.

Daily throughput rises to 200,000 litres at peak during the summer, however in the winter the volume of milk received falls to 55,000 litres per day. The milk receival pattern is illustrated in Figure 1.

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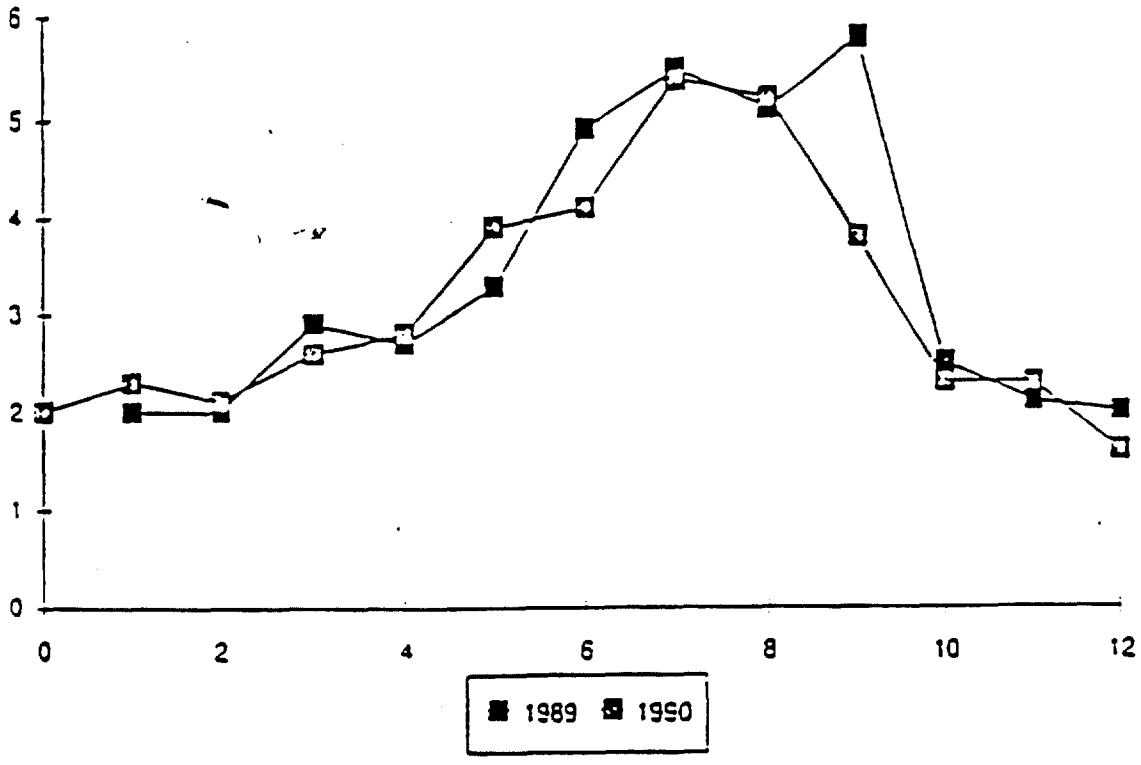
Figure 4. Monthly Milk Reception at Ulaanbaatar Dairy Factory 1989 and 1990 (million litres)



Product Range and Volumes

The product range is limited with, for example, standardized pasteurized milk being offered with only one fat content. No cheese is produced, it being stated that this product is not acceptable to the Mongolian consumer. A number of traditional products are prepared from soured and fermented milk. In particular a dried curd granule used in cooking and "Aarul", a dried curd food pellet which can be sucked or chewed. The products made are detailed in Table 43.

Table 43. Product Range and Volume of Production at Ulaanbaatar Dairy Factory 1989-1990

Product	Unit	1989	1990
Pasteurized milk 3.2 per cent	'000 l	30346	29354
Sterilized milk		N/A	N/A
Yoghurt	'000 l	1510	1637
Ice cream	tonnes	1165	1386
Sour cream	tonnes	634	689
Butter	tonnes	126	104
Cooking curd	tonnes	773	666
"Bayalac"	tonnes	51	103
"Aarul" dried curd food	tonnes	27	39
"Tamir" dietary product	tonnes	14	15
Spray dried milk powder	tonnes	192	147
Sodium caseinate	tonnes	24	20
Total Production as milk equivalent	'000 l	44027	42342

Source: DANAGRO Identification Mission Report, June 1991 pp 17

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The total capacity of the factory on two shifts was given as 60 million litres per year, thus present utilization is approximately 70 per cent. Supply of milk to the Central Milk Factory, Aimag centres and local areas can be seen in Table 44.

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Packaging

With the exception of plastic bags/sachets and glass bottles, all packaging material is imported through the State Supply Commission. This is giving the factory problems at present due to the shortage of foreign exchange. The types of packaging used are as follows:

For city supply through shops, milk is packed in "TetraPak Classic" tetrahedrons of 500 ml and 1 litre capacity and in 50 litre cans for institutional supply. "TetraPak Classic" is a trade name of TetraPak A/B of Sweden, however the packing machines and packaging used at Ulaanbaatar are of USSR origin. In some instances milk is also delivered to shops and institutions by road tankers with consumers' own containers being filled directly from the tanker. Production of sterilized milk from the Finnish "Elecster" system is packed in locally made plastic pouches.

Yoghurt is packed in 500 ml glass bottles. The locally made bottles have a green tint. Sour Cream is packed in plastic rectangular dishes and formerly in deep square cups, both with aluminium foil heat sealed lids. Both containers are 200 ml, however the deep cup filler is out of order at the present time. Cooking Curd (granules) is delivered to institutions and shops in bulk, packed in re-usable wooden boxes with paper linings. "Aarul" Dried Curd Food is manually filled into 300 gm wax coated paper bags which have an outer printed carton. Butter is parchment wrapped in 250 gm prints. Spray Dried Milk Powder is bulk packed in 20 kg polythene lined paper sacks. No consumer packaging is available. Ice Cream is available in biscuit cups and sandwiches. These are packed in paper lined wooden cases before hardening and storage. The biscuit products are produced at the dairy factory.

Technical Standards

Although the factory is relatively new, buildings require renovation and much of the equipment is both outdated technologically and in poor condition due to non-availability of spare parts. The management are particularly aware of the following machines and systems which require replacement:

Refrigeration: There are two systems for low temperature operation and ice water cooling respectively. Both systems give problems almost daily, and none of the 12 compressors are reliable, in particular the four double stage units in the low temperature system. No spare parts are available as the equipment is outdated, although only 6 years old. In the opinion of technical staff at the factory complete new refrigeration systems are required, inclusive of condensers and evaporators. The demand requirements were stated as 300,000 kcal/hr at -30 C to -40 C for the low temperature system operating an ice cream freezer, hardening tunnel and freezing stores, and 240,000 kcal/hr at +10 C to -5 C for ice water cooling and cool stores.

Air Compressors: Of the three compressors installed, one is not repairable, again due to non-availability of spares. The system demand requirement was stated as 6.6 m /hr at 10 bar pressure.

Milk Clarifier: Two manual de-sludging clarifiers are installed, each with a capacity of 5,000 l/hr. The capacities do not match the pasteurizing system which has a capacity of 15,000 l/hr. It is found that the quality of the milk declines after only two hours continuous running so manual cleaning has to be undertaken.

Milk packing machines: A decision has been taken in principle to discard the tetrahedron carton packing machines when existing supplies of packaging material are exhausted. There are five 500 ml machines of USSR origin and one 1,000 ml machine of GDR origin. Various alternatives are available for future packaging such as glass bottles (locally available), gable top carton packs, rectangular cartons and plastic blow moulded bottles. With the present restrictions on foreign exchange, glass bottles could be a rational alternative, however there is no effective bottle return system and high bottle losses could be expected.

Eighteen Aimag centres have collection and pasteurisation centres. Details of aimag milk collections are given in Table 44.

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Table 44. Milk Supplied to Aimag Centres 1988 to 1990 ('000 litres)

	1988 Total Milk	Mech Dairy	1989 Total Milk	Mech Dairy	1990 Total Milk	Mech Dairy
Arakhangai	410		452		317	210
Bayan Ulugei	482		665		687	
Bayan Khongor	277		569		507	
Bulgan	481		408		420	
Gobi Altai	647		539		537	
East Gobi	409		294		197	
Dornod						
Central Gobi	461		563		618	
Dzabkhan	1122		1267		1091	
Obor Khangai	799		986		1218	272
South Gobi	1072		1163		705	
Sukhe Bator	250		314		293	
Selenge	2237	778	1067	788	1009	
Central	651		821		692	
Ubsa	826		816		857	350
Khobdo	851		838	350	1241	430
Khubsugul	562		497		685	
Khentei	532	532	734	734	791	791
Total	12069	1310	11993	1872	11865	2053

Source: Ministry of Agriculture records

7.5.8 Butter Production

Total milk which is used for produce butter is shown in Table 45.

Table 45. Milk Used for Butter Production ('000 litres)

	Total Milk Used	Commercial Production Cows	Small-scale Own Cows	Producers Consumption Sheep
Arhangai	13900	12892	800	208
Bayan Ulgei	1890	1806	25	59
Bayanhongor	4353	4345	8	
Bulgan	7845	7319	487	39
Govi Altai	823	515	79	229
Dornogovi	116	82	5	29
Dornod	4401	4192	209	
Dundgovi	788	478	2	308
Dzavhan	5943	3854	1479	610
Uvurhangai	5785	5403	236	146
Suhbaatar	2134	2071	54	9
Tov	1452	1312	63	77
Uvs	4361	2995	413	953
Hovd	2788	2300	347	141
Hovsgol	12725	10992	1426	307
Hentei	8296	8017	259	20
Milk Factory	2284	2284		
Total	79884	70857	5892	3135

Source: Central Statistical Board

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The bulk of butter production is from extensive herds where the surplus milk from the short summer lactation is separated by hand and delivered as cream to the aimag centres for butter production. Of the total of 4600 tons produced 3000 tonnes is delivered to the cities. Of this, 2000 tons are sold in the retail outlets and the balance used in manufacture. Data on total butter produced is given in Table 46

Table 46. Butter Production 1990 (tonnes)

	Total Butter	High Qual Butter	Sheep Butter
Arhangai	818.8	699.0	8.2
Bayan Ulgei	125.2	98.0	4.0
Bayanhongor	310.9	235.2	
Bulgan	359.4	315.7	1.8
Govi Altai	48.2	28.7	9.2
Dornogovi	382.3	330.9	22.3
Dornod	4.1		1.0
Dundgovi	34.1	22.0	11.2
Dzavhan	178.9	160.5	
Uvurhangai	371.5	306.3	29.2
Omnogovi			
Suhbaatar	62.5	49.5	1.7
Tov	203.1	180.0	41.5
Uvs	174.7	150.9	8.8
Hovd	718.4	609.8	20.2
Hovsgol	345.0	204.3	0.4
Hentei	91.4	42.2	1.3
Milk Factory	103.8	103.8	
Total	4332.3	3536.8	160.8

Source: Central Statistical Board

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7.6. POTATOES AND OTHER VEGETABLES

7.6.1 National Situation

The national production of potatoes and other vegetables for 1990 was 131,000 tonnes potatoes and 47,700 tonnes of vegetables. Of this, 80 per cent was tied by state order, which means that the state guaranteed both the price and a market for what was produced. There are several big vegetable stores and combinants which buy vegetables under state order from the state farms and co-operatives at the state purchasing price. They then sell them to the trade organisation at retail price less a deduction to cover their trading expenses. Recently some state farms and co-operatives have attempted to build their own retail stores in Ulaanbaatar and other settlement areas to sell their own products.

At the beginning of a year every state farm or co-operative prepares an annual production plan for both outputs and inputs. On the basis of the planning figures (budgets), state farms and co-operatives will sign a "supply contract" with their purchasers, which in most cases are the vegetable combinants.

At the end of July or the beginning of August, representatives from State Harvesting Commission (SHC) together with agronomists from the state farms and co-operatives, estimate the yield of individual crops and the expected harvesting date. Based on this, the SHC issues a list which matches producers and consumers allocating likely amounts of potatoes and vegetables to be delivered. Also based on this figure the state farms and co-operatives order the required number of trucks and trailers for on- and off-farm transport.

7.6.2 Ulaanbaatar

The marketing function for potatoes and vegetables is shared between the vegetable storing combinants and the trading organisations. The main vegetable combinant of Ulaanbaatar obtains its supplies from about 24 state farms and co-operatives and from another 40 co-operatives which sell about 4000 tonnes of mainly potatoes and vegetables. It has five commodity based storage firms with a total capacity of some 38,000 tonnes. Individual storage capacities are:

Vegetable	tonnes
Potatoes	24000
Cabbage	7000
Beetroot	2500
Carrots	1400
Onions	2400
Garlic	60

The storage losses are said to be 15 per cent for potatoes, 5 per cent for onions, 10 per cent for beet and about 11 per cent for carrots. The combinant reports that the big losses are not in storage, but rather in transport and at retail stores prior to sale. There is evidence however, of bruising of potatoes caused by poor handling.

Early ripening vegetables and potatoes are received from 15 July. This year potato stores were empty by 7 Aug, cabbage by 15 May, onions by 15 May and carrot and beet by 15 June. The Ulaanbaatar vegetable combinant can generally supply the population with potatoes, onions and cabbage year around. However there are some shortages of other vegetables during the spring and early summer. The vegetable combinant pays a price differential for early harvested vegetables and late harvested vegetables. After they receive the vegetables from farms they store them in bulk and they are sold to consumers without any classification or packaging.

Almost all the vegetables are sold loose. The combinant has two or three packing machines with a total capacity of four tonnes a day. Only potatoes are packed in bags. Prices are the same for different size and quality, so there is no incentive for better quality. There are about 100 storages

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which have lease agreements with the central office. Lease agreement are for 5 years. The transport of vegetables from stores to shops is the responsibility of the trade organisation.

Although each state farm has its own stores with capacities ranging from 1000 to 4000 tonnes, these are mainly used to hold cereal and vegetable seed for the next year's planting. They do not store any of their own production. So from the marketing point of view, it is important to erect many small plants and workshops where vegetables can be salted, processed and canned.

At the moment the vegetable combinant has two natural deep hole storages around Ulaanbaatar with a capacity of 400 tonnes, but these are quite old and need substantial renovation. Production of potatoes and vegetables by aimag in 1990 is shown in Table 47.

Table 47. Production of Potatoes and Vegetables by Aimag 1990 (tonnes)

Aimag/City	Potatoes Planted Area ha	Potatoes Total Yield tonnes	Potatoes Av Yld t/ha	Vegetables Planted Area ha	Vegetables Total Yield tonnes	Vegetables Av Yld t/ha
Arhangai	365	3343	9.2	95	1083	11.4
Bayan Ulgei	324	4934	15.2	75	741	9.9
Bayanhongor	120	1125	9.4	78	547	7.1
Bulgan	545	6811	12.5	97	1215	12.5
Govi Altai	139	1177	8.5	64	724	11.4
Dzavhan	292	2744	9.4	68	856	12.6
Dundgovi	9	49	5.6	6	39	6.7
Dornogovi	4	193	48.1	17	204	12.1
Dornod	394	3489	8.9	77	646	8.4
Selenge	3173	29834	9.4	367	6536	17.8
Suhbaatar	105	624	5.9	44	413	9.3
Hovd	226	2509	11.1	160	1584	9.9
Hovsgol	326	2399	7.4	106	1526	14.4
Hentei	196	1469	7.5	66	569	8.7
Tuv	3074	46785	15.2	666	10092	15.1
Uvurhangai	177	2206	12.5	86	896	10.4
Uvs	272	3302	12.1	88	2042	23.2
Omnogovi	75	477	6.3	45	524	11.6
Darhan	511	6458	12.6	233	2522	10.8
Erdenet	180	3323	18.5	55	1466	26.7
Ulaanbaatar	2	11	5.5	70	1934	27.6
Total	10507	123261	11.7	2561	36158	14.1

Source: Ministry of Agriculture

Tuv aimag produces 38 per cent of Mongolia's marketed potatoes and 28 per cent of marketed vegetables. Selenge produces over 24 per cent of marketed potatoes and 18 per cent of marketed vegetables while Bulgan and Darhan each produce over 6000 tonnes of potatoes and Darhan over 2500 tonnes of vegetables. In general, per hectare yields are quite low by international standards.

There is a problem with storage of potatoes and vegetables. With the short growing season, harvest is rapid and meeting consumer demand requires that the bulk of the crop be stored. Overall storage is insufficient and supplies of the various vegetables gradually disappear through the winter with only potatoes and a few onions left by the spring in March/April. Official storage capacities are shown in Table 48.

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Table 48. Formal Storage Capacity for Potatoes and Vegetables by Aimak (number and tonnage)

Aimag /City	Potato Storage Total Yield tonnes	No	Cap tonnes	Local Store %	Vegetable Storage Total Yield tonnes	No	Cap tonnes	Local Store %
Arakhangai	3343	33	1810	54.1	1083	9	536	49.5
Bayan Ulgei	4934	13	745	15.1	741			
Bayanhongor	1125	11	690	61.4	547			
Bulgan	6811	32	2462	36.1	1215	3	170	14.0
Gobi Altai	1177	16	740	62.9	724	10	640	88.4
Zavhan	2744	31	1030	37.5	856			
Central Gobi	49	1	20	40.8	39			
East Gobi	193	2	30	15.6	204			
Dornod	3489	24	1435	41.1	646			
Selenge	29834	26	8325	27.9	6536	5	90	1.4
Suhbaatar	624	5	180	28.8	413			
Hovd	2509	29	1340	53.4	1584	1	10	0.6
Hovsgol	2399	19	1106	46.1	1526	1	10	0.7
Hentei	1469	22	1730	117.8	569	4	120	21.1
Tuv	46785	31	22	0.0	1092	3	51	4.7
Uvurhangai	2206	9	800	36.3	896			
Uvs	3302	10	600	18.2	2042			
South Gobi	477	2	300	62.9	524			
Darhan	645	4	2450	37.9	2522	3	250	9.9
Erdenet	3323	1	1200	36.1	1467			
Ulaanbaatar	11	3	24000			2	13360	
Total	123261	324	51015	41.4	27158	41	15237	56.1

Source: Ministry of Agriculture

Of the total storage for potatoes and vegetables, 47 per cent of national potato storage is located in Ulaanbaatar. Selenge has storage for over 8000 tonnes of potatoes and 6500 tonnes of vegetables. In general however, there is little vegetable storage capacity outside Ulaanbaatar. Regional storage imbalances are particularly poor in Uvs and Bayan Ulgei given the production levels in these aimags. The low storage percentage in Selenge reflects that fact that much of this production is destined for storage and consumption in Ulaanbaatar. Rapid transport to Ulaanbaatar is essential if production is to be adequately stored at appropriate ambient temperatures. Storage requires both wind cooling and heating.

Total shortfall in storage capacity for an average potato crop is about 37 per cent including wastage. The position can be estimated as follows:

Storage	Tonnes
Retained for Seed	20000
Other farm storage	6000
Ulaanbaatar combinant	24000
Other official storage (aimaks)	27000
Home storage 100,000 families x 50 kg	5000
subtotal crop in store	82000
Losses and wastage 15 % of crop	19000
No storage, hopefully exported	30000
Total crop	131000

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ANNEX VI

NEEDS AND ASSESSMENT IN THE AGRICULTURE SECTOR

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Education • Research • Extension
TEXAS A&M UNIVERSITY
College of Agriculture and Life Sciences
Department of
Rangeland Ecology and Management

December 2, 1991

Mr. Joseph Goldberg
As3Ag
The World Bank
1818 H. Street, NW
Washington, D.C. 20433

Dear Joe:

Included is Report on my trip to Mongolia. I hope the summary reached you in China earlier as I knew it would take me awhile to do the entire report.

Mongolia is a fascinating place, partly because of the location, history and natural resources still relatively intact but more so because the people are "so damn tough." On the trip to the Gobi, I and an FAO consultant from New Delhi (Tiagy) got caught in a blizzard, the driver ran the car off a cutbank, finally were rescued by herdsmen, and spent the rest of the night with the herder and his family in a yurt. The next morning it was -24 deg C and the wind blowing. "This cowboy" was cold and Tiagy almost froze to death (and starved to death since he was a vegetarian and the only food available most of the trip was boiled mutton, blood sausage, fermented mare's milk and cheese).

The Mongolians, in my opinion, are much more reserved than the Chinese but also much more straightforward in their dealings with foreigners. Although it may change soon as the aid money starts pouring in, there isn't the necessity to play the "mindgames" encountered in China. Overall, the Mongolians seem to be much more westernized in their perspective, probably as a result of the interaction with the Russians and East Germans.

Although I think that agricultural development will be seriously limited and dramatic increases in production are unrealistic for all the reasons stated in my report, I think Mongolia could benefit from assistance supplied through The World Bank and in particular through As3Ag. That assistance should be directed at prioritizing key areas of agriculture for development and then applying investment or development assistance funds that allows that area to be vertically and horizontally linked to the agriculture infrastructure and market economy.

Room 225 Animal Industries Building
Texas A&M University
College Station, Texas 77843-2126
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For example, if the AMP effort in Hulunbaer had preceded the RCIV project loan with sufficient lead time to allow all inventories and resource capabilities to be analyzed, decisions could have initially been made on priority projects according to both economic and ecological feasibility. Something like that effort is needed for Mongolia. Although an AMP might retard the development effort and be looked upon by both the Mongolian government and other development organizations as undesirable for that reason, it would have a definite advantage in allowing the current situation to stabilize while preparing the agricultural sector for future "intelligent" development and investment.

Mr. Pierce indicated that I should make arrangements through you to visit The World Bank and present a seminar on the agricultural situation in Mongolia. I would like to do so if arrangements can be made. After Dec. 20, I can be reached at [redacted]

Also after Jan 1, 1992, I will be directly employed with the Eastern Oregon Agricultural Research Center (Oregon State University) at 0.75 FTE to develop ways for resolving grazing use conflicts between large wild herbivores and domestic livestock on public and private land. I will also be an "Adjunct" Professor at Texas A&M University. This arrangement should allow me a minimum of 3 months per year to be involved in other activities, hopefully As3Ag projects in China and Mongolia.

Best Regards,

Dennis P. Sheehy

Dennis P. Sheehy

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MONGOLIA

NEEDS AND ASSESSMENT

IN THE AGRICULTURE SECTOR

Prepared By:

Dennis P. Sheehy
Consultant

November, 1991

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1.0 SUMMARY

1.0. Resource Condition

1.1 Land. Land and vegetation resources are generally in good condition. The only visible evidence of active erosion was in the South Gobi, around livestock watering points and administrative centers and in the general area of Ulaanbaator. Soils suitable for cultivation are limited throughout the country. Soils generally are best suited to maintaining stands of native vegetation.

1.2 Grazingland. Grazingland resources are generally in good ecological condition. At the present time, less than 10 % of grazingland is degraded. Degradation that has occurred has been caused by concentration of livestock around cities and rural administrative centers, damage by vehicle traffic, rodents in grass steppe areas and overgrazing in some areas by livestock during the winter and spring seasons. Degradation in the south Gobi is apparently occurring from a general drying of the climate in recent years, increased length of the winter and cold spring seasons and changes in grazing management strategies in response to economic incentives in the command economy (Cashmere goats replacing camels).

1.3. Climate. Climate is the major factor influencing intensive or extensive agricultural production. Major climatic factors are low precipitation, extreme cold, high winds and a short growing season.

1.4. Livestock. Livestock appeared to be in generally good condition after summer grazing with the exception of cattle in the Gobi. This indicates that grazing pressure generally is in balance with grazingland carrying capacity during the summer. Livestock with the exception of dairy cattle on State Farms are native breeds. No emphasis is being placed on converting to introduced breeds as in Inner mongolia. The Ministry of Agriculture has experimented with introduced breeds imported from the Soviet Union and have concluded generally that introduced breeds are unable to compete favorably with adapted native breeds.

1.5 Suitability for Agriculture. The dominant agricultural activity in Mongolia is extensive agricultural production. Attempts have been made to develop intensive livestock production through the State Farm system. Although intensive livestock production is possible, as in Inner Mongolia this productivity is achieved at a high cost in terms of inputs. Intensive livestock production will continue to be limited by climate and lack of arable land. Extensive livestock production, either the traditional or a closely related system using the same general principles, remains the most feasible approach to agricultural production.

1.6 Wildlife. Relative abundance of wildlife indicates land and vegetation resources in good condition. Wildlife observed included large wild herbivores (Wild Ass, Gazelle, wild sheep and goats), birds, predators, etc. High diversity of wildlife indicates a relatively stable ecosystem. Wildlife has the potential to be the focus of a major sector of the economy through tourism and hunting. Both are currently in the development stages. Reserve areas have been established (Great Gobi reserve, Altai-Gobi Wild Horse Reserve, etc.) but wildlife conservation organizations are embryonic and remain more or less ad-hoc organizations such as the Mongolian Hunters Society. A general wildlife conservation ethic does exist in the population as opposed to Inner Mongolia but needs to be strengthened as the transition to a market economy and agriculture development can be expected to increase pressure on ecosystem diversity.

2.0 INFRASTRUCTURE

2.1 Agriculture . Two different and not mutually inclusive agricultural infrastructures exist in Mongolia. The dual infrastructure reflects decisions made under the command economy characterizing Mongolia during the previous 70 years. It is obvious that the intensive agricultural production system has absorbed the available capital and has been the focus of agricultural development as befitting a socialist country. The agricultural education system has focused on providing specialists for that system, agro-industry has both resulted from and has driven the system, development of agricultural infrastructure has focused on the intensive production system, and social engineering has been attempted in an effort to provide an educated, capable workforce for the system. The intensive production system can be regarded as the agricultural parallel to the focus on industrial development. The focus of the extensive agricultural production system under the commune system has been to provide a raw materials base needed to supplement activities of the intensive production system. Export of raw materials from the extensive production system were also used to offset costs of imported inputs needed for the intensive production system and consumer imports for the urban population and the more sophisticated workers found in the intensive agricultural production system.

2.2 Technical. The infrastructure available for agricultural development is limited. The current capability of the established infrastructure in terms of staff with expertise is low although available staff are generally of high quality. A rapid institutional response towards developing a trained cadre with expertise is doubtful in the short term. Competition of agriculture with other sectors, particularly competition for staff with English language capability, would be expected. As in China, a parochial regard for institutional expertise and competition among institutions for available funds as a means to address institutional agendas can be expected resulting in lack of an integrated approach to agricultural development. Institutions are very discipline oriented rather than holistic.

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2.3 Institutional Needs. Major institutional changes are occurring in the agricultural sector as government responds to the movement towards a market economy. The infrastructure established to implement a command economy in agriculture is being dismantled but most institutions are not certain about the form or function of the new structure. The Agricultural Cooperatives (negdels) formerly controlling the extensive livestock production system will change role from control and administration to more of a service and marketing organization. Policy in the agricultural sector will be implemented through the Ministry of Agriculture. The Agriculture College needs to revamp and broaden curriculums to provide graduates capable of filling specialists roles in agricultural extension, research, education and development. Specialized institutions such as the Academy of Science, Research Institutes and advanced education must respond to the information requirements of institutions engaged in applied management and development of the agricultural production system. A capacity for research and development in the agricultural sector must be established and an extension function established within agricultural management institutions.

2.4 Market Economy. The institutional attempt at establishing a market economy is genuine but uncertain. The quasi-market economy currently developing is both aiding and abetting shortages, i.e. shortages exist in the distribution system established by the command economy but supplies of goods and services are available in the cash based market economy. The agricultural sector is responding by either paralysis or by implementing a barter economy to supplement the command economy. Shortage of inputs in the agricultural sector could seriously affect productivity and consequent supply of agricultural products in the future. In the near term, large scale agricultural enterprises which responded to signals and subsidies from the command economy are becoming paralysed as demand for their products decrease in response to a decrease in subsidies and the current inflation. Production in some enterprises continues even though demand is insufficient and storage is at capacity (e.g. dairy and hog concentrate feed) because of guaranteed jobs to employees and the inability of large enterprises to respond to supply and demand considerations in the economy. In the livestock component, artificially low prices in effect to curb urban consumer unrest may cause withholding of supply by the rural areas. An outlet for urban consumers is the direct link into rural production enterprises through family ties.

2.5 Service Infrastructure. Transportation linkages are poor and declining throughout the country. Roads other than "tracks" essentially don't exist south of Ulaanbaator. Lack of roads and transportation will retard development of a market economy in the agricultural sector by preventing or delaying access to inputs needed for production in the rural areas and for delivering agricultural outputs to centers for value-added processing or direct sale. Movement of inputs, products or materials south of Ulaanbaator is difficult and has been heavily subsidized in the command economy. Lack of a transportation infrastructure may prohibit or retard near and long term agricultural development in most of Mongolia or require subsidization by the government. Other service infrastructures such as electricity, communications, building materials, educational facilities, etc. are limited, especially in the

extensive agricultural production system. Agricultural production in the extensive production system has concentrated on producing raw materials with unsophisticated transportation requirements and little demand for inputs or services. Difficulty in obtaining information on agricultural prices will be an impediment to development of a market economy in the agricultural sector.

2.6 Privatization. Privatization in the agricultural sector of Mongolia is proceeding in response to directives provided by the central government. However, the final form privatization will take is unknown, even by those charged with carrying out the privatization. Relative to agriculture, land privatization will probably follow the Soviet and Chinese model of the state retaining actual ownership of the land but the means of production (equipment, livestock, services, etc.) being quasi-privatized in a share arrangement with the state and the producer. Both the State Farm System and the Commune System appear to be trying to adjust to the new system as a means of increasing production and retaining influence in agricultural production. In the State Farm System, agricultural production will remain the focus of work brigades (not in name but in function) but with more integrated production emphasis. The new production units will contract with the farm for equipment, production inputs and services while the farm will become brokering agents for services, procurement, marketing and selling in the market economy. The Agricultural Cooperatives intend to develop a similar function as a service organization and a focus for development of agro-industry in the extensive production system. The Ministry of Agriculture will have responsibility for providing technical assistance throughout the agricultural sector and implementing agriculture policy deriving from the Central Government. Lack of infrastructure and staff specialists will significantly retard implementation of agricultural policy by the MOA and development of a market economy that satisfies the needs of extensive production system.

3.0 FOCUS OF AGRICULTURE DEVELOPMENT

3.1 Development Organizations. International development organizations are already beginning to address structural development and numerous organizations would like to initiate projects for developing the agricultural sector. For example, at the Donor Conference held in Ulaanbaator in October, Denmark indicated that $10 million dollars in aid would be granted for agricultural development and for developing the "master plan" for agriculture. Asian Development Bank intends to provide technical assistance designed to address current constraints to agricultural production, especially improving fodder production for the intensive and extensive agricultural production systems. USAID would assist genuine efforts at privatizing agricultural production and transformation to a market economy. Non-Government Organizations would like to develop a cooperative effort with the Ministry of Agriculture to develop demonstration farms for fruit and vegetables. Although unquestionably Mongolia needs developmental assistance, the existing development infrastructure in Mongolia has a high potential of being overwhelmed by an influx of development funds based on the agendas of the expatriate development organizations.

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3.2 Structural Elements. Agricultural development should be multi-faceted in addressing macro-economic issues such as transportation and roads, power and fuel supplies, marketing and distribution of agricultural products and food, developing a rural communication network and finding new sources of supply for inputs into the agricultural sector. Transformation to a market economy will in the long term be dependent on the development of these structural elements in the economy.

3.3 Development Process. The fundamental question is "How to proceed with agricultural development in both the intensive and extensive agricultural production system?" Agriculture in the short term and most probably in the long term, unless extractive industry such as mining and oil become more prominent, will provide the basis for economic development. Although higher productivity in the intensive agricultural production system may be achieved under privatization and a market economy, climatic factors, geography and suitability of natural resources will limit increases in production under current technology. In the extensive agricultural production system, livestock production has, in some areas, probably exceeded long term sustainability. Efforts to privatize production and the desire to respond to incentives characteristic of a market economy may exacerbate existing problems. Development aid indiscriminately applied, even if applied to apparent constraints to production under the command economy, risk addressing only the symptoms of existing problems.

4.0 WORLD BANK FOCUS.

4.1 The World Bank (As3Ag) could positively and most effectively assist agricultural development through the following activities:

a. provide technical assistance to the government in formulating priorities for the agricultural sector and developing an integrated plan for agricultural production.

b. sponsor an international conference designed to link technical and aid assistance from external sources with the priority issues of agricultural development.

c. provide direct technical assistance and development aid for one or more of the priorities of agricultural development.

5.0 COUNTERPART INSTITUTIONS.

5.1. Discussions with staff of institutions concerned with agricultural in Mongolia addressed priority development of agriculture to assist the transformation of the Mongolian economy to a market based economy. A general consensus was that development of small and mid-scale value-added agro-industry in the extensive agricultural production system was

a high priority. If development of agro-industry is a priority and that priority was targeted for development assistance by The World Bank, a sequential approach using technical assistance followed by actual development of agro-industry should be employed. The ultimate goal of the project should be to provide economic incentives for maintaining the ecological basis of production. The project should have a major technical assistance component designed to develop the support capabilities of institutions involved in agricultural development in the project and a loan component designed to develop agro-industry facilities that will provide economic incentives for promoting sustainable use of the base production resources. Technical assistance should be oriented towards developing institutional capability for planning and management of land and vegetation, providing technical assistance for developing educational, research and extension institutions, develop abilities of the extensive production system to provide quality livestock offtake suited for value-added agro-processing and assisting Mongolian institutions to cooperate in developing an integrated plan for development of the extensive livestock production system. Infusion of loan funds for development of appropriate agro-industry would be sequential to development of capabilities of Mongolian institutions to provide the management and planning necessary to integrate the extended livestock production system into the developing market economy. Discussions with institutions involved with agriculture including the Ministries of Agriculture and National Policy, Land Use Policy Institute, Agriculture College, Research Institute of Animal Husbandry and Agricultural Cooperatives indicated general agreement with the conceptual approach to a project of this nature.

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2.0 APPRAISAL AND STATUS OF AGRICULTURE IN MONGOLIA

2.1 INTRODUCTION During October-November, 1991 a mission from The World Bank visited the Mongolian People's Republic. The mission had multiple purposes including assessment of the current status of agriculture in Mongolia. A concern of the mission was the potential impact on the agriculture sector of land privatization and transition to a market based economy.

2.2 The agriculture assessment was prepared by Mr. Dennis P. Sheehy, consultant. Terms of reference for the consultant were:

a. assess the status of current and projected agriculture production,

b. assess the current status of natural resources used for agricultural production and project the impact of agricultural development on resource sustainability

c. assess the impact of privatization and transition to a market economy on the agricultural sector

d. assess the opportunities for The World Bank to promote constructive development in the agricultural sector,

e. make recommendations to The World Bank on issues and prospects for development.

f. make recommendations on agricultural development to government, agricultural institutions and institutions establishing policy in the agriculture sector.

2.3 During the 18 days in Mongolia, the consultant visited institutions concerned with management and use of agricultural resources including the Ministry of Agriculture (MOA), Supreme Council of Agricultural Cooperatives (SCAC), Board of Trade and Agricultural Commodities Exchange, The Land Use Policy Institute (LUPI), The Botany Institute of The Academy of Science (AC), The Ministry for National Planning (MNP), The Research Institute of Animal Husbandry (RIAH) and the College of Agriculture (CA)(Annex 1). Two field trips were undertaken:

a. a five day trip to visit Aimag and Sumon Administrative Centers in two Gobi Aimags in which extensive livestock production is practiced and to assess condition of grazingland resources,

b. a three day trip to visit a mechanized state farm involved in intensive crop and dairy production and extensive livestock production and a large feedmill preparing swine and dairy concentrate feeds.

2.4 The United Nations Development Programme's (UNDP) paper entitled "Agricultural Sector Background Paper" prepared by P. H. Sloane for the Donors Conference for Mongolia provides an excellent background summary of the agricultural sector. The report prepared by DANAGRO on the "Milk and Meat Production, Processing and Marketing" for a UNDP Needs Assessment Mission also provides background information on the agricultural sector of Mongolia. In this section, Sloane's and DANAGRO's background information on climate and natural resources in Mongolia will be used to supplement information obtained by the mission on environmental constraints affecting agricultural production. This report will provide a perspective on the existing situation in agricultural, an assessment of needs in the agricultural sector and submit suggestions for further involvement of The World Bank in assisting agricultural development. Where applicable, a comparative perspective with the Inner Mongolian Autonomous Region of China will be provided.

2.5 During the consultant's visit to Mongolia, every effort was made by staff of the institutions visited to provide information on the agricultural situation in Mongolia. The MOA acted as host for the consultants visit and made arrangements for visits to other institutions and to the field. All ministries and institutions visited were very forthcoming with information and appeared to be highly concerned with applying the correct development initiatives to the agriculture sector.

3.0 AGRICULTURAL BACKGROUND

3.1 Environment. Historical attempts to develop intensive agricultural production in Mongolia have generally failed. Reasons include lack of desire by herdsmen to change from a mobile transhumant lifestyle to a sedentary lifestyle, prohibition against Mongolians practicing sedentary agricultural, resentment against loosing the best grazinglands to sedentary agriculture when Mongolia was under Chinese influence, religious prohibitions against disturbing the soil when Mongolia was influenced by Buddhist Lamanism and environmental conditions that are generally unsuitable for intensive agricultural production. In historical times, the only area of Mongolia successfully converted from extensive agricultural production to intensive agricultural production were areas of Mongolia (current Inner Mongolian Autonomous Region of China) adjacent to the Great Wall separating China and Mongolia (Figure 1).

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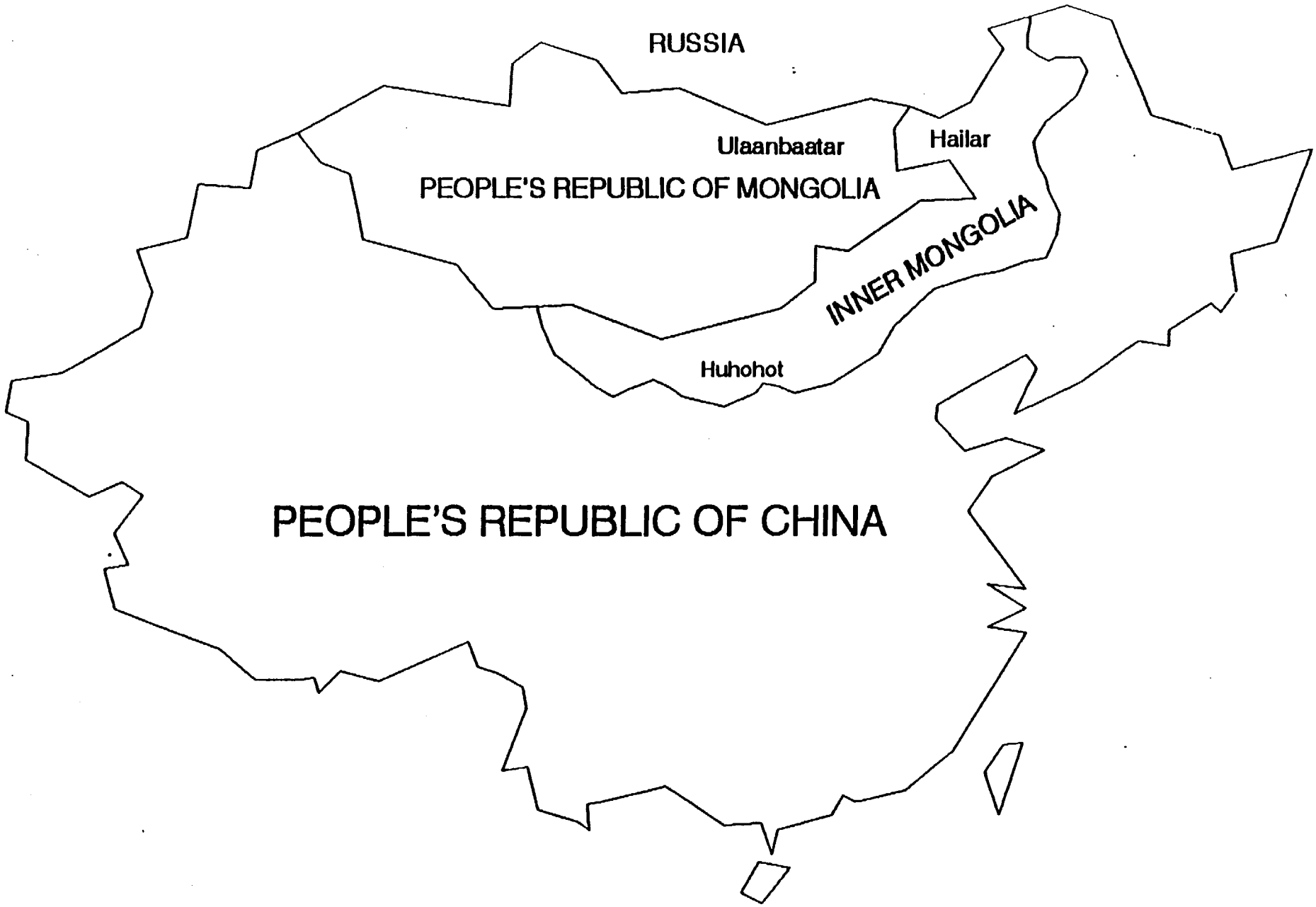

Figure 1. Mongolia in relation to China and Russia

3.2 Environmental conditions have and will continue to exert the greatest influence on agriculture in Mongolia (Annex 1). Mongolia is subject to an extreme continental climate characterized by low temperatures in winter and summer (average temperature varies from a low of -5.3 deg C to +4.0 deg C with minimum temperature recorded of -53 deg C and maximum recorded temperature of +47 deg C); low and erratic precipitation occurring primarily during the summer (66 to 78 % of precipitation occurs in July and August) as convectional storms; cold, high velocity winds and sandstorms occurring during the spring months (average wind velocity of 2-3 m\sec with up to 5.6 m\sec in the Gobi); low winter and spring precipitation causing spring drought; and a short growing season (average 80 to 100 days). Except in the Forest steppe zone of northern Mongolia, availability of surface water for irrigation and livestock is limited. The location of major river systems in the extreme north of Mongolia and the flow of these rivers generally to the north also limits the land area that can be irrigated using surface flow. The extremes of climate, particularly wind, cold and low precipitation exacerbate the impact of inappropriate agricultural practices on natural resources and limit the effectiveness of intensive agricultural production.

3.3 Geography influences agriculture both positively and negatively. Positively, the location of the MPR in the center of the Asian Continent (Figure 1) with dry and temperate climatic conditions and co-evolvement with large herbivores favored the development of steppe grazingland that are highly productive and resilient to grazing by large herbivores. The presence of northwest to southeast oriented mountain ranges in the western portion of the MPR and the arid Gobi in southern Mongolia provides zonal vegetation capable of providing winter, summer and spring-fall transitional pastures for domestic and wild grazing herbivores (Annex 1). However, alignment of topography also funnels Siberian cold fronts to Southern Mongolia and increases the stress on livestock during winter and spring. Location of Mongolia also makes development of a market economy and export markets difficult because of the long distance involved in interacting with world markets.

3.4 Agricultural Resources. Total land area of Mongolia is 1,565 million ha of which 1,260 million ha (80 %) is capable of agricultural production (primarily extensive livestock production). Cultivated land occupies 1.35 million ha of total area. Over 57 % of total arable land is located in the north-central Aimags of Tov and Selenge and the northeastern Aimag of Dornod (Figure 2). The Aimags forming the Gobi third of the MPR have 1 % or less arable land. Other Aimags have amount of arable land ranging between 1.1 and 9.5 %. Arable soils are characteristically dark chestnut and chestnut soils and are typical of soils that evolved with grass steppe vegetation. Organic matter content is 3 to 4 % with pH of 6.0 to 7.0. Soils are shallow (average of 30 cm) even in the crop producing Aimags of Tov and Selenge where conditions are most suited for intensive agricultural production. In these Aimags, only valley bottomland and lower slopes of hills on primarily north aspects are cultivated because of greater soil depth and higher soil moisture retention. Principal crops produced on cultivated land are cereals (of which wheat has comprised approximately 80 % since 1960; other cereals are barely, rye and oats used primarily as greenchop silage for feeding dairy cattle), potatoes and vegetables. Attempts to produce lucerne as a fodder crop for intensive dairy and livestock production have failed because of winter kill in the cold and dry environment.

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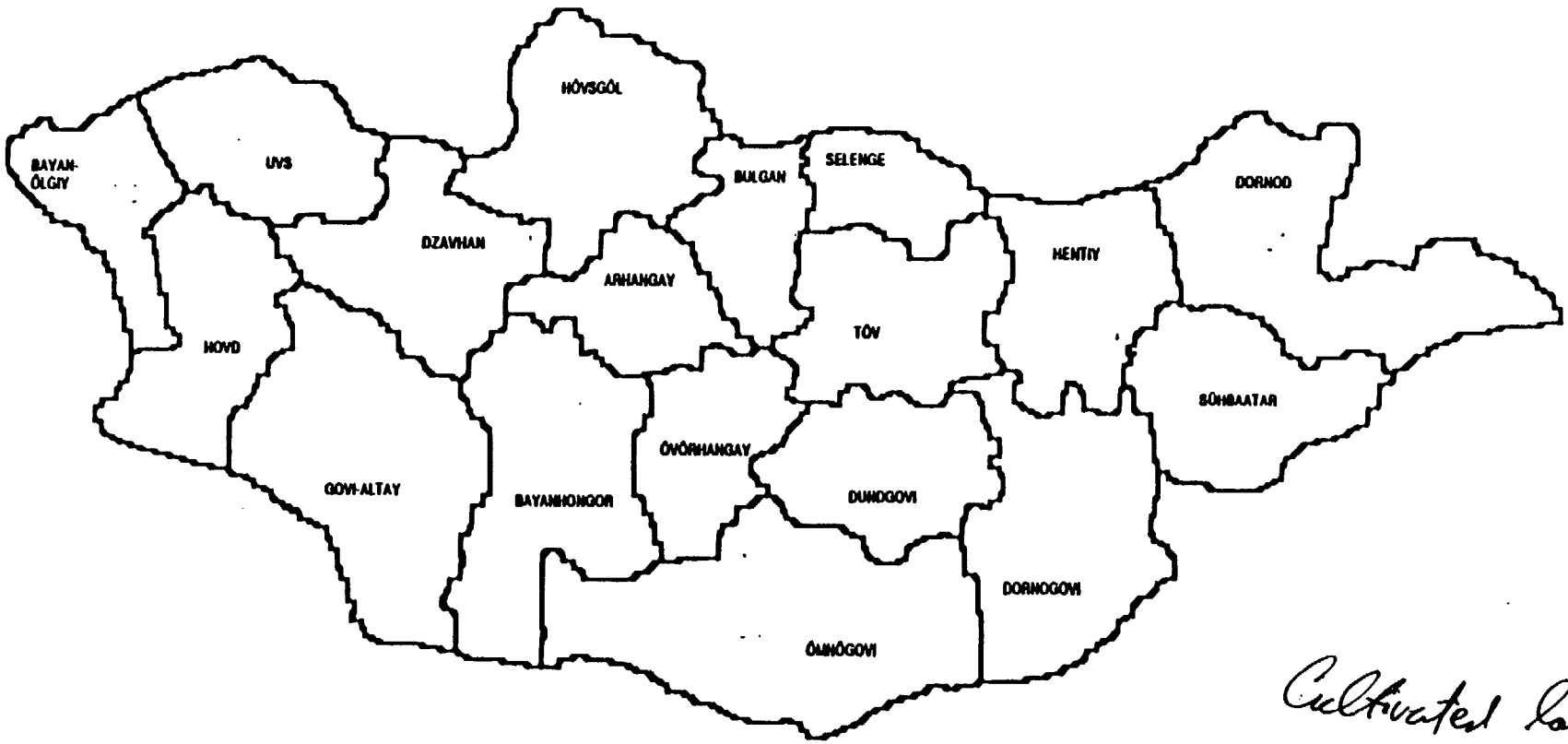
3.5 Native grazingland occupies 1,257.76 million ha (94 %) of area considered suitable for agricultural production (Table 1). High mountain (including alpine) grazingland comprises 4.6 % of total grazingland area and occurs primarily in the northwestern and southwestern Aimags. Forest-steppe grazingland comprises 22.9 % of total grazingland area and occurs primarily in northwestern and north-central Aimags. Steppe grazingland comprises 28.0 % of the total grazingland area and occurs primarily in the northeastern and north-central Aimags. Desert-steppe comprises 28.3 % of grazingland area and occurs primarily at lower elevation of the northwestern Aimags and in the northern part of the southern Gobi Aimags. Desert comprises 16.2 % of grazingland area and occurs primarily in the southern part of the Gobi Aimags along the border with the Inner Mongolian Autonomous Region of China. The distribution and occurrence of the major grazingland types in Mongolia have in the past provided optimal conditions for transhumant grazing management strategies.

3.6 The five major kinds of livestock using grazingland are camels, horses, cattle, sheep and goats. Livestock are distributed through all Aimags with camel and goat production emphasized in the southern Gobi Aimags, horse production emphasized in the north and south central and eastern Aimags, cattle production emphasized in the northern Aimags and with sheep production relatively evenly distributed throughout the country (Table 2). In 1990, the total number of livestock was 25,856.9 million head. This represents the highest number of livestock since 1940 (Table 3). Number of camels with 537.5 million head were at their lowest number since 1930 and are expected to continue to decline. Horses at 2,262.0 million head have increased since 1980 and are approaching the 1965 high numbers of 2,432.6 million head. Cattle at 2,848.7 million head and sheep at 15,083.0 million head are at highest numbers since 1930. Goats at 5,125.7 million head are at highest numbers since 1960. Yaks and reindeer are also grazed in some areas. Principle products produced from the livestock sector include live animals for export and meat, hides, wool (Cashmere and sheep), mohair and dairy products (milk, cheese, butter and wine). Projections of livestock numbers to the year 2000 indicate small increases in all 5 kinds of livestock and an increase in total livestock numbers to 26,500.0 head (Table 4).

3.7 Numerous large wild herbivores also utilize native grazinglands including Moose, Red Deer, and Deer in the forest steppe and Argahli Sheep, Wild Goats, Gazelle, Wild Ass and Wild Camels in the desert steppe of the Gobi. At the present, three international efforts are underway to reintroduce the Mongolian wildhorse (Equus przewalski, Mon. "tachi") to Mongolia. The "tachi" is increasingly viewed by Mongolians as a national symbol and considerable support is ~~be~~ given to the attempt at reintroduction.

4.0 AGRICULTURAL SECTOR

4.1 Agriculture Organization. Government administration of Mongolia is organized into 18 Aimags (provinces) and three autonomous cities of which Ulaanbaatar is the capital and the largest (Figure 2). Aimags are divided into unequal sized Sumon administrative units



Cultivated land

Figure 2. The 18 Aimags (Provinces) in the Mongolian People's Republic

Table 1

RANGE LAND OF MONGOLIA (1981)

Aimags and cities	Total (*thousand hectare*)	Including Zones									
		HIGH MOUNTAINS		FOREST-STEPPE		STEPPE		DESERT-STEPPE		DESERT	
		Total	%	*Total*	%	*Total*	%	*Total*	%	*Total*	%
1 Arhangai	4492.1	575.0	12.8	3328.6	74.1	588.5	13.1	--	--	--	--
2 Bayan-Olgii	4179.4	1176.6	28.2	417.2	10.0	1735.7	41.6	838.7	20.1	4.2	0.1
3 Bayan-Hongor	9526.8	338.4	3.5	1048.0	11.0	1981.6	20.8	3420.1	35.9	2743.7	20.8
4 Bulgan	3059.1	64.2	2.1	2303.5	75.3	691.4	22.6	--	--	--	--
5 Dornod	1062.6	--	--	3434.7	29.5	7438.3	70.0	53.1	0.5	--	--
6 Dornogov	10.0	--	--	--	--	763.9	7.5	6314.6	62.0	3106.3	30.5
7 Dundgov	73.3	--	--	--	--	3172.2	42.9	4066.9	55.0	155.3	2.1
8 Omnogov	142.5	--	--	14.7	0.1	264.0	1.8	7204.2	49.1	7189.6	49.0
9 Zavhan	6873.6	653.0	9.5	3340.0	48.6	1347.7	20.0	1354.1	19.7	151.2	2.2
10 Ovor-hangai	5982.2	6.0	0.1	1567.3	26.2	1698.9	28.4	2578.4	43.1	131.6	2.2
11 Suh-baatar	7727.2	--	--	873.2	11.3	5447.7	70.5	1375.4	17.8	30.9	0.4
12 Selenge	1966.5	37.4	1.9	1675.4	85.2	253.7	12.9	--	--	--	--
13 Tov	6002.8	300.1	5.0	2173.0	36.2	3529.7	58.8	--	--	--	--
14 Gov-Altai	9230.9	27.7	0.3	--	--	1218.5	13.2	3448.0	37.7	4504.7	48.8
15 Uvs	5641.5	231.3	4.1	1004.2	17.8	1342.7	23.8	2521.7	44.7	541.6	9.6
16 Hovd	6035.5	500.9	8.3	--	--	1333.8	22.1	2384.0	39.5	1816.8	30.1
17 Hovsgol	5905.5	1677.2	28.4	4157.5	70.4	70.8	1.2	--	--	--	--
18 Hentii	6109.5	152.7	2.5	3671.8	60.1	2223.9	36.4	61.1	1.0	--	--
19 Darkhan	44.6	--	--	14.3	32.0	30.3	68.0	--	--	--	--
20 Erdenet	53.0	--	--	53.0	100.0	--	--	--	--	--	--
21 Ulan-baator	75.5	--	--	54.7	72.5	20.8	27.5	--	--	--	--
TOTAL	125776.5	5735.5	4.6	22831.7	22.9	35181.1	28.0	35652.3	28.3	20375.9	16.2

Table 2

Livestock in Mongolia by Aimag in 1990 (x 1000 head)

Aimag	Month				
	Camel	Horse	Cattle	Sheep	Goat
Arhangai	2.3	194.4	294.9	814.0	190.7
Bayan-Olgii	10.4	83.1	117.7	797.3	309.9
Bayan-hongor	45.4	103.9	128.2	773.0	548.6
Bulgan	4.4	122.4	175.0	594.1	102.3
**Gov-Altai	52.1	81.6	79.7	978.3	501.9
Dornogov	60.7	82.9	77.0	538.2	184.7
Dornod	13.3	92.0	126.1	661.2	44.0
Dundgov	53.7	152.0	93.8	801.3	404.7
Zavhan	15.3	156.5	195.8	1402.9	363.0
**Ovor-hangai	31.4	196.3	200.5	1219.9	413.5
**Omnogov	127.9	62.5	24.6	284.4	411.4
Suh-baatar	15.9	118.2	132.2	602.9	135.4
Selenge	0.3	33.8	99.2	351.3	28.0
Tov	9.5	203.3	205.7	1116.4	176.5
Uvs	40.4	136.7	162.3	1020.2	307.0
**Hovd	37.2	104.2	136.9	913.1	496.2
Hovsgol	7.1	168.3	322.8	1093.2	280.4
Hentii	9.9	142.5	197.1	950.2	199.1
TOTAL	537.5	2262.0	2848.7	15082.9	5125.7

** Gobi Aimags

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Table 3

Livestock Numbers in Mongolia
Between 1930 and 1990 (x 1000)

Year	TOTAL	Camel	Horse	Cattle	Sheep	Goat
1930	23676.2	480.9	1566.9	1887.3	*15660.3	4080.8
1935	22595.6	563.0	1788.8	2372.0	13610.1	4261.7
1940	26204.8	643.4	2358.1	2722.8	15384.2	5096.3
1945	20015.6	649.0	2098.1	1994.8	11570.8	3702.9
1950	22702.2	844.2	2317.0	1987.8	12574.0	4978.6
1955	23085.1	*879.8	2386.0	1812.3	12559.2	5447.8
1960	2300.5	859.1	2502.7	1905.5	12101.9	*5631.3
1965	23834.6	684.7	*2432.6	2093.0	13838.0	4786.3
1970	22574.9	633.5	2317.9	2107.8	13311.7	4204.0
1975	24351.5	617.1	2254.6	2427.0	14458.1	4594.7
1980	23771.4	591.5	1985.4	2397.1	14230.7	4566.7
1985	22485.5	559.0	1971.0	2408.1	13248.8	4298.6
1990	25856.9	#537.5	2262.0	*2848.7	**15083.0	***5125.7

* year with highest total number of kind of livestock
\# year with lowest number of camels
** year with highest number of sheep since 1930
*** year with highest number of goats since 1950

Table 4

Projected Livestock Numbers in Mongolia to the Year 2000 (x 1000)

25.857 m?

Year	Total	Camel	Horse	Cattle	Sheep	Goat
1990	23,854.0	568.0	2,130.0	2,635.0	13,952.0	4,568.0
1995	25,230.2	569.0	2,244.0	2,701.2	14,532.0	5,184.0
2000	26,500.0	605.0	2,311.0	3,023.0	15,099.0	5,462.0

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(counties) with Sumons in the Gobi having a large area but low population and Sumons with smaller area and higher population located in the forest steppe region in the central zone. The administration organization below the Sumon level includes Bagah (brigade), Suur (production team= family groups) and the family. The administrative organization of Mongolia is similar to the Inner Mongolian System of League (= Aimag), Banner, Sumu (= Sumon), Production Brigade, Production Team and family.

4.2 Ministries in Mongolia include the Ministries of National Development, Finance, Foreign Relations, Agriculture, Trade and Industry, Defense, Law, Labor and Education. Most ministries have between 40 to 70 staff at the national level and between 4 to 6 staff at Aimag administration centers. The Ministry of Education generally has a staff of 15 to 20 persons at Aimag centers. At the Sumon, only the Ministry of Agriculture with 4 to 5 staff and the Ministry of Education with 1 staff are represented. Departments in the Ministry of Agriculture include the Food Corporation, Flour and Feed Mills, State Agricultural Farms, State Fodder Farms, Emergency Hay Funds, Irrigation Services and the Supply Corporation.

4.3 Although organs of government (and party) administration exist throughout the country, agricultural administration until 1990 was the responsibility of different administrative organizations. State Farms located primarily in central and eastern Mongolia that engage in more intensive agriculture production were the direct administrative responsibility of the Ministry of Agriculture (MOA). The Supreme Council of Agricultural Cooperatives (SCAC) administered the extensive agricultural production system through 255 Negdel cooperatives (communes) organized at the Sumon administration level.

4.4 Intensive Agriculture Sub-sector. Intensive agriculture is primarily a function of State Farms administered by the MOA. As of 1990, there were 73 State Farms of which 20 were State Fodder Farms that harvest hay to be used as supplemental feed for livestock throughout the country. The 53 state farms engaged in intensive agriculture were multiple enterprise farms with production focus on cereal grain, dairy, vegetables and livestock. For example, Bornur State Farm (with the most efficient and highest producing dairy in the country) located 105 km to the northeast of Ulaanbaator on a hard-surface road had the following production characteristics:

a. established in 1962 and renovated in 1972 with equipment from East Germany,

b. 3,350 ha of cultivated land (2000 ha of grain, 900 ha of potatoes with total production at 15,000 ton, 400 ha of vegetables including carrots, cabbage and beets (with greenhouses for cold season production),

c. two dairy farms (800 and 400 Frisian cow herds originally imported from East Germany) milked for 9 months per year to produce an average 4000 l/cow/year (total milk production was 4.1 million l/year transported to Ulaanbaator by truck),

d. total livestock of 25,000 head (18,000 sheep with other livestock being cattle, goats, camels and horses) which, other than the dairy cattle, were being managed for extensive livestock production,

e. grain production oriented towards providing 7 months feed to the dairy cattle either as green chop silage or as compound feed,

f. extensive areas of native grazingland hayed to provide roughage to dairy cattle during 9 months the cows were kept barn stationed and emergency fodder to other livestock,

g. a total population of 4,900 people working, prior to the initiation of privatization, in labor brigades.

4.5 Impressions gained from the visit to Bornur State Farm were:

a. it was adequately mechanized with equipment (tractors, tillage implements, haying implements and harvesting implements, feed mill, dairy equipment and service facilities) obtained from the USSR and East Germany),

b. facilities were generally in a state of disrepair,

c. use of mechanized equipment (tractors, haying equipment, harvesters, feed mills, dairy equipment) was being restricted because of the inability to obtain replacement parts from former suppliers in the Soviet Union and East Germany,

d. privatization in the form of limited companies through which former members of production brigades would lease land and equipment and obtain services from the State Farm was being implemented,

e. little information was available to the farm administration from the Central Government on agricultural prices, transition to privatization and a market economy or how to respond to the decrease in subsidies formerly provided by the central government,

f. natural resources used as the basis for both intensive and extensive agricultural production on the State Farm were generally in good condition,

g. State Farm staff and producers need training in how to establish privatization and function in a market economy.

4.6 The agro-processing, milling, abattoirs, and meat processing facilities are located in the north near urban population centers and are designed to service the State Farm system. Agro-processing facilities are few in number, antiquated, lacking spare parts and are generally at a loss as to how to respond to the initiative towards a market economy based on supply and demand functions. A visit to a mill producing concentrate feed for pig and dairy animals provided insight into the problems faced by these plants. The plant was operating under the following production constraints:

a. the plant was established in 1960 with 18,000 ton capacity and was renovated in 1985 to produce swine and dairy concentrate feed at 43,000 ton/year capacity,

b. at the present time, the plant was operating at 50 % of capacity because of a shortage of feed sacks (needed 1.3 million to operate at full capacity), the high price of grain (700 tugrik/ton) and the lack of demand,

c. the lack of demand from swine and dairy enterprises was caused by the higher price the mill was having to charge because the central government had removed subsidized transportation,

d. even though all warehouse space was full, the feed mill was continuing to operate because of the need to provide employees with the opportunity to fulfill work quotas,

e. all equipment was from the Soviet Union and was old and needed renovation,

f. the management had received directives from the central government to privatize the feedmill but could not figure out a method for doing so,

h. the estimated loss acquired by the mill during the 9 months of operation during 1991 was 240,000 tugriks and losses expected during 1992 were 700,000 tugriks.

4.7 Extensive Agriculture Sub-sector. Extensive agriculture has been administered by the Supreme Council of Agricultural Cooperatives (SCAC) since the early 1960's through the Negdel commune system. After collectivization, private ownership of livestock on a large scale was prohibited (each family was allowed to retain specified numbers and kind of animals as personal property for use by the family), labor was assigned to specialized production brigades and organization of labor and assignment of grazing pastures was controlled by the leadership of the Sumon\Negdel (prior to 1990, leadership was invested in the same person, i.e., the commune leader was also the Sumon leader so that effectively the leader of the Sumons and the Aimag was a member of the Mongolian Revolutionary Party). Schools and social services were provided at Aimag, Sumon and Bagah administrative centers.

4.8 For example, Omnigov Aimag (Figure 3) has an area of 165,000 sq km, 42,000 population (10,000 families, 4000 herders) and 1 million animal population. Administration is through 40 sumons involved in extensive grazing of livestock using traditional production practices (herding from the Ger, seasonal movement of livestock, etc.). Intensive agriculture has been limited to attempts by 6 sumons to produce vegetables for local consumption. An attempt has been made to grow fodder in oases but the attempt has been discontinued because costs were much higher than importing subsidized fodder from the Hanggai Region of Eastern Mongolia.

4.9 Total animal offtake has averaged 700 ton of camel mohair, 130 to 150 ton of Cashmere wool and 4000 to 5000 ton of meat. At the present, no value-added agro-industry exists in the Aimag and all livestock offtake is sent to Ulaanbaator as live animals or raw animal products. Total number of livestock have decreased with collectivization but the emphasis in animal production has shifted from camels to Cashmere goats because of the market for Cashmere wool. Cashmere wool has been priced at 300 to 400 Tugrik/kg while camel mohair was priced at 40 to 100 Tugrik/ kg. However, the profitability of Cashmere has been negatively affected by the drop in international prices for all types of animal fiber.

4.10 Within the Aimag are located six Emergency Fodder Distribution Centers designed to supply supplemental feed to weaker livestock during severe weather. Emergency Fodder requirements estimated for the 1991-92 winter/spring seasons were 28,000 tons of hay and 12,000 tons of compound feed (pelleted feed comprised of wheat and straw chaff). Emergency feed had been obtained from the Hanggai Area in Eastern Mongolia and trucked 800 to 1000 km to distribution points in the Aimag. Costs associated with purchase of the hay has doubled and the cost of compound feeds has almost tripled since 1990. In 1991-1992, the subsidized cost of delivering hay and pelleted feed was 316 Tugrik/ton. Cost to the commune was an additional 16 % of the subsidized cost assessed as administrative and handling fees. Although imported feed is fed only to weaker animals while the stronger animals graze native forages, the requirement for supplemental feed is directly related to the emphasis on production of Cashmere wool from goats. Camels are able to survive the winter by grazing native forages.

4.11 An example of the current structure of livestock herds was provided by a visit to Nomgon Sumon in Omnigov Aimag (Figure 2). Nomgon Sumon is located 120 km southeast of the Aimag Center (Dalanzadad). Total livestock grazing the Sumon included 85,000 animals of which 10,000 were camels, 6,000 were horses, 20,000 were sheep and 40,000 were goats. Nomgon Sumon is also a fodder emergency fund distribution point with 1000 ton of native steppe hay from Hanggai and 600 ton of compound feed available for livestock. Emergency fodder at the distribution point was to be shared on an "as needed" basis with the neighboring Sumon.

4.12 Major problems associated with livestock production on the Sumons according to Mr. Saandaa, the Aimag leader include:

a. environmentally severe conditions characteristic of the Gobi,

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b. lack of quality winter fodder and the need to import fodder from other areas,

c. the usual occurrence of drought on grazingland of the Aimag,

d. desertification of the southern Gobi,

e. shortage of water for livestock and the necessity to provide water through bore wells,

f. the need to construct livestock shelters to protect livestock from winter and spring winds

g. the need to increase value of offtake at the Sumon level through agro-processing enterprises and finding better markets,

h. the need to improve quality of specialized livestock (increased culling was expected to occur in 1992 as a reflection of poor market prices).

5.0 PREVIOUS AGRICULTURAL POLICY.

5.1 Collectivization. Two major administrative changes that occurred under government/party decree during the previous 70 years have had a definite impact on agriculture sector. Between 1930 and 1935, an administrative reorganization occurred that created 18 Aimags from the pre-existing five Aimags (Figure 2). The smaller administrative units allowed for improved social control and direct control of livestock production, especially to expand livestock grazing to unused (seasonally used?) rangeland. Although social services such as education and health became more accessible to the rural population and a more equitable spread of wealth was achieved, the reorganization disrupted traditional grazing management practices. Prior to the reorganization, livestock production was oriented around movement of livestock from natural summer range in the north to natural winter range in the Gobi. Each of the five traditional Aimags contained within their boundaries some or all of the ecological zones occurring in the country. Transhumant grazing patterns enabled livestock to use higher elevation forest-steppe pastures in the summer and less weather stressful desert-steppe pastures in the winter. Adapted native animals were able to achieve sufficient body condition to enable survival during normal winter-spring seasons of nutritional and weather stress.

5.2 With the change to more and smaller administrative units with ecologically artificial boundaries, livestock production ceased to be based on transhumant grazing across ecological zones and became based on grazing throughout the year on grazingland available within Sumon and Aimag boundaries and the provision of supplemental feed during extreme weather conditions (Figure 3). As in Inner Mongolia, spring is the season of highest death loss. By the spring season, body condition is at a low point because of weather stress, the

lack of sufficient high quality supplemental feed being available to carry them through this season, the inability to carry sufficient quantity and quality of forage standing crop through to the spring season because of overgrazing of seasonal pastures and the physical and nutritional stresses on breeding animals associated with parturition of young. Provision of supplemental fodder has prevented some death loss during the winter-spring seasons in normal years compared to pre-1945 death losses but large numbers of livestock continue to die during the worst years. Despite the massive transfer of supplemental feed, the amount transferred is only sufficient to supplement weaker animals during normal years (Figure 4).

5.3 The second major negative impact on extensive agriculture was the collectivization of all Sumons between 1960 and 1965. All livestock became state property with the exception of a relatively small number of personal livestock for family use. With collectivization came major changes in management and an emphasis on specialized livestock production. Prior to collectivization, each herding family had sole access to a unit of grazingland and a well for watering livestock. Multi-species grazing with camels, horses, sheep, cattle and goats forming the basis of production. For example, a Suur prior to collectivization might have on the average 300 sheep and goats, 50 horses, 20 to 40 cattle and 10 camels. Each herding family or Suur was allocated grazingland and made decisions about extent and timing of grazing by their livestock. Following collectivization, the Negdel leader at the Sumon made all decisions on grazing use of the pastures available within the Sumon. Specialization of labor and the kind and type of livestock grazed and managed by the herding families was determined by the Negdel/Sumon leader. Rather than managing grazing for mixed animals, each Suur specialized in the management of one kind of livestock (e.g., 600 to 1000 sheep and/or goats). The increase in the number of specialized animals is at least partially correlated with increased requirements for supplemental feed.

5.4 In the short term, collectivization has contributed to ecological degradation of grazingland by concentrating livestock around watering points and around Sumon centers. It has also necessitated the construction of additional watering points because of the need to graze seasonal pastures year-long. The emphasis on a specific kind of livestock such as goats rather than multi-species grazing has also influenced ecological condition of grazingland by increasing grazing pressure on specific forage species. Collectivization and the resulting change in grazing management has also led to the costly transfer of supplemental fodder throughout the country. The Research Institute of Animal Husbandry (RIAH) estimates that collectivization has increased the effective stocking rate of some pastures in the Gobi by 300 %. In the long term, collectivization has led to certain decisions by the government, MOA and the Negdels that have had and will continue to have repercussions for ecologic, economic and social stability of the country.

5.5 In 1990, seven of the 18 Aimags were overstocked according to measurements of supply and demand for forage made by the Land Use Policy Institute (Table 5). By 1995, eight Aimags are projected to be overstocked and by the year 2000, nine Aimags are projected to be overstocked. The currently overstocked Aimags are Tov Aimag in north central Mongolia and the Gobi Aimags which are the recipient of subsidized emergency

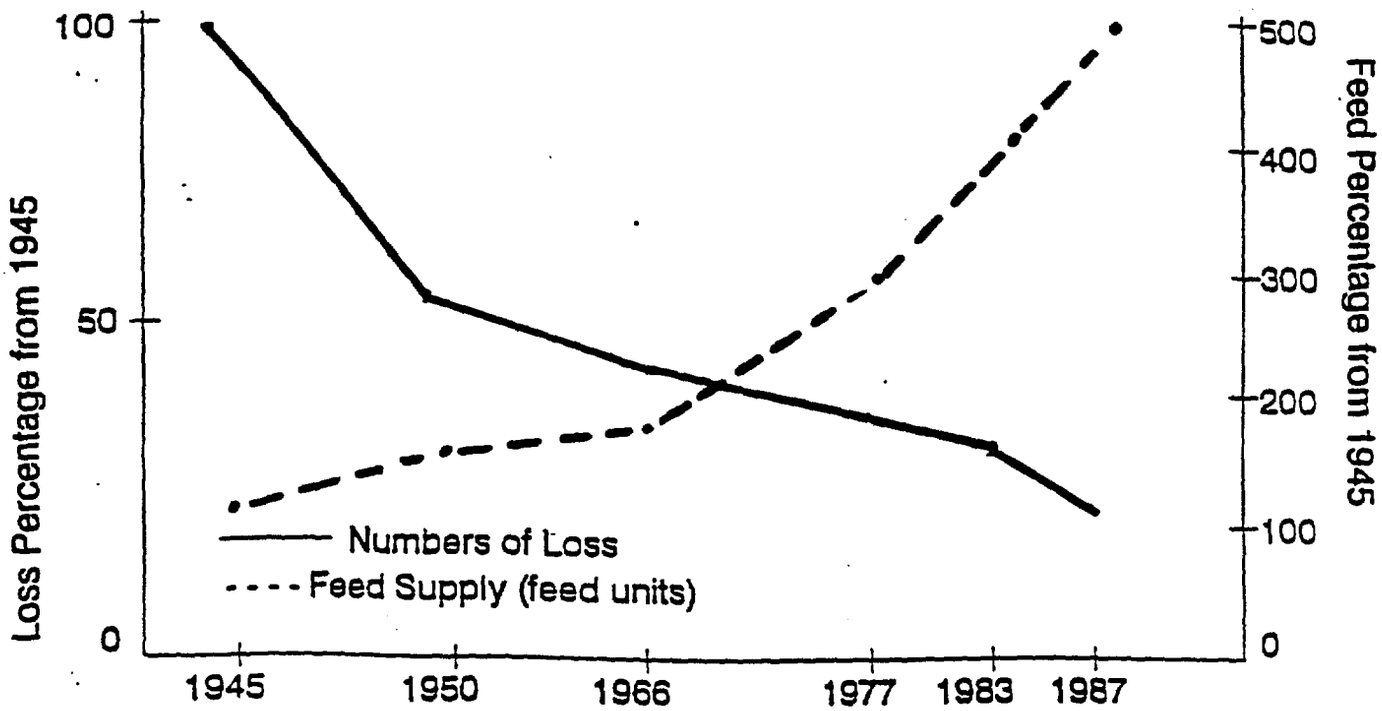

Figure 3. Mortality of livestock (as a percentage of 1945 losses) with supplemental feeding.

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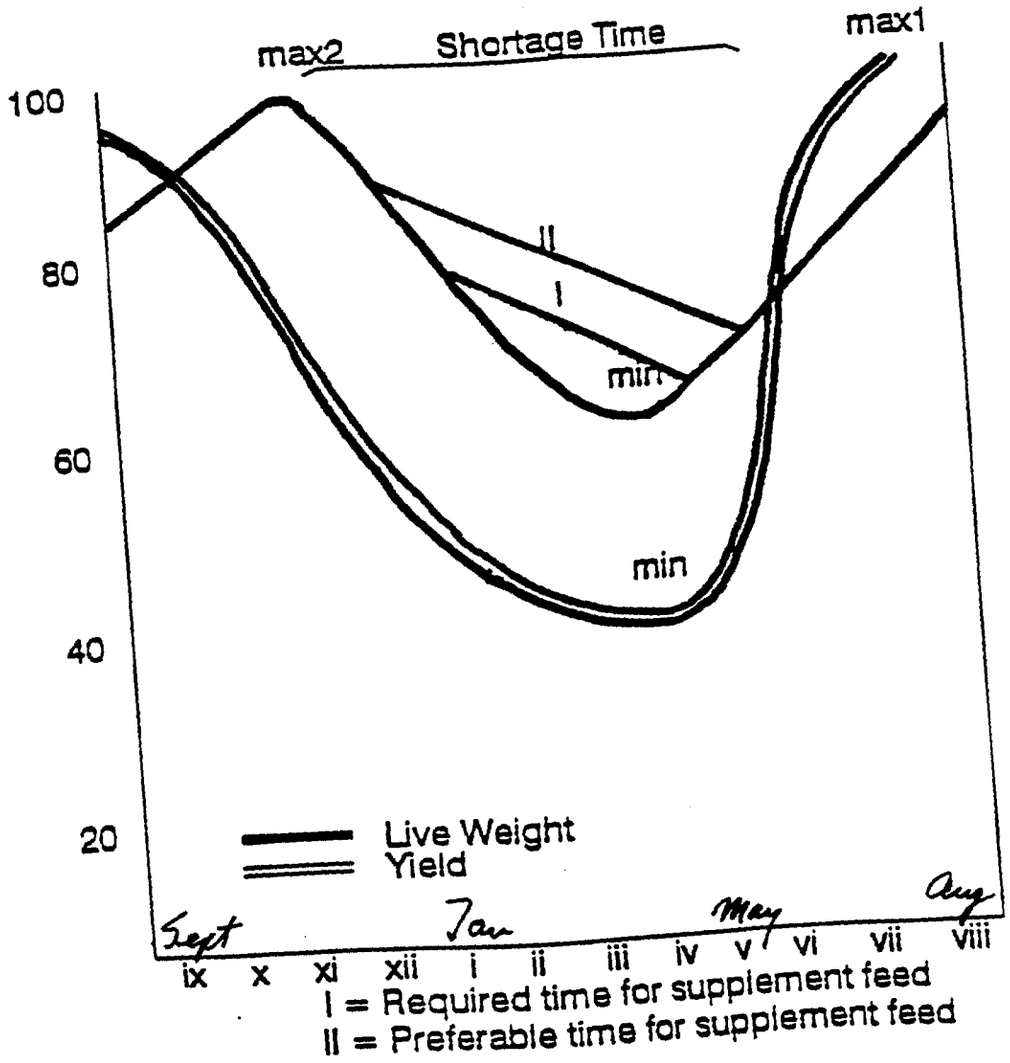

Figure 4. Livestock Live Weight and Rangeland Yield

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fodder from eastern Mongolia (Figure 5). At the present time, 168,537 tons of fodder are produced on State Fodder Farms for the purpose of providing support to overstocked and inefficient specialized livestock production (Table 6). However, the total amount of supplemental fodder being produced other than on State Fodder Farms substantially declined in 1991 from the amount produced in 1990 (Table 7). Although weather may have affected the amount of fodder produced in 1991, primary influences may have been less subsidization and less use of mechanized haying equipment because of fuel and part shortages. A continued trend towards increased numbers of livestock and less fodder production would be expected to cause a substantial die-off of livestock and a higher rate of grazingland degradation to occur during the next extreme winter. Herdsmen and others are predicting that the 1992-1993 winter will be above average in severity.

5.6 Feed Subsidies. In an effort to provide winter supplemental feed to the increased total number of livestock and the higher percentage of specialized livestock in the Gobi Aimags, the government has established State Fodder (hay) farms in the Eastern Steppe Aimags of Mongolia (Figure 5). The national government subsidizes transportation of a substantial amount of hay and compound feeds from Eastern and Central Mongolia to the Gobi Aimags. Most fodder transported to the Gobi Aimags comes by truck from the Honggai Area with total transport distance between 800 and 1000 km. In November,1991, 181,000 tons had been transported to the Emergency Fodder Fund distribution points in Mongolia with transportation costs of 220 million Tugrik (1.2 % of the national budget). Costs to the Aimags receiving the fodder is 320 tugriks/ton (subsidized transportation costs) and 16 % markup for handling costs (not subsidized) at the Emergency Fodder Fund distribution points.

5.7 Transportation of supplemental fodder to the Gobi Aimags is by truck. The road system south of Ulaanbaatar to the Gobi Aimags consists of trails that are difficult to negotiate especially during inclement weather and cause excessive wear on vehicles (Figure 6). As the "trails" wear out from vehicle use, the trail is moved to undisturbed ground adjacent to the old trail creating a network of poorly defined trails. Degradation of vegetation and the compaction associated with vehicular traffic has significantly contributed to degradation of grazingland in Mongolia. The lack of an efficient road system also significantly increases the subsidized cost of transporting supplemental fodder to the Gobi Aimags and of transporting animal offtake to processing facilities near Ulaanbaator. Hard surface roads that exist are located to the north of Ulaanbaatar and service the State Farm system and provide transportation linkages with the Soviet Union.

5.8 Since withdrawal of Russian aid, fuel shortages are increasingly affecting the economy of the country. The transportation costs of the subsidized fodder have increased substantially in the last year and, if continued at the current rate, will have an even greater impact on the overall economy of Mongolia. Even with subsidized transportation, the amount of fodder and compound feed reaching specialized livestock is insufficient to provide livestock with the amount of supplemental feed needed to bring them through the winter and spring in good body condition.

Table 5

Demand and Supply of Grazingland Forage Based on Projected Livestock Numbers to the Year 2000. (1000 tons)

	1990			1995			2000		
Aimag	Supply	Demand	%	Supply	Demand	%	Supply	Demand	%
Arhangai	4483.5	5835.2	76.8*	4482.8	5485.5	81.7*	4477.8	5911.4	75.8
Bayan-Olgii	4171.7	5345.1	78.0*	4171.2	5576.5	74.8*	4170.3	5420.6	77.0*
Bayan-hongor	8724.5	7387.6	118.1	8720.5	7771.8	112.2	8717.5	8255.2	105.8
Bulgan	2953.5	3140.0	94.1*	2449.9	3445.6	71.1*	2949.9	3735.3	79.0*
Gov-Altai	8901.3	4869.5	182.8	8900.3	6019.4	147.9	8901.3	6369.0	140.0
Dornogov	10190.1	6641.4	153.4	10190.1	7082.3	143.9	10190.1	7576.1	134.5
Dornod	9052.6	3385.8	267.4	8553.9	3527.0	242.5	8615.1	3770.0	228.5
Dundgov	7400.0	7878.0	93.9*	7400.0	8232.4	89.9*	7396.0	8726.0	84.8*
Zavhan	6844.2	5978.4	114.5	6844.2	6259.3	109.4	6844.2	6598.2	103.8
Ovor-hangai	5983.1	6883.4	86.9*	5983.1	7212.4	83.0*	5980.1	7718.0	77.5*
Omnogov	14673.2	7878.0	186.2	14673.2	8232.4	179.0	14693.2	8726.0	168.0
Suh-baatar	6227.8	3724.2	167.2	6723.7	3908.1	172.0	6723.7	4169.0	161.3
Selenge	1786.4	1359.4	131.4	1786.4	1478.6	120.8	1786.4	1642.3	108.8
Tov	6027.8	5355.6	112.6	6026.8	5679.3	106.1	6021.8	6104.3	98.7*
Uvs	5666.9	8592.5	66.0*	5666.9	9040.7	62.7*	5666.9	9588.8	59.1*
Hovd	5960.9	9760.5	61.7*	5959.9	10157.4	58.7*	5959.9	10864.9	54.9*
Hovsgol	5927.2	5893.4	100.5	5926.7	6143.2	96.5*	5925.4	6604.9	89.7*
Hentii	6083.1	3842.8	158.3	6079.8	4054.2	150.0	6070.6	4359.7	139.2
Darkhan	6844.2	5978.4	114.5	6844.2	6259.3	109.3	6844.2	6598.2	103.7

* Indicates Projected Deficiency in Supply of Grazingland Forage

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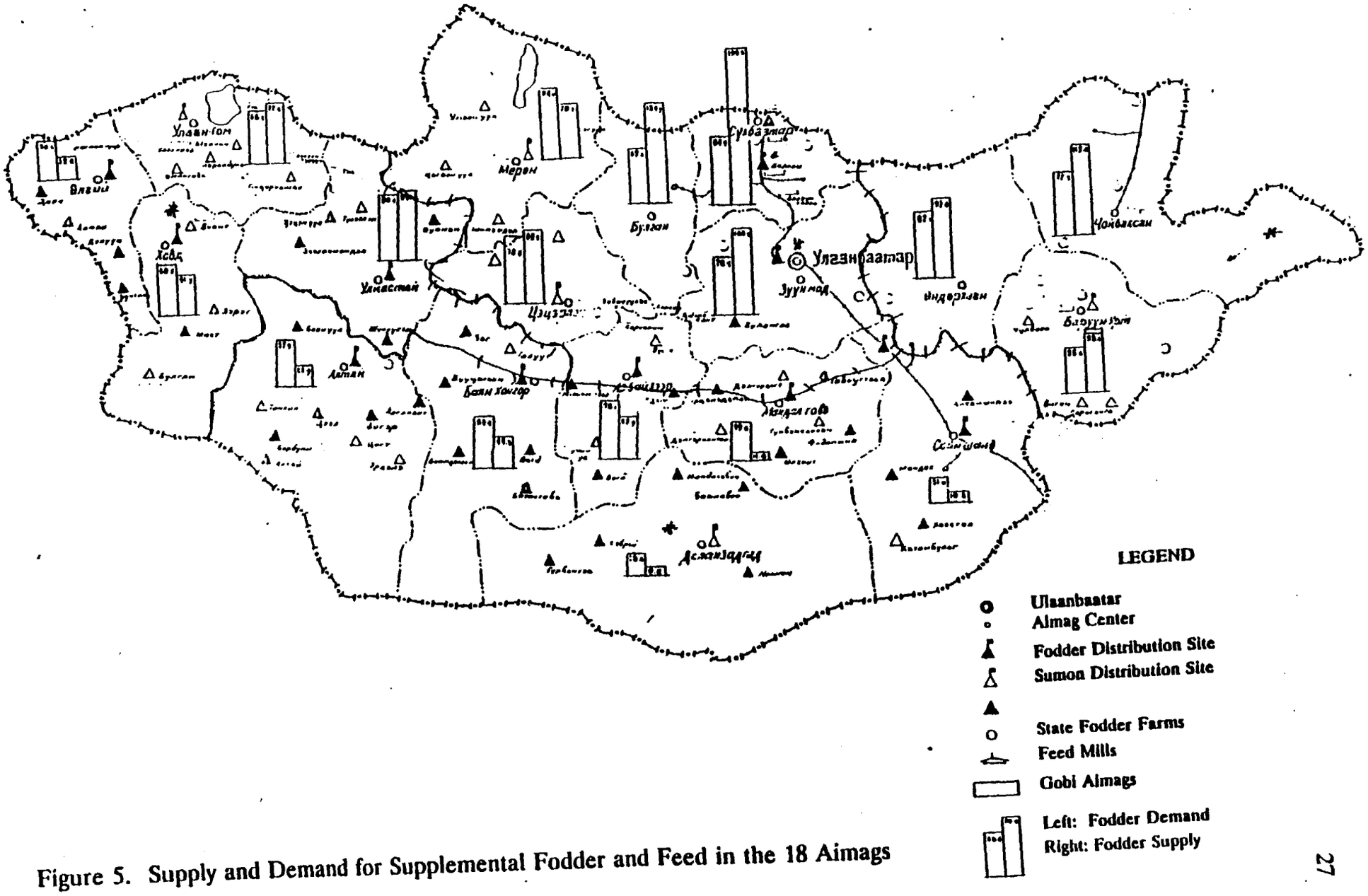

Figure 5. Supply and Demand for Supplemental Fodder and Feed in the 18 Aimags

Table 6

Fodder Harvest in Mongolia (1991)

Aimag	Hay (Ton)			For Emergency Fund (Ton)			Herdsmen (Ton)		
	1990	1991	%	1990	1991	%	1990	1991	%
Arhangai	47,974	43,627	90.9	5,010	2,640	52.7	1,146	1,011	88.2
*Bayan-Olgii	24,586	26,229	106.7	2,300	4,200	182.6	613	860	140.3
Bayan-hongor	7,287	8,719	119.6		721		588		
Bulgan	74,779	80,500	107.7	20,900	22,500	107.7	105	189	180.7
**Gov-Altai	8,740	4,120	47.1	3,000	2,000	66.7	855	471	55.1
Dornogov	3,920	2,130	54.3				57	66	117.3
Dornod	82,357	67,798	82.3	10,760	9,000	83.6	21		
Dundgov	325	800	246.2				1,386	379	27.3
*Zavhan	30,027	18,864	62.8				380	143	37.6
**Ovor-hangai	11,208	11,197	99.9				902	890	98.7
**Omnogov	321	231	72.1				235	36	15.3
Suh-baatar	68,537	64,740	94.5	39,467	37,141	94.1	30	128	429.6
Selenge	118,330	104,340	88.2	48,800	40,000	82.0			
Tov	66,544	55,750	101.2	6,500	5,300	81.5	66	67	101.7
*Uvs	42,560	25,711	131.0	12,500	17,921	143.4	1,056	1,326	125.6
**Hovd	31,690	65,211	81.1	6,900	5,600	81.2	525	772	147.0
Hovsgol	53,427	91,716	122.1	3,000	1,050	35.0	94	307	326.9
Hentii	63,877	23,446	143.6	9,400	9,950	150.9	223	93	41.6
Darkhan	18,325	43,625	127.9						
Ulan-baator	29,190	43,625	149.5		2,834		268		
Erendet	4,036	6,737	166.9						
TOTAL	788,042	812,822	103.1	168,537	160,857	95.4	8,548	6,738	78.8

* Aimag with Fodder Emergency Fund
** Gobi Aimag with Fodder Emergency Fund

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Table 7

Hay For State Emergency Fodder Funds (tons)

Production Unit	1990 Actual	1991 Planned	1991 Actual	actual / planned %	1991 / 1990 %
State Farm	31,665	32,000	26,850	83.9	84.8
Fodder Farm	105,602	113,300	106,090	93.6	100.1
*Negdels	11,400	12,500	9,760	78.1	85.6
Cooperatives	12,900	20,700	11,321	54.7	87.8

* Self harvested fodder by the communes

5.9 Current Agricultural Administration. The Supreme Council of Agricultural Cooperatives has administered the extensive livestock production system since the 1960's. Until 1989, the head of the Negdel or the State Farm was also the local government leader of the Sumon. With separation of the position in 1989, Sumon administration became directly responsible to government and the major point of contact between the government and the agriculture producer. The Negdel Commune System was established with collectivization of producers in the early 1960's as a separate administrative unit, nominally within the MOA but functionally controlled by the Mongolian Revolutionary Party (= communist party). At the present time, the MOA, as the government organization administering agriculture, is assuming direct responsibility for implementing all agriculture policy. In mid-November, the population of each Sumon is expected to vote to determine whether to remain under the Negdel system or to opt for a free enterprise system. Regardless of the outcome, agricultural administration in all Sumons will be under the direct authority of the MOA while the Negdel will attempt to retain influence at the Sumon by converting itself functionally into a service/supply/agro-industry cooperative.

5.10 The extensive livestock production system administered by the SCAC was organized to support the socialist command economy by providing raw materials for processing facilities located in north central Mongolia, export products and food for the urban population engaged in industry, commerce and administration. As a transition to a market economy is attempted, it remains unclear what the form of the new system will be in the extensive livestock production sub-sector and what that impact will be on the rural population engaged in livestock production. It is highly unlikely, at least in the near term, that herding families will be allowed direct control and ownership of the livestock and land resources used in livestock production. The leader of Omnigov Aimag indicated that herding families in that Aimag will be issued shares in livestock production enterprises rather then ownership of specific livestock. The herding families would receive a 30 % share of the net proceeds at time of sale. However, the leader of Dundgov Aimag indicated herders would be given direct ownership of specific animals. In either situation, government will retain ownership of approximately 70 % of the livestock while the herding families will have direct ownership or access to proceeds from sale of 30 % of the livestock. Ownership of land, although the issue is being debated in parliament, will most likely remain a prerogative of government with administration and implementation of agriculture policy the responsibility of the MOA. If movement towards privatization continues, this system may prove to be a transition phase between socialism and free enterprise.

5.11 Indications are that the system of land ownership will be similar to the "self responsibility system" of China. Extensive livestock production in Inner Mongolia, except for State Farms, is administratively controlled by government and the Bureau of Animal Husbandry at the League (= Aimag), Banner and Sumu (= Sumon) levels of production. Under the "self responsibility system", herders are given direct ownership of animals and can lease grazingland from the state. In return, offtake to meet quotas is purchased at government controlled prices with offtake above quotas sold on the free market. State Farms in Inner Mongolia which also attempt intensive agricultural production, remain under

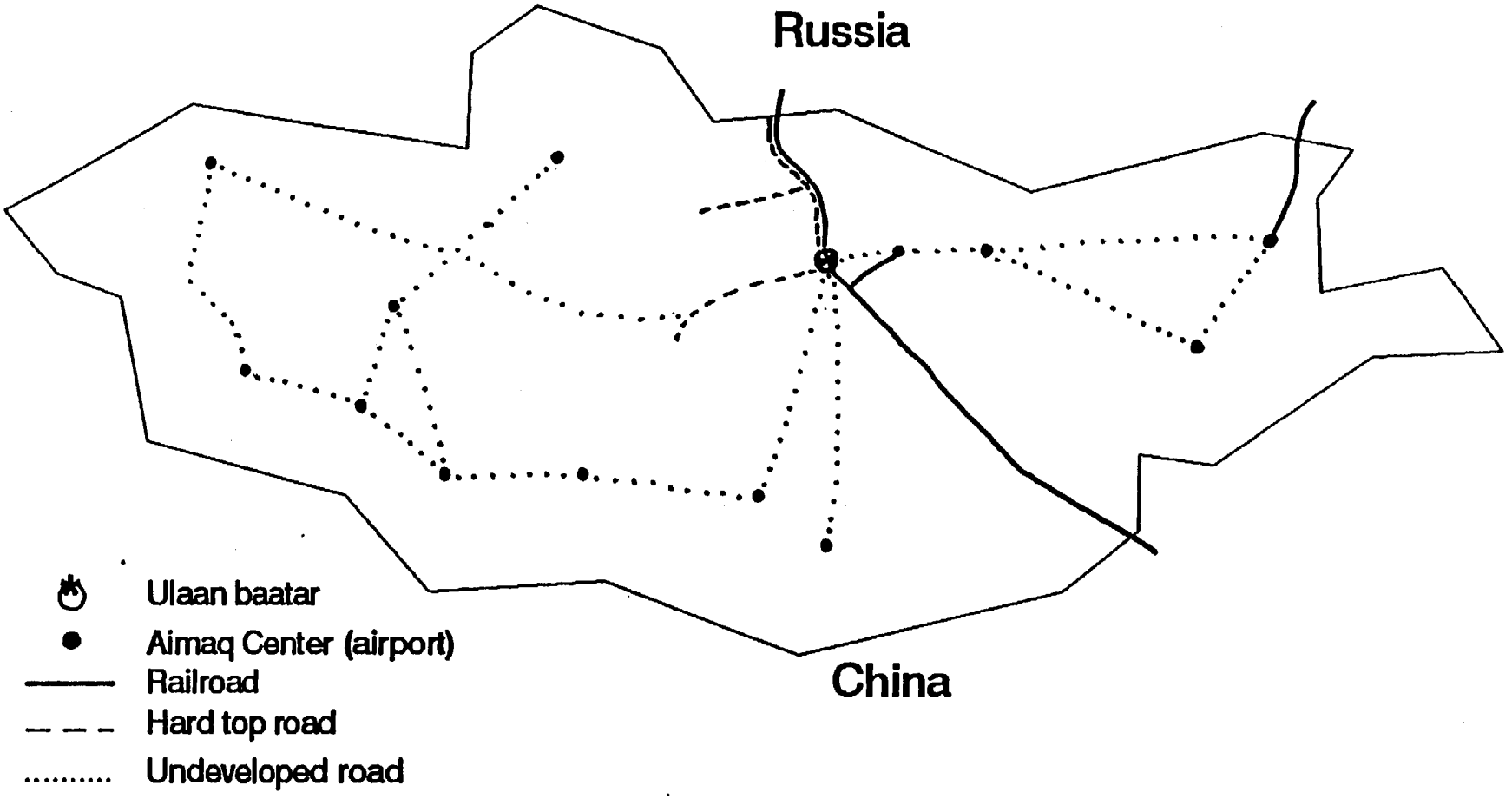

Figure 6. Road and Transportation System in Mongolia

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direct government control through the Bureau of State Farms. Attempts to increase agricultural production on State Farms has led to the formation of agricultural cooperatives in which workers contract to provide the State Farm with an agreed upon offtake and the state Farm provides the resources and inputs needed for production.

5.12 Given the environmental and economic uncertainties characterizing both intensive and extensive agricultural production, especially extensive livestock production, a transition phase with continued government support and continued subsidization would appear to be necessary, at least under the current structure of livestock production in the extensive livestock production system. Herders, given the opportunity, would prefer to return to a mixed animal livestock production system to minimize risk in an uncertain production environment. Until the road and transportation system is improved, market linkages developed and value-added processing available at the local level, specialized livestock production will be a high risk endeavor and subject to the extreme environmental conditions characterizing Mongolia.

5.13 As long as herding families retain control of personal livestock and retain their mobility, their livelihood would appear to be ensured. Food for self use is obtained from personal livestock and though a cash economy exists, it appears that most herding families are relatively self sufficient. Movement to a totally free enterprise system in which all inputs for production have to be purchased without subsidization by the government would probably lead to a significant decrease in productivity of specialized livestock and possibly cause a die-off of livestock to occur. The government has already began to reduce subsidies by decreasing the number and location of emergency fodder distribution points. A return to the pre-revolution system of North-South movement of livestock based on 5 Aimags is probably not feasible because of the increase in human population in the north central portion of Mongolia and the historically high number of livestock. A drastic reduction in livestock numbers would affect the national economy more than the local herding economy or the well being of the herding family.

5.14 Under the proposed changes in the government administration, the MOA would assume responsibility for the extensive livestock production system in the Aimags and Sumons. Former administrative, financial and production management functions of the Negdel would be divided between the MOA, the Agricultural Commodity Exchange and the Agricultural Bank. The latter two organizations are being established at the present time. The government would exert control through the Aimag and Sumon administration by controlling taxes, administering laws concerning land tenure and finances and ensuring that central government policies were implemented. Government would continue to provide health care, education and social services. The MOA would administer the resources used for production (land and livestock) and provide technical assistance to the herdsmen. The Agricultural Bank would provide financial services to the Sumon. Although the Agricultural Exchange is not yet in operation, its purpose at the Aimag would be to provide information on agricultural commodity prices, buy and sell agriculture commodities, act as a stock exchange buying and selling shares in livestock and agricultural enterprises and cooperate with the Agriculture Bank in providing loans for development of agricultural enterprises.

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5.15 The Agricultural Cooperatives, while relinquishing administrative authority to the central government and the MOA, would maintain their influence in the production system by becoming a service, marketing and processing cooperative. The Agricultural Cooperatives, through contractual arrangements with the herdsmen, would provide the inputs for production and serve as purchasing agents for livestock offtake. Potentially this arrangement could provide the basis for a market economy and for eventual privatization of the extensive livestock production system.

6.0 PRIORITIES FOR DEVELOPMENT ASSISTANCE

6.1 Mongolian Development Priorities. Discussions with directors and staff of various ministries involved with the Mongolian agricultural sector invariably led to their assessment of the assistance needed to improve or facilitate development of the agricultural sector. According to the MOA, priorities for development assistance are:

a. pasture development and improvement

b. increasing milk and meat production

c. purchase of veterinary drugs from foreign manufacturers,

d. developing livestock watering facilities to allow livestock production to take advantage of 45 million ha of unused grazingland,

e. rehabilitating 12 million ha of degraded grazingland,

f. overcoming forage and fodder shortages that occur because of periodic heavy snowfall and drought,

g. developing improved methods of fodder production and fodder storage,

h. modernizing haying, harvesting and milling equipment to minimize the effect on fodder of moisture caused harvest and storage problems,

j. new technology for dairy production and establishment of small, localized agro-processing facilities at the Sumon level,

k. improving productivity in the extensive and intensive livestock production system by overcoming loss in body condition of animals during the spring season.

j. establishment of experiment stations in different ecological zones to address problems in the agriculture sector.

6.2 As in Inner Mongolia, the MOA views needs for development assistance in the agricultural sector primarily as obtaining technology that will permit increased productivity of livestock by overcoming limitations of the environment in which the production is occurring. The FAO/CP pre-appraisal mission for the Rural Credit IV project with Agricultural Bank of China identified a similar situation in Hulunbaer League as exists at the present time in the agricultural sector of Mongolia, i.e., intensive agricultural production in an extreme environment may be possible but will have a high cost/benefit ratio and a low Internal Rate of Return. Mongolia is further limited by an undeveloped transportation system and a poor distribution system.

6.3 This fact is also true of the Great Basin Region of the United States in which both intensive and extensive agricultural production is environmentally limited. In this region, intensive crop production is limited to a few less marginal areas in which irrigation can be used and intensive Dairy production is limited to areas in which irrigated fodder crops can be produced and that are located near population centers. The extensive livestock production system in this region is marginal and receives indirect subsidization from the government. Indirect government subsidization occurs in the Great Basin in the form of low cost grazingland leases and the contributions to local economies of federal employees charged with administering the grazinglands

6.4 International and Foreign development Assistance Priorities. Needs assessment for development assistance and investment have been initiated by International development assistance organizations. The UNDP Agricultural Background Paper (MON/89/007) (MON/89/007) identified the following priorities for development assistance:

a. an overall review of the agricultural sector is needed to link possible patterns of production, ownership, management and marketing into a comprehensible pattern that has some realistic prospects of realizing national agricultural potential,

b. the government of Mongolia will require assistance in reviewing possible market interventions to maintain a balanced agricultural sector and to establish and improve quality standards,

c. providing assistance for obtaining critical agricultural inputs until the collapsed system for providing farm technical inputs can be replaced with a realistic system that balances needs with available resources,

d. improving the quantity and quality of fodder for extensive and intensive livestock production.

6.5 The UNDP sponsored Needs and Assessment Mission: Milk and Meat Production, Processing and Marketing by DANAGRO identified the following priorities for development assistance:

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a. introduction and transition to a pricing system based on supply and demand,

b. training in management of processing industries and in establishing appropriate management systems through training abroad and provision of technical assistance to Mongolia,

c. establishment (10 new plants in rural areas) and refurbishment of meat processing facilities to increase capacity and bring quality to EEC standards to support export of meat.

d. re-equipping and upgrading of mechanized dairies and milk-processing factories to increase quantity and quality of milk and milk products for urban consumption.

6.6 The DANAGRO assessment of priorities for development assistance is centered on dairy in the intensive agricultural sector and value added processing for meat in both the intensive and extensive livestock production systems. The dairy assistance proposal would increase available milk products by 10 % through improved milking systems, improved milk collection systems and better quality control through improved sanitary systems. Projected costs to achieve this increase in milk productivity is between $23.9 and $29.8 million dollars. Upgrading meat processing facilities and establishing new plants in rural areas projected at a cost of $94.0 to $145.5 million dollars. Implementing both assistance activities would exceed the entire Gross Social Product of Mongolia for 1990. Neither priority accounts for the necessity of having a developed transportation and distribution system and energy system.

6.7 The Asian Development Bank in a Memorandum of Understanding with the Ministry of Agriculture of Mongolia identified and proposed technical assistance to study the following priorities:

a. development of forage, fodder and feedstuff resources including extension and development of existing technology, research and development of new technologies, development of pasture lands, and strengthening of the research institutions concerned,

b. management of natural pastures and rehabilitation of degraded pastures,

c. development of agro-industry in fodder production and feedstuff processing,

d. development of an effective extension system for the dissemination of fodder research results,

e. analysis of the economic and marketing consequences of an investment proposal for improving fodder production and utilization, and

f. preparation of a detailed environmental impact assessment of the investment proposal.

6.8 The assessment of priority development assistance by ADB addresses the needs of the extensive livestock production system. While technically correct, it is oriented towards resolving imbalances in the sub-sector created by collectivization and specialized livestock production. Although the assessment is correct in that the problems as stated will have to be addressed, the ADB assessment is similar to the Mongolian MOA assessment that problems can be quick-fixed by applying the proper technology to the production system. Unless a comprehensive review of the agricultural sector and its linkages to other sectors of the economy is made, attempts to resolve specific problems created under the previous economic and agricultural system may only exacerbate existing imbalances.

6.9 Foreign development assistance organizations and Non-Government Organizations have also presented priorities for development. USAID intends to only use limited funds to foster transition to free enterprise and a market economy. The government of Denmark allegedly has committed $10 million dollars for development in the agricultural sector in return for being allowed to prepare a "master plan" for development. A US-Hong Kong NGO has proposed cooperating with the MOA to establish demonstration farms for growing fruits and vegetables. Other organizations have voiced concerns about the process of development. The FAO mission in Ulaanbaatar at the time of The World Bank Mission expressed concern over inequities that changes to a market economy and free enterprise might have on a disadvantaged rural population.

7.0 ASSESSMENT AND NEEDS IN THE AGRICULTURE SECTOR

7.1 Constraints to Development. An assessment of needs in the agriculture sector has to be made with an awareness of the major constraints to agricultural development. Constraints limiting agricultural development options at the present time include, in order of impact:

a. environmental and physical conditions that limit the range of agricultural crops that can be efficiently and effectively produced in the intensive production system and that limit the production and offtake of livestock, especially specialized livestock in both the intensive and extensive production system,

b. a transportation and road system that is underdeveloped in the intensive agricultural production system and is essentially undeveloped in the extensive livestock production system,

c. an ineffective and inadequate processing, storage and distribution system for inputs and offtake in both the intensive and extensive production system,

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d. an underdeveloped and limited energy system (fuel, electrical power) that will affect all sectors of the country and especially the extensive agricultural production system,

e. a landlocked country without access to seaports that is situated between two large countries producing similar products and with easier access to limited export markets,

f. an inadequate and inefficient information system in all sectors but that is especially lacking in the agricultural sector.

g. a limited agricultural education system currently oriented towards providing technical experts for an agricultural production system responding to a command economy,

h. a limited and technically unsophisticated agricultural bureaucracy still oriented towards agricultural production in the command economy and with little understanding of how to integrate the agricultural sector into a market economy and some reluctance to do so,

i. a somewhat restive and discontented urban population beginning to experience the effect of inflation and foodstuff scarcities caused by the collapse of the command economy and the end to aid from the Soviet Union,

7.2 Assets for Development. Mongolia as a country has assets that should be considered in determining priorities for development assistance. These assets include:

a. a low population base that is generally well educated,

b. a generally intact natural resource base that has a relatively unique flora and fauna of great interest to the rest of the world and is capable of supporting a major tourist industry,

c. a relatively intact pastoral system adapted to the environmental conditions in which it evolved,

d. the potential for using extractive resources (oil, minerals, etc.) to assist economic development,

e. an excellent initial attempt at developing planned use of natural resources throughout the country,

f. an inherent conservation ethic among all segments of the population.

g. an acknowledgement by the agricultural administration that the agricultural system constructed under socialism is unbalanced and inefficient and will have to be restructured.

7.3 Rationale for development assistance. Development assistance has the potential to contribute to the social, economic and ecological stability of Mongolia. Development assistance is needed for both macro- and micro-economic development, especially in the agricultural sector which is the economic and social base of the country. At the Donors Conference (October, 1991) on providing assistance to Mongolia, agriculture in general and livestock production in particular received insufficient attention. Mongolia under the socialist command economy relied heavily on agriculture for food and for export commodities. As the transition to a market economy occurs, increased pressure can be expected to be placed on the agricultural sector to support economic development through increased production of food and exportable commodities from crops and livestock.

7.4 However, as Mongolia attempts to transform to a market economy based on supply and demand and as subsidies which supported agricultural production are withdrawn, the agricultural sector is having serious problems. Serious imbalances that developed under the command economy such as the emphasis on intensive agriculture in a marginal production environment, e.g., intensive diary production on State Farms and massive subsidization of specialized livestock production in the extensive agricultural production system, need to be adjusted. Compounding these problems is the fact that the agricultural sector remains unsure of the form and structure of the new social and economic system.

7.5 Priorities for Assistance. Development assistance to Mongolia should be provided according to short, medium and long term priorities with an awareness of the constraints and assets present for development. Short term priorities (one to three years) for assistance include:

a. ensuring that requirements of the rural and urban population for food, fuel, clothing and health care are satisfied (aid grants),

b. promote and facilitate an assessment of assistance priorities by the government. A feasible method of assessment would be for each ministry and institution to submit a prioritized plan to the Ministry of National Development for integration into a national needs and development plan. Although it was apparent that this process was occurring, the process could be facilitated by providing technical assistance to the various ministries. In the Ministry of Agriculture and other institutions associated with the agriculture sector, privatization and integration of the agriculture sector into a market economy was creating confusion relating to assistance priorities. On completion of the national plan for priority development, assistance from international and foreign organizations should be matched with specific development priorities.

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7.6 Medium term assistance (duration one to five years) should focus on providing technical assistance to improve capabilities of the agriculture sector to respond to sector needs and implement development and investment projects. In the agricultural sector, technical assistance should focus on the training /education of staff, developing horizontally and vertically integrated management plans for agriculture production and project feasibility studies linked to a country wide, hierarchial management plan for agriculture.

7.7 Training/education should focus on:

a. training workshops for personnel of Government, MOA and Agricultural Cooperatives in agricultural and land use planning, agri-business and marketing, extension and integrated, holistic management of land and livestock resources and the functions of agriculture in a market economy (Area Management Planning/Decision Support Systems).

b. improving the capabilities of the Agricultural University to address needs of agriculture in a market economy by providing for training of students and instructors in foreign universities, supporting programs for invited professors to provide classes on specific topics, developing a curriculum for grazing/livestock management, upgrading facilities for education, research and extension and providing material and information resources designed to assist education and extension of information to the agricultural sector.

c. expanding the capabilities of the Research Institute of Animal Husbandry (RIAL) to initiate an applied research and development program addressing the needs of the agricultural sector including the establishment of experiment stations and coordination of research activities with institutions established to conduct basic research such as the Botany Institute of the Academy of Science.

d. training personnel of the Agricultural Cooperative Bank to appraise and service loans and investments in the agricultural sector.

e. expanding the capabilities of the Land Use Policy Institute to assess land use capabilities for planning sustainable agricultural development.

7.8 Feasibility studies of agricultural projects receiving priority for development and investment assistance should be initiated during the period of medium term assistance. Training in the mechanics of feasibility and appraisal studies will be needed across the agriculture sector as prior experience with investment analysis under the socialist command economy appears to be non-existent. According to the MOA, monetary assistance received from socialist countries was apparently negotiated on a party to party basis without proper accounting procedures enacted and the use of the funds left to the discretion of the Mongolian Revolutionary Party. A function of the training for feasibility and appraisal studies would be to develop the structure whereby expertise from different agricultural

institutions could be utilized to conduct feasibility and appraisal studies to determine project suitability and subsequently monitor project development.

7.9 The training/education assistance program would be designed not only to expand the capabilities of the agricultural institutions to respond to the needs assessment of the agriculture sector but would also facilitate cooperation between institutions under the leadership of the MOA. Cooperation between institutions is essential for designing and implementing integrated management plans for the agriculture sector. The approach used would be similar to the Area Management Planning component of the Rural Credit IV Project in China in which expertise from all components of the agricultural sector (Finance, management, husbandry, education, research, etc.) forms teams with contributory functions in agriculture planning and management process.

7.10 Long-term assistance to Mongolia (2 to 20 years) should concentrate on long-term investment projects designed to promote economic and ecological stability. Macro-economic projects such as development of transportation and road facilities, distribution systems, internal and external markets, hydro-electric power and irrigation, tourism and extractive industries such as petroleum and mining will influence the direction of development in the agricultural sector. In the agriculture sector, agricultural development will be dependent upon an improved road, transportation and distribution systems, a dependable supply of fuel and electric power, improved communications throughout the sector and suitable markets. Long term development assistance focused on macro-economic activities linked to the agriculture sector should be scaled to the most effective, low cost needs of the system. For example, construction of a road system serving the Gobi Aimags should be based on using easily available materials with simple upkeep requirements, i.e., a gravel road system.

7.11 Assistance for micro-economic development in the agricultural sector should be:

a. coordinated with macro-economic development priorities since successful development of enterprises in the agricultural sector is dependent upon structural developments such as transportation systems, service and supply, marketing networks, etc.

b. provided only after a comprehensive analysis of the needs of the agricultural sector has been made and priorities established.

7.12 Assistance from The World Bank. The rationale for The World Bank to provide assistance to the agriculture sector of Mongolia is:

a. agriculture production is and will remain a key component of the Mongolian society and economy,

b. stabilizing and increasing the efficiency of production in the agriculture sector is a prerequisite to stability and development in other sectors of the economy,

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c. the agriculture sector will provide the base for developing a market economy,

d. successfully revitalizing the agriculture sector can't be accomplished unless development in the agriculture sector is linked to development in other sectors,

e. technical assistance will be needed to improve the capabilities of institutions in the agricultural sector to assess the needs and capabilities of the agriculture sector,

f. investment funds will be needed to develop the agriculture infrastructure.

g. integrating the agriculture sector into a market-based economy will require that development in agriculture be linked to development in transportation and distribution systems, service and supply organizations, value-added agro-processing and a marketing organization,

7.13 Application of technical, development and investment assistance from The World Bank would be most effective if technical assistance was applied to the agricultural sector at the National, Aimag and Sumon administrative levels. Development and investment assistance would be most effectively applied at the Sumon and/or Aimag administrative level and linked to macro-economic development activities occurring on the National level. Government policies in both the command economy of the socialist era and historically have interacted with agricultural producers at the Sumon. Under a market economy and a restructured agricultural system, the Sumon will continue to be the focal point for implementing agriculture and economic policy in rural areas.

7.14 For example, an Aimag in each of the five major ecological zones could be selected as being representative of conditions affecting the agricultural production system. Five Sumon in each Aimag that represented the varied conditions of the Aimag relative to ecological, technical and economic constraints affecting agricultural production and integration of agricultural activities into the market economy would be selected. Included would be Sumons with State Farms in intensive agriculture production, State Fodder Farms and extensive livestock production systems.

7.15 The project would combine technical assistance for upgrading grazingland and livestock management capabilities of institutions involved in the extensive livestock production system with investments to support development of agro-enterprises supporting the transition to a market economy. Institutions involved would include the MOA, the Land Use Planning Institute, the Research Institute of Animal Husbandry, the Agriculture University, the Agricultural Cooperative Bank, the Council of Agricultural Cooperatives, Government Administration at the Aimag and Sumon administrative levels and herders involved in livestock production.

(medium 1-5 years) See p. 39.

7.16 The initial technical assistance phase could be implemented over three years and would involve:

a. sending a mission from The World Bank comprised of agricultural specialists to Mongolia in 1992 to assist the MOA in assessing needs of the agriculture sector and in preparing an integrated priority development and management plan.

b. providing staff of Government, MOA, institutions associated with agricultural and agricultural production units training in Area Management Planning (AMP) concepts and decision-making processes to improve their capability to (i) integrate ecologically based resource management with economic decision-making in the production unit, (ii) assess agro-processing, agri-business, supply and service infrastructure and market development of agriculture production at the Sumon and Aimag and (iii) develop linkages between these activities with macro-economic development at the national level.

c. establishing a management staff comprised of capable and technically proficient individuals to implement the development objectives in the Aimags and Sumons selected for assistance (AMP teams).

d. upgrading the land use planning capabilities of the Land Use Policy Institute (Geographic Information Systems, High Resolution Aerial Photography, Decision Support Systems) to provide assistance to AMP teams at the Aimag and Sumon, including assignment of technically proficient personnel to the AMP teams Aimag/Sumon Management Planning team.

f. improving the capabilities of the Agricultural University to provide education and training in agricultural development and management through integrated course work in an applied program of grazingland management, animal husbandry, soil science, agricultural economics, agricultural marketing, agro-processing, agricultural business, agricultural and land use planning, wildlife management and agricultural engineering by (i) providing for exchange of teachers and students with foreign universities, (ii) upgrading of current courses and the development of new courses and (iii) the upgrading of research and extension capabilities at the Aimag and Sumon.

g. improving the capabilities of the Research Institute of Animal Husbandry to undertake research into problems affecting the stability of the grazingland based livestock production system and the market economy by (i) providing laboratory equipment, (ii) introducing new research techniques and methodology and (iii) developing experiment stations and improving extension capabilities.

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h. providing training and assistance to MOA, government, and Aimag and Sumon AMP teams in all aspects of project development including (i) project identification, (ii) project feasibility and appraisal studies, (iii) project preparation and implementation and (iv) project monitoring, supervision and analysis.

i. developing the capabilities of the Agricultural Cooperative Bank to initiate feasibility and appraisal studies of agricultural projects, administer finances of development projects and evaluate the results of projects.

j. assist AMP teams at the Aimag and Sumon to implement Environmental Impact Assessment of potential economic enterprise development.

7.17 The economic enterprise development phase of the project would be carried out over five years and would require a development loan for construction of facilities, procurement of equipment, development of transportation and establishment of market linkages in the market economy. Agricultural-industrial enterprises would be identified by the AMP teams at the Aimag and Sumon as being ecologically and economically feasible. Possible development activities might include the construction and operation of value-added agro-processing facilities for such activities as wool washing, hide processing and tanning, feed mills, hay making operations, service industries and equipment and rural transportation enterprises. Selection of the development enterprise will be based on (i) expected response of the enterprise in a free market economy, (ii) projections of enterprise feasibility made by marketing specialists and agricultural economists associated with the AMP teams in the Aimag and Sumon and (iii) the integration possibilities of the enterprise with on-going macro-economic development activities.

7.18 Technical assistance to the AMP team in developing the rural enterprise and integrating it with production and marketing activities of the agricultural production system would be provided. Monitoring and supervision of the project, both as an activity of The World Bank and as technical assistance to the planning and management team will be initiated during Year 4 of the project and will continue during the investment phase of the project. At the conclusion of the investment phase, analysis of the project will be initiated to determine success in developing capabilities of the AMP team, success in expanding the capabilities of all Mongolian institutions involved in the project to provide assistance for sustainable development, success in developing rural enterprises in the market economy and applicability of the process to other Aimags and Sumons.

8.0 SCHEDULE OF CONSULTANT ACTIVITIES

8.1 A team of specialists recruited by The World Bank (Annex 3) would visit Mongolia in late May, 1992 to develop with institutions in the agricultural sector the parameters of the technical assistance and development program. A total of 70 consultant weeks would be required. The consultants will, with the assistance of counterpart staff from Mongolian agricultural institutions:

a. assist the MOA and cooperating institutions in assessing needs of the agricultural sector and preparing a plan for priority agricultural development,

b. identify and obtain the assistance of counterpart specialists from cooperating institutions,

c. develop with counterpart assistance the terms of reference for the technical assistance program,

d. identify Aimag/Sumon project sites with assistance from counterpart specialists and visit the proposed sites to ascertain suitability of the sites,

e. assess capabilities and needs of the Land Use Planning Institute to provide aerial photo / topographic quadrants of the Sumons selected as project sites,

f. assess needs and capabilities of the Research Institute of Animal Husbandry to provide laboratory analysis for food habit and nutrition studies,

g. assess curriculum and instruction needs of the Agricultural College in developing an applied agricultural management program,

h. provide an integrated workshop to staff of cooperating institutions on AMP concepts using expertise of The World Bank consultants

i. assist personnel of the cooperating institutions to develop an itinerary and time budget for field inventory and laboratory work to be completed during the following year.

8.2 The mission would assist cooperating organizations in preparing a detailed list of services and equipment to be procured for development assistance. It is expected that major items on the list might include:

a. a contract with a foreign source to provide 1:20,000 aerial photography of the Sumons,

b. laboratory equipment for microhistological and nutritional analysis,

c. computers (lap-top and standard size) for assisting in developing AMP, GIS and DSS capabilities of the management planning teams,

d. vehicles and field related equipment,

e. short term study-abroad programs for selected individuals in institutions participating in the project.

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8.3 The mission will reach agreement on the need for and kind of technical assistance required during the project. Specific topics to be discussed and agreed upon with the institutions involved in the project would be:

a. training workshops for AMP teams in the use and application of GIS and DSS in developing the agricultural production system,

b. enterprise, marketing and transportation analysis for the Sumons.

c. procurement arrangements for obtaining equipment selected for agro-enterprises.

d. curriculum development at the Agricultural University and establishment of a co-op training program enabling students from the Agricultural University to participate in national and international development assistance projects.

8.4 The mission will coordinate activities with activities of other international and foreign assistance organizations in the agriculture sector, especially with macro-economic development in the agriculture sector.

Annex 1

I. Personnel and Institutions visited in Mongolia

A. Ministry of Agriculture

1. Bavuugin Bayarsaikhan, Vice Minister
2. Norovyn Bayasgalan, Chief Livestock Breeding Expert
3. T. Tornon, Chief of Foreign Relations Dept.
4. J. Bayanbadorg, Crop Planning Dept.
5. P. Tsetsegmaa, Officer

B. Ministry for National Development

1. Dr. R. Batmend, Deputy Minister
2. J. Bavuusuren, Chief of Council of Technology and Investment Policy

C. Mongolian Academy of Sciences

1. Dr. N. Ulziykhutag, Director of Institute of Botany

D. Agriculture Commodity Exchange

1. T. Sukhbaatar, Director
2. S. Enkhbat, Manager

E. Supreme Council of Agricultural Cooperatives

1. J. Monchbaator

F. Mongolian Academy of Animal Sciences

1. S. Jigjidsuren

G. Association for the Conservation of Nature and Environment

1. J. Tserendeleg

H. State Committee for Environmental Policy

1. M. Dechinlchundev
2. O. Amarkhu

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I. 1. Research Institute of Animal Husbandry
   2. D. Bayartsogt

J. Council of Agriculture Policy

   1. G. Badarch

K. Mongolian Coal Concern, Mine Surveying

   1. B. Bold

L. Mongolian Hunters Association

   1. U. Buyandelger, Chairman

M. Dundgobi Aimag

   1. Z. Janjaadori, Chairman

II. Personnel and International Development Institutions

1. Dr. D.S. Tyagi (FAO consultant, India)
2. Dr. R.D. Reinsel (FAO consultant, USA)
3. Marta Ruedas, UNDP Programme Officer
4. Robert L. Friedline, USAID
5. Paul Tibbs, Consultant for Mongolian Agriculture
6. Chris Brody, procurement, Crown Agents

Annex 2

Terms of Reference

10. The Government of Mongolia requires the services of a team of nine consultants with complementary expertise in agricultural economics, rangeland management or range ecology, animal husbandry, animal breeding, veterinary medicine, sociology or anthropology, support services and extension, agroprocessing and marketing. For better coordination, continuity and overall responsibility it has been decided to award all services in a package form to one single consultant firm or institution. The firms invited to offer these services would be well established internationally in livestock production, processing and marketing and would have experience in the preparation of country-wide sector studies. These firms would have had prior experience with pastoral and agropastoral development under semi-arid conditions preferably in Asia. Previous experience with privatization issues is desirable. Firms invited to offer would be expected to submit a study outline that describes their perception of the issues, and how they expect to approach them.

11. The team would prepare a concise strategy report (main report) to be discussed with the appropriate government agencies upon completion. Each team member would prepare a comprehensive report to be attached to the main report covering the topics specified below. Annex

12. The Agricultural Economist (8 weeks field work + 4 weeks report writing) would be the team leader and responsible for the final report. He/she would:

- analyze the economic and financial viability of the existing livestock production systems at the farm and national levels
- gather and analyze farm household data (e.g. household structure, production factors, gender specific labor pattern throughout the year, sources of income, relative importance of cash income and subsistence production, investment in agriculture, gross margins of main production activities)
- compare the economics of collective farming and private farming
- determine the actual and potential economic losses caused by overstocking and subsequent environmental degradation of pastures
- investigate the herders' use of and need for credit, if any
- identify subsidies and taxes affecting the sector
- determine the cost of production in relation to border prices
- estimate the economics of improved livestock production systems recommended by other team members
- assess the economic feasibility of improved pasture management
- determine cost and benefit of improved breeding programs
- determine cost and benefit of improved veterinary services
- conduct economic analyses as required by other team members

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13. The Rangeland Ecologist or Range Management Specialist (8 + 3 weeks) would:

- describe the natural resource base in terms of its biological potential
- assess the condition and the degree of environmental degradation of the existing rangeland and assess the environmental impact of current and improved pasture management practices
- analyze the impact of the complex traditional system f herding (e.g. different, kinds of animals at the same time on the same pasture, seasonal migration, rapid movement from one pasture to another to avoid overgrazing, rotation of different kinds of animals on pastures) on pasture condition
- analyze the traditional system of dividing pastures into spring, summer, fall and winter pastures, into close and distant pastures, good and bad weather pastures, pastures used for young animals and reserve pastures
- estimate sustainable stocking rates and describe possible economic and environmental effects of over and understocking over time
- identify current range use patterns including frequency of periods of stress
- suggest methods of environmentally sound pasture utilization to increase productivity on a sustainable basis
- work with the animal husbandry specialist to determine the extent to which forage/fodder production on farmland can be used to complement or supplement range resources
- recommend suitable high yielding forage species
- develop a schedule of grazingland improvements in representative areas including costs and expected benefits of increased forage and fodder production
- assess the need for computerized area management planning
- assess the need for research and training (3 research institutes in Inner Mongolia, China could provide valuable information and should be contacted)

14. The Animal Husbandry Specialist (8 + 3 weeks) would:

- describe the current and traditional husbandry practices in cattle, sheep, goat, horse and camel production
- estimate current off-takes and yields and identify constraints to production
- suggest measures to reduce the tremendous losses of animals during harsh winters
- describe alternative management systems that reduce the stock numbers carried over winter
- estimate the actual and optimum feed supply for every period of the year
- suggest improved husbandry practices to raise productivity
- assess pros and cons of the traditional system of herding different species together

- determine optimum herd sizes under different environmental conditions
- assess the feed-based livestock sector and suggest improved husbandry practices

15. The Livestock Breeder (4 + 2 weeks) would:

- identify the breeds currently in use and assess their productive potential
- review the capacity, programs and investment needs of the existing breeding stations
- analyze the existing breeding goals for cross-bred cattle, semi-fine fleece sheep, pedigree fine fleece sheep, mutton-wool-fat sheep, cashmere goat and wooly goat
- develop criteria and priorities for breeding goals for cattle, sheep and goat (multipurpose breeds, local adaptation, quality requirements for export production, etc.)
- suggest breeding strategies for the main species
- assess the need for research, training and technical assistance to upgrade existing breeding programs
- estimate the expected cost and benefit of such improvements in animal breeding programs and provide data for economic analysis
- review the existing distribution and access to improved breeds and recommend a structure suited to a market economy including an assessment of the potential for privatization

ACB

16. The Veterinary Specialist (4 + 2 weeks) would:

- gather data on the health status of cattle, sheep, goat, horse and camel herds
- identify key diseases and prepare proposals for the implementation of control programs
- review the existing veterinary boards and laboratories and assess potential for privatization
- assess their capacity, equipment and constraints
- assess the quantity, quality and appropriateness of medicinal preparations used
- estimate actual supply and real demand for vaccines
- analyze the share and impact of traditional treatments and assess the potential of locally produced herb-based preparations
- assess the need for physical investment, research, training and technical assistance required to upgrade veterinary services
- estimate the cost and benefit of improved veterinary services and provide data for in-depth economic analysis
- recommend a structure for a veterinary service suited to market economy conditions

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17. The Sociologist or Anthropologist (4 + 2 weeks) would:

- describe and analyze the current social system in rural areas
- identify the rationale for traditional and current livestock production practices
- determine gender specific labor patterns in traditional and current livestock production
- relate the status of pastoral systems to household income, health and poverty
- assess the implications of full collectivization on the lives of the rural families
- assess the impact of collectivization on productivity
- identify the constraints inherent in the pastoral system including producers' attitude to outside intervention (e.g. disease control) and suggest ways to improve communication
- assess the social implications of the introduction of improved livestock production techniques suggested by other team members, particularly the labor requirements of women and children
- describe the system of allocating grazing land and water resources
- develop a system to monitor the impact of the economic transition on the rural population

Best

18. The Extension Specialist (4 + 2 weeks) would:

- assess farmers' knowledge and practice of proper techniques
- identify tested practices that should be, but are not being extended
- review the existing extension system (official extension, breeding stations, veterinary services, etc.)
- identify constraints to the immediate dissemination of information to the farmer
- identify key groups, persons and media through which to channel information, goods, services and training
- prepare proposals for the implementation of extension programs
- assess the links between research, administration, private services, extension and the farmers
- identify the need for training of extension personnel at all levels and draft a training program
- identify the need for physical investment in the extension services

Cambay Sue

19. The Agroprocessing Expert (4 + 2 weeks) would:

- review the major agroprocessing plants (5 slaughter houses, 2 meat processing plants, 1 dairy plant), prepare enterprise profiles and assess potential for privatization
- identify constraints and propose improvements
- identify the actual and future demand for cold storage facilities
- estimate the potential to extend existing facilities

- determine optimum locations for additional agroprocessing facilities (decentralized abattoirs and meat processing plants, milk packing, powdered and condensed milk plants)
- estimate the demand for agroprocessing facilities in the next decade based on the teams assumption about the increase in livestock production
- assess the environmental impact of the existing agroprocessing plants
- identify the need for training and investment at all levels
- provide a general overview of the existing and desired capacity, raw material demand, output, potential and main constraints of selected light industry enterprises (sheep wool, felt, wool carpets, knitwear, cashmere and camel wool, spinning, textiles, leather and fur) and assess potential for privatization

20. The Marketing Specialist (4 + 2 weeks) would:

- review the marketing system for livestock commodities and products (previously the monopoly of the Wholesale Supply Board under the Ministry of Trade and Industry) and assess potential for privatization
- analyze flows of livestock and fodder products throughout the country for all seasons of the year
- give particular attention to domestic storage and transportation constraints
- assess the existing quality standards (classifications) and develop proposals for each commodity to upgrade quality standards
- estimate the current and future domestic supply and demand for major livestock commodities
- assess the export potential of major livestock commodities and products (live animals, meat and meat products, hides and skins, fur, leather, wool, etc.)
- estimate short and medium term local and export prices for major commodities
- prepare a proposal how to set priorities of investment for developing export markets including a time schedule for implementation

21. O&M / Institutional Specialist? (4+2 weeks)
- Expertise, mgmt MAD + other agencies
- Project planning + mgmt capabilities
- Info systems development
- M&E capability
- Human resource requirements
- Institutional integration - vert + hor. linkages

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Budget

21. The nine consultants would spend 4 to 8 weeks in the field and would each require an additional 2 to 4 weeks for data analysis and report writing. The final discussion with government representatives would be held during a supervision mission of the TAC in fall 1992. The total budget required would amount to US$ 0.35 million, allowing for consultant fees, travel and subsistence, local travel, interpreter services and report preparation as summarized below:

Cost	(US$'000)
Consultants' fees (70 weeks * US$ 3,500)	245.0
Overseas travel (9 * US$ 3,200)	28.8
Subsistence (48 weeks * US$ 840)	40.4
Local travel (30,000 km * US$ 0,5)	15.0
Interpreters (24 weeks * US$ 210)	5.1
Miscellaneous	15.0
Total	349.3

Annex 3

VEGETATION ZONES

The combination of altitude, rainfall distribution and soil type has produced six definable vegetation zones or natural regions in Mongolia. These are alpine tundra, mountain taiga, mountain steppe and forest, steppe, desert steppe and desert. These are outlined in Map 2. The principal agricultural areas are the mountain steppe and forest, steppe and desert steppe. Proportions by area are:

where?

Zone	Area (percent)
Alpine tundra	4.5
Mountain taiga	3.8
Forest and Steppe	23.3
Steppe	25.9
Desert Steppe	21.5
Desert	15.4
Interzonal vegetation and lakes	5.1

NATURAL REGIONS FOR AGRICULTURE

To more readily represent the different combinations of altitude, rainfall and soil type, Mongolia can be divided into five natural regions and 18 sub-regions. The five regions are Hangai-Khuvsgul, Selenge-Onon, Mongolian Altai, Central and Eastern steppe and the Gobi desert. The regions and sub-regions are shown in Map 3 and a brief description of each is set out below.

where?

A. Hangai-Khuvsgul Region

The Hangai-Khuvsgul region is situated in the north-west of the country. It is a high altitude forest area with deep valleys and many lakes. The northerly location and altitude make this a permafrost area and there is no underground water. It can be divided into 5 sub-regions.

1. The meadows and valleys of central Hangai where the major activities are yaks, cattle and sheep.

2. The Bulnai forest-steppe and arid steppe areas. Most suitable activities are sheep, cattle and fodder production.

3. The Khuvsgul mountain, taiga, forest and steppe regions. Major activities are production of yaks, cattle, reindeer.

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4. Western Hangai steppe and arid steppe areas. Sheep, early-ripening cereals and fodder production are the most suitable agricultural activities.

5. Southern Hangai steppe and arid-steppe and semi-desert areas are suitable for sheep and cattle activities, early-ripening grain and fodder crops.

The principal climatic details of the Hangai-Khuvsgul region are given in Table 2.

Table 2. Climatic Information Hangai-Khuvsgul Region

Zone	Av Elev '000m asl	Mean Annual deg C	Temp Jan deg C	Temp Jul deg C	Heat Sum >10 deg C	No of days	Frost free days	Precipi tation mm	Snow Cover mm	Wind Speed m/sec
1	3.0	-2.5:5.0	-20:-24	8:15	400:1400	70:90	60:80	>400	>15	2:4
2	2.5:3.0	-5.0:7.5	-20:-24	6:13	400:1400	70:90	60:80	300:400	>15	2:4
3	2.2:3.0	-5.0:7.5	-24:-30	15:19	1400:2000	90:110	90:110	200:250	>15	2:4
4	2.0:2.5	0.0:2.5	-16:-20	15:19	1400:2000	80:100	80:100	200:250	>15	2:4
5	2.0:2.3	0.0:2.5	-16:-20	15:19	1400:2000	80:100	80:100	200:250	>15	2:4

B. Selenge-Onon Region

This region is located in the north-central area of the country. It is a broad flat floored basin draining to the north and is the principal cropping area. The Selenge-Onon region can be divided into 4 sub-regions.

6. Selenge forest and steppe sub-region is suitable for cattle and sheep activities and rainfed crop production. The Selenge valley is the largest crop area in the country.

7. Onon low mountains arid steppe sub-region is suitable for rainfed crop production and cattle and sheep activities.

8. Khentei mountain forest and steppe sub-region is suitable for cattle production and rainfed cropping.

9. Ulz-Tuul steppe and arid steppe sub-regions are suitable for sheep, cattle, early-ripening grain and fodder production.

Principal climatic details of the Selenge-Onon region are given in Table 3.

Table 3. Climatic Information Selenge-Onon Region

Zone	Av Elev '000m asl	Mean Annual deg C	Temp Jan deg C	Temp Jul deg C	Heat Sum >10 deg C	No of days	Frost free days	Precipi tation mm	Snow Cover mm	Wind Speed m/sec
6	1.5:2.0	2.5:5.0	-20:-24	15:19	1000:2000	80:100	100:120	300:400	5:10	4:6
7	1.5:2.2	0.0:2.5	-16:-19	15:19	1400:2000	70:90	80:100	250:400	5:10	4:6
8	1.5:2.2	2.5:5.0	-20:-24	13:15	1000:2000	70:90	100:120	300:400	5:10	4:6
9	1.5:2.2	2.5:5.0	-20:-24	13:15	1000:2000	80:100	100:120	300:400	5:10	4:6

C. Mongolian Altai Region

This is the high mountain region at the far western end of the country. It is divided into 3 sub-regions.

10. Harhira and Turgen mountains arid steppe areas are suitable for sheep and goats and cattle.

11. Central Altai meadow and steppe sub-region is suitable for yaks which are prevailing class of cattle, also sheep and goats. The season is so short that only early-ripening fodder crops can be produced.

12. Southern Altai steppe sub-region is suitable for livestock production, irrigated fruit and berry, melons and fodder production.

Principal climatic details of the Altai region are given in Table 4.

Table 4. Climatic Information Altai Region

Zone	Av Elev '000m asl	Mean Annual deg C	Temp Jan deg C	Temp Jul deg C	Heat Sum >10 deg C	No of days	Frost free days	Precipi tation mm	Snow Cover mm	Wind Speed m/sec
10	3.5:4.0	-2.5:5.0	-20:-24	8:13	400:1000	<70	60:80	400:500	>15	2:6
11	1.5:2.0	0.0:2.5	-16:-20	19:22	2000:2600	100:120	120:140	400:500	>15	4:6
12	2.5:3.0	0.0:2.5	-16:-20	15:19	1400:2000	80:120	80:1200	400:500	5:10	2:6

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D. Central and Eastern Steppe Region

This region covers the broad flat treeless plains eastern Mongolia. The area is divided into 3 sub-regions.

13. Southern part of Central Halha is suitable for sheep, goat and cattle production.

14. Kherlen-Khukh-Nuur in the north is suitable for sheep and cattle production. Rainfed crops can be produced in good years.

15. Menen-Dari'ganga arid steppe region is suitable for sheep and goat raising and rainfed cereal and fodder crop production.

Principal climatic details of the Central and Eastern Steppe region are given in Table 5.

Table 5. Climatic Information Central and Eastern Steppe

Zone	Av Elev '000m asl	Mean Annual deg C	Temp Jan deg C	Temp Jul deg C	Heat Sum >10 deg C	No of days	Frost free days	Precipi .. tation mm	Snow Cover mm	Wind Speed m/sec
13	0.9:1.5	0.0:2.5	-20:-24	15:20	1400:2000	100:130	110:140	150:250	5:10	4:6
14	0.5:1.1	0.0:2.5	-20:-24	19:22	2000:2600	90:110	120:140	150:250	5:10	4:6
15	0.9:2.0	0.0:2.5	-20:-24	19:22	2000:2600	>130	120:140	150:250	>5	6:8

E. Gobi Desert Region

The Gobi desert region covers the whole southern section of the country. It is divided into 3 sub-regions.

16. Great Lakes lowland semi-desert and arid steppe sub-regions are suitable for sheep, goat and camel production, fruit and berries with melons on irrigated fields.

17. Gobi-Altai mountain-steppe, semi-desert sub-region is suitable for goat, sheep, camel and irrigated crop production in oases.

18. Galbyn Gobi semi-desert, desert areas are suitable for camel, sheep, goat, irrigated vegetable, and melon activities.

Principal climatic details of the Gobi Desert region are given in Table 6.

Table 6. Climatic Information Gobi Desert Region

Zone	Av Elev '000m asl	Mean Annual deg C	Temp Jan deg C	Temp Jul deg C	Heat Sum >10 deg C	No of days	Frost free days	Precipi tation mm	Snow Cover mm	Wind Speed m/sec
16	0.7:1.3	0.0:2.5	-20:-24	19:22	2000:2600	90:110	120:140			2:4
17	0.8:1.4	>2.5	>16	>23	3000	>130	>140			6:8
18	0.7:1.0	>2.5	-16:-20	20:23	2600:3000	>130	>140			4:8

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ANNEX VII

INTERNATIONAL WORKSHOP ON PASTORALISM AND SOCIO-ECONOMIC DEVELOPMENT

PROCEEDINGS

Mongolia,
4-12 September
1990

International workshop on pastoralism and socio-economic development

Food and Agriculture Organization
of the United Nations

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PROCEEDINGS
OF THE INTERNATIONAL WORKSHOP ON
PASTORALISM AND SOCIO-ECONOMIC DEVELOPMENT

Mongolia, 4-12 September 1990

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
Rome, 1991

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I REPORT OF THE INTERNATIONAL WORKSHOP

INTRODUCTION

The International Workshop on Pastoralism and Socio-Economic Development met in Mongolia from 4-12 September 1990 under the auspices of the Food and Agriculture Organisation of the United Nations (FAO). The workshop was organised by the Government of the Mongolian Peoples' Republic, in consultation with FAO. The Ministry of Agriculture, Food and Light Industry, the Council of Agricultural Sciences, and the Research Institute of Animal Husbandry were responsible for its preparation and implementation.

Sixteen participants came from 12 countries in Africa, Asia, and the Near East: Afghanistan, Algeria, Bhutan, China, Ethiopia, Kenya, Mali, Nepal, Niger, Oman, Somalia and Sudan. In addition there were numerous Mongolian participants and three FAO representatives (Annex 1 lists the participants).

The major objective of the workshop was to promote exchanges of experience between Mongolia and other countries in Asia, Africa and the Near East which have sizable pastoral populations, and to catalyse ideas on pastoral development policies. It also aimed at creating a framework for Technical Cooperation between Developing Countries (TCDC) on pastoral development issues.

Mongolia was selected as a major pastoral economy having experimented successfully with a cooperative form of pastoral organisation, and having successfully provided basic services for its nomadic herders. An analysis of the Mongolian pastoral areas, and their production and organisational patterns was the basis for discussions on policy issues important both for Mongolia and other pastoral countries in the world.

Mongolian researchers presented technical papers on traditional livestock management and products, on socio-economic change, and on traditional and modern knowledge available to herders (Annex 2 lists the papers presented). During field trips to South Gobi Province and Oborhangai Province the participants were able to reach a practical understanding of herders' organisation, everyday life and aspirations. The ensuing workshop discussions, based on the Mongolian experience, covered issues relevant well beyond Mongolia, and containing lessons for most pastoral societies. The following account provides a record of what the participants learned during the discussion sessions and field trips.

ACKNOWLEDGEMENTS

The workshop was officially opened by His Excellency Danzangin Radnaaragchaa, Minister of Agriculture, Food and Light Industry. Mr E. de Mul, Resident Representative of the United Nations Development Programme, and Mrs N. Forni, on behalf of the Director General of FAO, also welcomed participants.

At the closing session, Mr A. Hadji, for the workshop participants, and Dr J. Riddell, for FAO, thanked the Mongolian Government for their excellent preparations, especially the detailed background papers and the field trips, and smooth organisation of the workshop.

ORGANISATION OF THE MONGOLIAN RURAL ECONOMY

The Mongolian rural economy is administered at three levels: central government, province (or aimak - 18 in total) and district (or somon - 303 in total, an average of 17 in each province). In parallel with the government structure there exist two similar hierarchies of collective (negdel) and political party institutions. Each collective (and each state farm) has a territory identical to that of its administrative district, and until recently the Chairman of the district and the collective was necessarily the same person. There are unions of collectives at both provincial and national levels. Each collective is further divided into production brigades, teams and suur (literally 'base camp', the most basic unit of production and social organisation, consisting of one to four households). Every rural producer belongs either to a pastoral collective (or equivalent organisation) or to a state farm.

The field trips gave participants a detailed insight into the functioning of the rural economy at the local (district and collective) level, and an appreciation of the daily lives of Mongolian pastoralists. In South Gobi province, participants visited Bulgan district and Toya collective, including herder households, a school, a

boarding establishment and kindergarten and a medical centre. In Oborhangai province they visited Kharhorin state farm, Khujirt district and collective, including a dairy processing plant, school and medical centre.

South Gobi Province

South Gobi is the largest province by area (165,000 square kilometres) but has a population of only 40,000 people. Of the adult part of the population, some 6,000 are employed in animal husbandry, 3,000 in construction brigades, 2,000 in health services, 1,000 in education services, and the rest in communications, administration and other professions (including 200 veterinarians). There is a labour shortage in the province, especially in livestock herding.

South Gobi contains about one million head of domestic animals, a quarter of them privately owned. The most important economically are goats (45%), followed by sheep (30%), camels (13%), cattle and horses (10%). The main tradeable product is cashmere wool.

The Gobi region receives around 120 mm annual precipitation, with a minimum of 70 mm; one or two years out of five there are drought conditions. Some places in the south-west have had no precipitation at all for 16 years and there are sand dune belts which it is believed are encroaching northwards. The Gobi contains some 560 plant species, in 80 different vegetation associations across 12 ecological sub-zones. The rich wildlife includes black-tailed antelope, snow leopard, wild sheep and camels, and wild asses.

The semi-desert conditions prevailing in South Gobi mean the suur are often 20-30 kilometres apart. Their siting is determined by the availability of water: there are no permanent surface water resources, and the 5,200 wells (including 2,000 deep wells, up to 150 metres in depth) are insufficient to meet water requirements. Around 160 wells are dry and the water table in others has dropped 60-70 cm in recent years. Restricted access usually applies at wells, with water rationed by the person responsible.

Moves of the base camp by the suur households are made when it is necessary to find fresh pastures. The move itself may take only a day; the felt tents (ger) can be packed up in an hour and loaded onto five camels, for example. It is common for the collective to provide assistance for such moves however, using a tractor. The winter camp is the only permanent one. In the South Gobi, the winter camp of a goat herder might be occupied for 4-5 months of the year. During the remaining months, a suur might move at least 20 times. However, 1990 was a very good year for rainfall, the best of the last ten according to one camel herder, who had had to move only six times during the year up to September.

No fodder or hay is produced in the province, and hay for winter feed has to be brought in over a distance of 1,000 kilometres. In most years some 30,000 tonnes of hay and 12,000-15,000 tonnes of fodder need to be imported to the province at a cost of 12 million tugriks. This compares with the province's annual fuel bill of 20 million tugriks. However, the good rains in 1990 will mean only half the usual amount of winter feed needs to be imported. Some vegetables are grown under irrigation (potatoes, salad vegetables), but inappropriate irrigation techniques in the past have led to land degradation through waterlogging, salinisation and species loss.

Toya collective (Bulgan district)

Bulgan district covers a land area of 750,000 hectares within South Gobi province, with a human population of 2,100, and 67,000 head of livestock. This total includes 5,000 camels (the species in which the region relatively specialises) herded by 21 suur. Toya collective comprises 3 animal husbandry brigades and one brigade responsible for vegetable cultivation.

(i) Camel herder's suur

The camel herder visited by the participants looked after 230 camels for the collective, and had 22 privately owned camels, as well as 60 horses, 40 goats and 80 sheep. The products from the private animals were for own consumption.

(ii) Goat herder's suur

The goat herder visited by the participants looked after 300 goats for the collective, and had more than 100 of his own cattle and goats. These animals were raised by a household of three adults and three children; another child was away at school. The herder's wife made felt carpets for sale.

Oborhangai Province

Khujirt district and collective

Khujirt district covers 126,000 square kilometres and has the same number of animals, 86,000 of which belong to the collective. In addition there are timber enterprises, a pig farm, dairy processing plant and a motor vehicle repair shop. The dairy processes 700,000 litres of milk a year, collected by small road tankers from the collective producers.

(i) Sheep herder's suur

The sheep herder visited by participants looked after 200 sheep for the collective, together with a private herd of 50 sheep, 15 cattle and 10 horses. The collective paid him an annual salary of 5,000 tugriks, and the security provided by this income is highly valued. Of the herder's eight children, three had their own families and lived in the district centre; one was in the army; three more were away at school; and one daughter lived at home.

The three-adult household produced a wide range of dairy products for home consumption including curdled milk, ghee, yoghurt, curds and dried curds, cheeses, clotted cream, and 'vodka' (arkhi) made from milk. These products were stored in a small tent in animal hides and wooden barrels, and formed the basis of the summer diet. One or two cows were not inseminated each year so that milk was available through the winter. This was frozen to preserve it from the end of November until April or so when the calving season starts. Sheep's milk does not become available until July.

By late November, animal liveweight is relatively high, open grazing dies back or is covered by snow, and it becomes cold enough to freeze meat; many animals are slaughtered at this time, and some meat is kept for home consumption during the winter (typically a cow, a horse and three sheep). In this sparsely-wooded landscape cow dung was burnt for fuel. In addition to food products, household members produced wool for the collective, and made carpets and sheepskin coats and belts for their own use.

The suur would typically move 12 times a year; in a year of good rains it would move half as often, in a bad year twice as often.

(ii) Horse breeder's suur

The horse breeder visited by participants looked after 150 horses for the collective, for which he was paid an annual salary of 4,800 tugriks. His private animals numbered 14 horses, 17 cattle and 40 sheep and goats. The state now encourages private animal ownership, and plan production targets may be reduced accordingly. Khujirt collective reduced the target production of horse hair in 1990 from 300gm to 250gm hair per animal, and milk is to be released from the plan altogether.

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Kharhorin state farm

The state farm occupies a land area of 250,000 hectares, of which 10 per cent is cultivated. The small extent of forest in the district is giving some cause for concern, and some afforestation has been attempted. Of the 12,000 total population, three-quarters live in Kharhorin district centre. The state farm was established in 1956 at the time when land was first being brought under the plough in Mongolia. Today 20,000 tonnes of crops are grown annually, including irrigated wheat (5,000 hectares), fodder crops (barley, rape, sunflower) and vegetables (potatoes, carrots, cabbage, onions). Silage (13,000 tonnes) is also produced. Cultivation is quite heavily capitalised, for example with air spraying and mechanised spreading of inorganic fertilisers and herbicides. Wheat yields are reported to be around 1.6 tonnes per hectare on average although under irrigation potential yields of 2.5 tonnes per hectare can be reached. During 1990, however, storm damage to the wheat crop has meant the harvest will be poor.

Besides crop cultivation, nearly 110,000 head of animals are kept on the state farm. Of these, 60,000 are owned by the state farm and some 50,000 or so are privately owned. The total includes 16,000 cattle, 16,000 horses, over 70,000 sheep, around 6,000 goats and 250 camels, together with rabbits, pigs, poultry and bees. There is some private marketing between people with their own livestock. Under the new property law, equal access to pasture, fodder and veterinary services is enjoyed by livestock producers for both their private and collective herds. In general annual incomes of state farm workers (6,000-10,000 tugriks) are considerably higher than those of members of pastoral collectives.

The administrative centre has a flour mill supplying the whole province, a distillery and food processing industries (confectionery, bakery). Power for these industries is supplied by a coal-fired power station which also feeds into the limited electric grid. Small-scale cooperatives exist for the production of consumer goods.

MAJOR ISSUES OF GENERAL PASTORAL DEVELOPMENT POLICY ARISING FROM THE MONGOLIAN EXPERIENCE

During the workshop field trips and discussions, a wide-ranging debate took place about the Mongolian experience of pastoral development, the experience of other countries and the general issues of pastoral development policy which they illustrated.

The pastoral collectives

The Mongolian pastoral collective (negdel) is a unique response to the problem of pastoral development. Negdels now face the likelihood of some restructuring. Some of the other countries participating in the Workshop have also experimented with forms of pastoral association and cooperative. The Workshop focused its discussion around four major issues:

Participation

Experience has shown that attempts at forcing pastoralists into cooperatives fail, as do experiments in some countries to transform herders rapidly into irrigation farmers.

In Mongolia, after an unsuccessful attempt at forced collectivisation in the 1930s, the government implemented a policy of voluntary collectivisation beginning in the early 1950s, backed up by limits on livestock numbers and high taxes on private animal ownership. This virtually obliged individual herdsmen to join the collectives. After collectivisation, collective leaders were often appointed from the centre, and they implemented plans decided in the capital.

It is now felt in Mongolia that some mistakes were made during the collectivisation of the 1950s but that many positive things had been accomplished since then. Workshop participants reported the same experience: where force has been used to collectivise pastoralists, the results had been negative, but that voluntary pastoral cooperatives or associations could accomplish much. Voluntary and active participation of pastoralists in any programme of collectivisation was a prerequisite for its success.

Poverty, and food and income security

Mongolia has achieved an enviable lack of rural poverty and good distribution of income within the herding economy. However, workers on State Farms are paid much more than herders, creating some inequalities. More seriously, the government has set the prices of animal products very low. This benefits urban people at the cost of herder incomes, and has contributed to urban migration.

Despite this, the collectives have achieved an important degree of food and income security for their members, a result which has lessons for other countries. This security is much appreciated by members of collectives, who will no doubt wish to maintain this under any future economic policy.

Services

In the Mongolian countryside, each district and provincial centre provides a range of services including shops, schools, a medical centre and communications post.

Ten years of education is mandatory in Mongolia, in principle. Around 90 per cent of the population has had schooling to secondary level. However, a Mongolian workshop participant argued that 8 years of schooling is probably sufficient, since schooling beyond this level appears to discourage children from remaining in animal husbandry.

The participants visited the boarding school at Bulgan district centre, South Gobi province. In one class of about thirty children, two-thirds came from families of livestock herders. Livestock husbandry receives considerable attention in their education. In a biology class for example, children were studying plant species found locally in the Gobi. Only nine out of a group of sixty children said they wanted to return to livestock husbandry however; the rest wanted jobs in towns. Schoolchildren from herder households live in boarding establishments in rooms together with their brothers and sisters, the older children looking after the younger ones. If a child has no older brother or sister in school, s/he is put in the care of another older child or 'sponsor'.

Medical services are also adapted to the mainly nomadic lifestyle. For example, Bulgan somon, visited by workshop participants, has a small hospital at the district centre, which is the base for 7 doctors and 13 midwives responsible for the district; there are also 2 ambulances. In principle, each brigade has a trained nurse. A doctor visits each household in the district twice a year to check on health and to vaccinate children (TB, polio, measles and scarlet fever immunization are compulsory). The great majority of births take place in the hospital. However, infant mortality is thought still to be high.

Veterinary services are specialised. In the South Gobi, each cooperative has 2-3 veterinary doctors, and 8-12 veterinary nurses. Each veterinary nurse is responsible for a particular animal species and lives close to the brigade that specialises in herding that species for the collective. Veterinary nurses are equipped with motorcycles. Herders can request visits. One goat herder visited by the Workshop participants in South Gobi province had had over forty visits between spring and early autumn 1990, sometimes twice daily in the spring.

Good schooling and medical care for the herdsmen are the greatest achievements of Mongolian development. Mongolian boarding schools and the mixture of static and mobile health care provide a model which could be adopted elsewhere in areas with a scattered and nomadic population.

However, with a large and growing population of school-age children, and a trend towards economic liberalisation and cost recovery, there will be increasing difficulty in maintaining this level of services. With liberalisation, brigades or households specialising in some aspects of vetinary service delivery may emerge, but this will not help in education or human health.

Future changes in collective policy, and in land and livestock property

Mongolia is now debating changes in its policy on collectives, and these debates are of interest to other countries. Collectives are found in both socialist and capitalist economies; there is no reason why they should not survive an economic liberalisation programme, although probably with modified functions.

It is now felt that the cooperatives are too large, and should perhaps be reduced in size. The brigade level may be an appropriate one for many economic activities.

One of the reasons for the success of the collectives is that they combine collectively-owned pasture with collectively-owned animals. Most pastoral cooperatives elsewhere have privately owned animals on common pasture, which may cause problems.

In many countries privately-owned animals are looked after better by their owners, and therefore have higher productivity. But it is probably the balance between private and collective animals which is important. Mongolia is now trying to find a new balance.

All land in Mongolia was nationalised in 1924, and this facilitated the creation of the collectives. Pasture land has been managed by the collectives, so problems of tenure have not arisen. However, although pasture is now abundant, it will not always be so, and now is the time to think how management can be introduced, using a full range of legal, administrative and economic measures. Mongolia is already considering various alternatives including leasing land and land taxes, and this is a subject where an exchange of experience with other countries could be useful.

Livestock production and marketing

Range management and sustainability

Mongolia is in a unique position in comparison with other developing economies with an important livestock sector, because of the relative abundance of pastures in relation to the animal and especially the human population. In recent decades the rural population has been static, and demographic growth has largely been absorbed by rapidly expanding urban centres. The key policy issues in livestock production, therefore, concern raising labour productivity rather than intensifying range production. There is little evidence of range degradation at present, which provides a good opportunity for policies to be worked out to ensure the long-term sustainability of pastures. In time, range management will become more important.

The issue of carrying capacity or appropriate stocking rate assessment attracted considerable attention during the workshop. Carrying capacity is not a general problem in Mongolia for much of the year; but constraints exist seasonally and in particular localities. In some areas, particularly the Gobi, provision of more water is a priority. Resource assessments are done at the national level and resource availability data are provided to negdels annually for their use in setting production targets. At the local (suur) level, individual herders also informally assess pastures before any move.

Raising animal productivity per head

Participants considered that the best strategy for raising livestock production was to increase productivity per animal rather than total animal numbers, given labour shortages and the winter/spring fodder shortage. In Mongolia, primarily as a result of the climate, disease is not a major constraint. Well developed veterinary services are able to control those diseases that do exist.

Addressing genetic potential by means of selective breeding has been given relatively high priority to date. The weak link is animal nutrition, which appears to be the best point of intervention at present. This has prevented the full genetic potential of indigenous as well as exotic cross breeds from being realised.

Winter/spring fodder availability

Mongolia's climate is characterised by extreme seasonality. While for much of the year forage is abundant on open pastures, during the harsh winter/spring period it is scarce or covered by snow. This means that the availability of cut hay and fodder is a key constraint to livestock production. Large numbers of animals have to be slaughtered prior to this period, at the risk of cutting into breeding stock and adversely affecting herd composition.

At present some negdels provide cut fodder at specific points to which herders move their animals from forage-scarce areas. This has greatly reduced animal mortality. The cost of hay and fodder provided by the state will require attention under the new policy reforms allowing private livestock holdings. For example, participants felt that policies for local level hay and fodder production should be explored. This would be particularly important in the Gobi, where little or no fodder is produced, and there is little economic incentive to do so, since the state supplies some fodder from other regions.

There may be potential for introducing appropriate tree species for windbreak planting on State Farms for irrigated wheat cultivation. In addition to their role in reducing the risk of wind erosion, such trees could potentially be lopped to provide animal fodder and firewood.

Processing and marketing

The issue of livestock marketing will undoubtedly become increasingly important under a more liberalised production system. Some attention was paid to export production during the workshop. It is now Mongolian policy not to export live animals from 1991, since it is more profitable to process meat within the country. However, Mongolia's immediate options in this respect may be limited.

Traditional knowledge and modern science

Traditional pastoral methods are often extremely effective and based on a detailed understanding of animals and the environment. However they must be combined with modern science and technology. Neither can suffice alone. In Mongolia, exotic livestock breeds, unable to survive Mongolian conditions, were at one time introduced to the detriment of local breeds. More recently, local breeds have been used as the basis of new, well-adapted breeds.

Fodder production is another example. Fodder produced by new methods is essential, but mainly supplements natural forage in what remains a largely nomadic pastoral system. Mongolian scientists now pay serious attention to combining the best of traditional practices and modern science.

REPLICABILITY

Mongolia is one of the few countries where extensive pastoral livestock husbandry is a main development priority. Workshop participants stressed that the Mongolian model of cooperative livestock production is a product of particular historical, economic and ecological circumstances. Also, Mongolian policy and negdel organisation is in a period of change. Thus, as a model, it cannot simply be copied elsewhere.

However, there are many features of the Mongolian model which are worthy of study, and perhaps adaptation and use in other countries. These include the organisational framework, especially the collectives, the combining of private and communally owned animals, and health and education services.

The Mongolian model is probably most applicable to cases where nomadic pastoral groups undertake relatively short and regular movements. It is perhaps less likely to work where people move irregularly over long distances. The Mongolian-style collective is probably not possible in those countries where the process of privatising pasture land by individuals or industrial ranches has already gone quite far.

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The current Mongolian emphasis on using local traditional knowledge and techniques in combination with modern science and technology is also readily replicable. Examples include the wide diversity of milk processing techniques used by Mongolian herders, and the combination of scientific and traditional knowledge in the development of Mongolian breeds.

FOLLOWING UP THE WORKSHOP

Workshop participants felt that important issues has been raised concerning pastoral development, which should be pursued systematically. The workshop supported the following activities:

1. A follow-up workshop should be organised, in 1992, on pastoral cooperatives, in Africa. It was hoped this would maintain contact between participants and create a momentum in favour of pastoral development. A regular series of such meetings, perhaps at two year intervals, would be valuable. Workshop participants urged FAO to support this proposal.

2. The workshop recognised a need for more international cooperation in pastoral development. It supported the proposal by the Mongolian authorities to create, with international assistance, an international bureau or division of the Research Institute for Animal Husbandry, with the following objectives:

- information exchange about Central Asian extensive livestock development;
- joint research and comparative studies in Central Asian livestock development;
- scientific exchanges within Central Asia and between Central Asia and other regions, including visiting scholars, individual and small-scale study tours;
- training.

Workshop participants felt that such an initiative was timely, and warmly recommended it for international support.

A more detailed proposal for this international bureau is contained in Annex 3.

3. The workshop also heard several proposals for bilateral information exchange, and strongly supported them.

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ANNEX 2: PAPERS PRESENTED TO THE INTERNATIONAL WORKSHOP

Prof. M Tumurjav	Economic and Biological Characteristics of Mongolian Livestock
S. Luvsandorj	Socio-economic Changes in Rural Mongolia
B. Purev	Traditional Pastoral Livestock Husbandry in Mongolia
M. Dash	Mongolian Traditional Veterinary Science
D. Bataa	Mongolian pastoral weather forecasting
R. Tserendulam	Natural Pasture as the Basis for Livestock Production in Mongolia
S. Tserendash	Feed and Fodder supply in Pastoral Livestock Husbandry in Mongolia
E. Zagdsuren, Ts Adiya and Sh Tserenpuntsag	Traditional Mongolian Methods for Making Livestock Products
M Gunsendorj and B. Enhtuya	The Quality of Mongolian Open Range Beef and Mutton
B. Erdenebaatar	A Scientific and Technical Approach to Livestock Production in Mongolia

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ANNEX 3 : PROPOSAL FOR SUPPORT FOR THE INTERNATIONAL BUREAU OF THE MONGOLIAN RESEARCH INSTITUTE FOR ANIMAL HUSBANDRY

Introduction

Mongolia is perhaps the country in the world most dependent on extensive, largely nomadic, pastoral animal husbandry. It has a well-adapted set of traditional technologies in animal husbandry, and a unique modern experience of the development of cooperatives and health and education services adapted to nomadic conditions.

Under its new "Open Door" economic policy, Mongolia is improving its economic and other links with the rest of the world. It is felt that, in respect of the development of extensive animal husbandry, Mongolia has much to learn but also much to offer other countries with an important pastoral livestock sector. It wishes to improve its contacts and the two-way flow of information about pastoral development.

An international workshop on pastoralism and socio-economic development, held in Mongolia from 4 to 12 September 1990, under the auspices of FAO, and attended by senior representatives of 12 countries in Africa, Asia and the Near East, as well as Mongolian scientists and FAO Officers, strongly supported a proposal from the Mongolian Research Institute for Animal Husbandry to create, with international support, a special bureau to improve this two-way flow of information and contacts. This note sets out in more detail the proposal, as a basis for obtaining international support.

The International Bureau at the Research Institute for Animal Husbandry

The Research Institute for Animal Husbandry is the leading Mongolian research and training institute in the field of pastoral animal husbandry. In recent years it has built up an extensive network of international contacts and joint research and exchange programmes. It now wishes to put these on a firmer basis and develop them.

The Institute is in the process of setting up an international bureau to achieve this. It has already appointed one English-speaking administrator, and a second, Japanese-speaker, will be appointed shortly. Current joint research programmes with institutions in the UK, India, Japan, USSR, Switzerland, Czechoslovakia and other countries will be brought under the international bureau.

In expanding the international programme, the Institute proposes to focus on the following four main areas, which were discussed and approved by the September FAO workshop.

1. <u>Information Exchange about Central Asian Pastoral Livestock Development</u>

The Institute wishes to extend its existing library, in conjunction with the information exchange office of the Mongolian Council of Agricultural Science (which already participates in the FAO AGRIS system), in order to build up a small-scale information centre specializing in Central Asian pastoral livestock development, especially: pastoral livestock management; use, protection and improvement of natural pastures and haymaking sites; the methods and technologies for processing livestock products under rural conditions; and the social and economic aspects of rural development in a pastoral livestock context.

The information exchange programme should perform the following functions:

- acquisition and cataloguing of relevant books, journals and other materials;
- abstracting and translating (into Mongolian for foreign-language publications, and into English, Russian or Chinese for Mongolian-language publications) key works;

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- networking between scientific institutions, initially probably in the form of a scientific newsletter containing key abstracts.

In order to set up such a system, the Institute requires technical assistance (a) to design an appropriate system, including appropriate technologies (computer?, microfiche?), and links with existing systems, (b) to fund and organize training and the acquisition of the necessary machinery, (c) to fund an acquisition and dissemination programme.

2. Joint Research and Comparative Studies in Central Asian Livestock Development

The Institute already has an active programme of joint research programmes and comparative studies on Mongolian livestock development, but would like to extend these by being able to fund joint research by specialists from other Central Asian countries in Mongolia, or by Mongolian researchers in neighbouring Central Asian countries.

It seeks funding for such programmes, concerned with pastoral livestock management, pasture land management, livestock product processing and marketing, the education of herders and gender issues in extensive pastoralism.

3. Scientific Exchanges within Central Asia and between Central Asia and Other Regions

The Institute, which already receives a small number of scientific visitors, would like to build up a programme of scientific exchanges involving:

- individual visiting scientists, administrators and others concerned with pastoral development;
- small group tours, of Mongolian scientists to other countries, and scientists and administrators from other countries to Mongolia.

Building on the success of the recent FAO-sponsored workshop in bringing scientists and administrators from 12 countries to Mongolia, the Institute would like to be able to fund and organize similar meetings in the future, whether of staff from FAO-funded projects in Africa or elsewhere, or of scientists from other national institutions.

4. Training

The Institute would like to organize, with international funding and teaching personnel, short courses in various aspects of pastoral livestock development, for Mongolian and other scientists and administrators. Such courses might include:

- courses of 4-6 weeks in new research methodologies, especially Rapid Rural Appraisal;
- short courses in new techniques, such as embryo transplant;
- short courses in ecological assessment.

The Institute needs technical assistance in the design and teaching of such courses, and in funding them.

II PAPERS PRESENTED TO THE INTERNATIONAL WORKSHOP

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INTRODUCTION: SOME LESSONS FROM MONGOLIA FOR PASTORAL DEVELOPMENT IN OTHER COUNTRIES

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INTRODUCTION

The People's Republic of Mongolia is a large, sparsely populated country, where traditional, extensive and partly nomadic livestock keeping, together with the processing of livestock products, remains a major sector of the national economy. Important changes in policy have reshaped this economy in the last 70 years, starting with the socialist transformation of a largely feudal society, and culminating in the last two years in the start of extensive economic liberalisation.

Mongolia contains many lessons for other countries with pastoral populations. Ecologically, Mongolia is quite similar to many such countries. Although Mongolia has harsh winters with heavy snow in some places, much of the country is covered by steppe grassland, where pasture growth is limited by inadequate, summer, rainfall; the Gobi and neighbouring desert steppe covers over a third of the national territory.

Extensive livestock production plays a crucial role in the national economy, in national consumption, and in employment: for example, rural sector, overwhelmingly pastoral, exports are 40 percent of total exports; average per capita consumption of meat and meat products is 90 kg, and of milk and milk products 150 kg, which are among the highest developing country figures in the world; and agricultural (mainly pastoral) labour is 34 percent of total employment. As a result, the attention of national economic planners is focussed in a very direct way on pastoralism; this contrasts with most countries, where extensive pastoralism is a small part of the national economy, with little political support, and getting little attention. Mongolian planners have considerable experience of policies for pastoral development, with both successes and failures. This experience is unusual, since elsewhere rural development planners tend to focus almost exclusively on crop agriculture or intensive livestock husbandry.

Mongolia has also experimented on a national scale with structural transformation of the pastoral economy and with the institutional issues concerning pastoral associations and cooperatives, and the best way to deliver services to mobile pastoralists, which are now at the centre of much pastoral planning. Here also, Mongolian experience is a valuable resource which can be shared with other countries.

Mongolia is now at the start of far-reaching changes in its pastoral development policies, and in this can perhaps learn from the experience of other countries with pastoral populations. After nearly forty years of attempts to develop the pastoral economies of Africa and Asia, with some successful policies but many more failures, the international community and national governments have useful lessons and examples before them, and as Mongolia develops its open door policy these should be made available to Mongolian planners.

For these reasons, an exchange of experience about pastoral development between Mongolia and other countries should transfer valuable insights in both directions. Much of the Mongolian experience has so far been inaccessible to people in other countries, mainly because of language problems, but also because few people knew much about the policies being pursued in Mongolia. The papers which follow, originally presented by leading Mongolian scientists to the International Workshop on Pastoralism and Socio-Economic Development in Ulaanbaatar in September 1990, go some way to filling this gap. The purpose of this short

introduction is to point to some of the lessons the Mongolian experience contains for other countries involved in planning pastoral development.

THE BACKGROUND TO PASTORAL PRODUCTION

Pastoral environments

Mongolia comprises three broad ecological zones: the desert and semi-desert (Gobi) regions in the south; the eastern and central steppes; and the forest steppe and mountains of the north and north west (Swift and Mearns 1991). Overall the country is sharply continental, with annual mean temperature variations of the order of 40 to 50 C, and temperature maxima and minima of 45 C and -40 C respectively. There are only 80-90 frost-free days in the year in the mountains and forest steppes, and up to 130 in the Gobi; this severely constrains the plant growing season throughout the country.

Some 80-90 percent of total precipitation falls in the summer, principally as a result of convective heating. Annual precipitation is very low, from over 300 mm in the mountains and 200-300 mm in the steppes, to less than 150 mm (and often less than 100 mm) in the Gobi. While there is permanent snow cover between October and April on the mountains in the north, there is generally no permanent snow in the south. Over 44 spring summer periods for which there are continuous records, the northern regions experienced up to six years of successive drought, while the south had up to 14 successive drought years.

Thus, although at first glance Mongolia is unlike the dry tropical environments where extensive pastoral economies are most often located, Mongolia's extensive desert, steppe and mountain environments, with scarce and very variable rainfall, are in many respects similar to those in other countries where pastoralism is common. The main problems faced by herders, and by governments planning pastoral development, are the same in both cases.

People and animals

The population of Mongolia is around 2 million, half of whom live in Ulaanbaatar or in one of a few big towns. The rest of the population belongs either to a state farm or to a pastoral collective (negdel), and of the latter, a large proportion, amounting to perhaps 42 percent of the national population, are directly engaged in livestock production. Most of these producers live in felt-covered huts (known as ger in Mongolian, but better known by the Russian word yurt), which can be moved as the demands of the grazing animals change.

Livestock, the total population of which is around 25 million, are distributed between the ecological zones as follows: camels, goats and sheep predominate in the Gobi; cattle and sheep in the steppes; cattle and sheep, together with fodder and grain crops in the northern forest steppes; horses are found throughout the country, and yaks replace cattle at higher altitudes.

The Mongolian rural economy is dominated by production from what Mongolians call the "five kinds of animals" (horses, camels, cattle - including yaks - sheep and goats). Rural people consume large amounts of milk and meat and their very diverse products. Urban populations eat lots of meat, although urban milk supplies are more erratic. Animal products form the basis of a significant portion of local processing industries and employment. Exports of live animals, meat and other animal products, including especially cashmere and other fine wools and animal hair, are a significant portion of Mongolia's national economy.

Mongolia currently enjoys unusually high levels of rural services. Primary and secondary school enrolment is close to 100 percent, which is an outstanding achievement in rural communities which remain scattered and nomadic. The primary health system reaches most households with regular mother and child care, immunization and curative services. Education and health is provided by district administrations to members of the corresponding collectives and state farms, and is funded from general government revenues.

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Organisation of the economy

The Mongolian rural economy is characterised by a complex mix of private, collective and state-organised production and marketing activities. Livestock production is the main responsibility of the collectives, while state farms also grow some fodder and manage herds of experimental, often high performance, animals.

After the 1921 revolution, an attempt at rural collectivization, involving force, was made in the late 1920s, but was resisted by the herders. In the 1950s a new policy, depending chiefly on a mix of economic incentives and disincentives, was introduced to persuade herders to join the collectives, and the entire rural population has belonged to collectives or state farms since then. The territory of the collective or state farm (and a small number of similar specialist units) is identical to that of the district, and there is no land outside this framework. Until the reforms of early 1990, the Chairman of the district was also Chairman of the collective, and some individuals held overlapping roles in the three parallel structures of party, government and collectives. The collective has mainly economic functions, concerned with livestock and agricultural production, marketing and processing, while the district administration, as representative of central government, is responsible for services, including schools, and medical and veterinary care.

In addition to the animals they were allocated by the collective, households were until recently allowed a limited (but relatively large) number of private livestock: 75 animals in much of the country, 100 in the Gobi. Households looked after their private animals at the same time as the collective animals in their charge, and were allowed to dispose of the products as they wished: they could consume them, use them to meet shortfalls in production targets, or sell them to the collective, to state enterprises or to other individuals.

Production targets were set nationally in 5-year plans, and these were translated into yearly targets at province and collective or state farm levels. Individual suur which failed to meet their targets had to make up the shortfall from their private animals or by buying from other households; collectives in the same situation had to buy from their members' private animals or from other collectives.

From 1990, economic reforms have increased the role of the private sector and limited the role and powers of government. Posts in the administrative, party and collective hierarchies have been separated; some collectively-owned livestock have been leased to herders and rewards set in proportion to risks taken, and the limits to private animal ownership have been lifted. At present there is a lively debate about how the structure of the rural economy should be further changed, and an increasing role given to market forces.

Total livestock numbers in Mongolia rose rapidly after the 1921 revolution, but have been stagnant at around 25 million for a number of years, despite an apparent abundance of pasture. Labour shortages in the countryside, the result of a policy of rapid urbanisation, may be one reason for this, but seasonal fodder shortages, especially in the critical winter-spring period, are also likely to be responsible.

RELEVANCE OF THE MONGOLIAN EXPERIENCE

Several aspects of the Mongolian experience with pastoral development, both successes and failures, are relevant for other countries, just as there are many lessons from other countries of value to Mongolia.

Pastoral collectives

The critically important institutional innovation in the development of Mongolian pastoralism was the successful creation, from the 1950s onwards, of the pastoral collectives (negdel). There are now about 250 negdel in the country, and all rural people other than members of state farms or of a small number of specialist rural institutions belong to a negdel. In the late 1980s, an average collective had about 500 families, herding about 60,000 head of collectively-owned animals (not counting members' private animals); it also controlled about 500,000 ha of land, of which 1,000 ha was cultivated, mainly to fodder crops and cereals.

Collectives are divided into brigades, teams and suur ("bases"). The last of these is the basic production unit, and consists in general of one to four households (usually closely related to each other), which cooperate in daily activities. Animals belonging to the collective are allocated to brigades and suur, and production targets (number of young animals to be reared, slaughter animal deliveries, quantity of dairy products or wool) are set. Brigade meetings decide on the allocation of animals and tasks, on where the animals will be grazed and how they will be managed; brigades have control over specific grazing territories. The suur are then free to manage the animals as they want. Households manage their private animals together with the animals of the negdel.

Suur members are paid a monthly wage, with bonuses or deductions according to whether targets are exceeded, met or under-fulfilled. There is some specialisation of tasks in that suur are generally allocated only one species of animal by the collective, although earlier attempts at a much greater degree of labour specialisation than this have been abandoned. Each collective has several auxiliary brigades for specialist tasks such as transport, services, local product processing or construction.

Each collective has a central administrative village with offices, boarding primary and secondary schools, a small hospital, a cultural centre and offices of technical advisers. The suur are scattered around the countryside at varying distances from the centre. Suurs move from time to time, often using the negdel transport service lorry or tractor for this purpose. Considerable nomadic movement still takes place, especially of younger people taking animals to distant pastures. Old people move much less.

Each collective has a 5-year plan of animal products (wool, hair, meat, milk, fat) to be delivered to the state at set prices. Higher prices are paid for production over plan, but the collective can sell this surplus anywhere at any price it can get, and is not obliged to sell it to the state. If plan targets are not met, the collective must buy from private producers or from other collectives; if necessary it can borrow money from the state for these purchases.

The pastoral collectives are an original Mongolian solution to the problem of pastoral organisation for development, and cannot simply be replicated elsewhere. However they contain interesting lessons for other countries with pastoral populations.

The most important is that not only is the grouping of nomadic herders into a new type of organisational framework feasible, but that such a framework can serve efficiently as the starting point for most other interventions by the herders themselves, or by the state. Herder organisation has been a major theme of pastoral development policies and projects in almost all countries, with a wide variety of pastoral associations, group ranches and cooperative groups being experimented. Although there is now a growing consensus that this is the essential first step in pastoral development, there are still few successful cases to use for reference. Mongolia's experience since the 1950s is an example which enriches this debate.

A second important lesson from the Mongolian experience is that the use of force to create new organisations is counter-productive. Early attempts at collectivization in Mongolia in the 1920s were

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unsuccessful, because the population did not agree with what was being attempted and because force was used (Humphrey 1978). Because of their relative independence from state structures and their mobility, it is easier for nomadic herders than for farmers to resist such efforts. The Mongolian government of the day was obliged by popular resistance to abandon this policy. Thirty years later, collectivization was accomplished almost entirely without force, by the combined use of economic incentives (the guaranteed income and services provided by the collectives) and disincentives (progressive taxation on personal herds and a lack of herdsmen to look after large private herds outside the collectives, because poor people had joined the collectives).

Another important lesson is that sedentarization - an ending of nomadic movement - is not a necessary condition of successful pastoral organisation. Many countries have considered it essential to settle nomadic herders in one place in order to plan development for them. A common complaint of government is that you cannot reach mobile people.

The Mongolian experience shows, to the contrary, that there is no contradiction between mobile pastoralism and highly developed pastoral organisations through which herders participate fully in the economic, social, cultural and political life of the nation. The collectives have become the focus of all other interventions in the pastoral areas, including schools, health and veterinary services, cultural activities and political participation. Luvsandorj's paper in this collection lists the types of development activity which are now managed by the collectives, including precisely those technical activities such as livestock improvement, agriculture and fodder production and economic diversification which are normally given as reasons why it is essential to sedentarize nomadic pastoralists before development activities can be undertaken. The Mongolian pastoral collectives also have perhaps the best level of services of any pastoral group in the world, despite the mobility of their members.

Luvsandorj also lists problems which have arisen partly as a result of collectivization. A clear recognition of these, and attempts to solve them in the process of liberalisation now starting, is an important part of Mongolia's experience of pastoral collectives.

Seasonal fodder shortages

Like other extensive pastoral economies, that of Mongolia is subject to extreme seasonal variations in environmental conditions, especially in the supply of natural pasture. The main constraint in Mongolia occurs in late winter and early spring, when pasture from the previous year is dormant because of the cold or hidden by snow, and new growth has not yet started. As Purev's paper in this collection shows, Mongolian livestock show the uneven growth and production curves characteristic of such a situation: animals only just maintain or even lose weight in winter and spring, but compensate by rapid growth in summer and autumn. Production of young animals, milk and other products is concentrated into a brief seasonal peak.

The Mongolian response to this seasonal livestock feed constraint has been to emphasise the production of hay and cultivated fodder. As Tserendash points out in this volume, 19 specialised fodder production enterprises have been set up to meet fodder needs, and collectives and state farms have their own fodder production units. Some valuable irrigated land is devoted to fodder production, although natural hay is by far the most important fodder crop by volume.

The fodder problem is far from solved in Mongolia, and at present is probably a major constraint on increased animal production. The great size of the country makes transport from the centre and north, where fodder is easily grown, to the Gobi and desert steppe in the south, where the deficit is greatest, very expensive. Provision of fodder at subsidised cost in the south has been a disincentive to local fodder production in the past, although efforts have now started to produce more fodder locally. The Mongolian authorities are giving increasing priority to this key issue, and an exchange of experience with other countries would be valuable.

Pasture land tenure and management

The issues of conservative pasture management, and the land tenure structures to encourage it, which are key concerns of planners in other pastoral areas, are only now beginning to be raised in Mongolia. The great size of the country and its pastures, and the relatively small human and animal presence, combined with a strongly limiting winter-spring animal feed constraint, have meant that there is little evidence of general range degradation or declining productivity. As Tserendulam points out in this volume, natural pasture is for most of the year in adequate quantity and of high quality. The only cause for alarm, as in many other pastoral situations, is around fixed points such as towns, where animals may concentrate and graze down pasture excessively.

However this happy state of affairs will not necessarily last. The experience in the Inner Mongolian Autonomous Region in China, in circumstances not unlike those of Mongolia, shows than higher population densities, combined with changes in land tenure and management (in that case, mainly a policy of growing cereal crops on land better suited to grazing, and an absence of appropriate pasture tenure policies), can lead to rapid ecological deterioration. Mongolia is facing similar decisions to those in many other pastoral areas about the basic structure of pasture land tenure. Mongolia's advantage is that it is starting from a position of successful group management, by the pastoral collectives, of common pasture resources.

The pastoral collectives, building in many cases on the much older experience of pre-revolutionary grazing management, have exercised tight control over pasture use by their members. Brigades in general plan and coordinate pasture use between groups of households, and ensure that over and under use does not occur. Neighbouring collectives negotiate reciprocal access when drought or other natural calamity has greatly reduced the grazing potential of one of them.

This experience, unlike that of many pastoral areas elsewhere, will make it much easier to put into practice a successful common pasture management scheme. Mongolian herders are used to cooperating in pasture use and planning their movements as a function of this. The institutions necessary for successful common pasture management are already largely in place through the rules and existing habits of collaboration at suur, team, brigade and collective level. The enactment of a new tenure system, whether based on long-term leases of pasture to brigades or other groups, poses no fundamental threat to the existing way of doing things, and should be readily acceptable to Mongolian herders.

The lesson here for other countries is that the formalisation of existing common property resource management systems is an important step in creating sustainable land uses. In most cases outside Mongolia this will involve providing statutory support to customary tenure arrangements, but the end effect should be the same: to provide a sound and transparent legal and managerial basis for groups of herders to manage collective pasture resources in the interests of high productivity and long-term sustainability.

Indigenous technical and scientific knowledge

A constant theme in the papers in this volume is the wealth of herders' knowledge about their animals, and their sophisticated herding techniques. This is reflected in the well-adapted biological and behavioural characteristics of Mongolian native breeds, the result of a long process of traditional selection, described by Tumurjav, in the management techniques analysed by Purev, in the long-standing Mongolian veterinary tradition described by Dash, and even in the system of local weather forecasting documented by Bataa. All of these categories of knowledge are paralleled in other pastoral societies, but they are rarely as well documented and respected as in Mongolia. Perhaps only in Mongolia could a President of the Republic, Sambuu, write a textbook of pastoralism, entitled Advice to Herdsmen, to teach his countrymen to value traditional knowledge and techniques.

As the papers collected here show, Mongolian native breeds, and traditional knowledge and techniques, are not valued from nostalgia or romanticism, but because they have a specific contribution to make to contemporary pastoral development. As Tumurjav describes, Mongolian livestock are well-adapted to Mongolian conditions which vary within each year from extremely harsh to excellent, and Mongolian

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scientists now base their selection processes on these breeds; in recent years, new breeds based on this genetic material have been developed. Purev describes some of the criteria on which traditional selection is based.

The fact that native breeds and traditional techniques are valued in Mongolia does not mean that Mongolian scientists turn their backs on modern science. All the authors of this collection of papers are practicing scientists. In his paper, Erdenebaatar argues that the proper approach is to combine the best of the traditional with the best of the modern scientific approach, focussing on the real problems of development of extensive pastoral husbandry. As in other countries, this has not always happened in Mongolia in the past, but is now widely recognised to be the best way forward. This lesson could be applied in most countries with a large pastoral economic sector.

Livestock products

Mongolian pastoralism is characterised by an extraordinary diversity of milk and meat products, documented in this collection by the papers by Zagdsuren and by Gunsendorj, each with co-workers.

Processing milk into a wide range of drinks, including the celebrated Mongolian airaq (better known by its Russian name kumiss), cheeses and other products, enables milk to be kept well beyond the brief summer production surge, and provides a much more interesting variety of consumer products. Meat is also stored and prepared in many ways, the crucial factor being the preservation without refrigeration of the meat of a large number of animals slaughtered every autumn to reduce the demands on the limited winter pastures.

Mongolian milk and meat products are specific to Mongolian conditions. Most pastoral societies prepare a variety of milk and meat products, although these have rarely been investigated and developed by scientists as happens in Mongolia. Given the general interest in rural processing to diversify products and generate local income, this type of animal product processing is worth more attention in other pastoral areas.

Services for pastoralists

Mongolian pastoralists enjoy a range of services unparalleled in other pastoral economies. Primary boarding schools are found at every collective headquarters, and primary school enrolment is said to be close to 100 percent, achieved in less than 70 years in a population where schooling other than monastic training was previously unknown. Most children have the chance to go on to secondary school. Each collective headquarters is also the site of veterinary and human health services which reach out to collective members through mobile teams and specialists.

The level of services provided to herders is one of the features of the Mongolian pastoral system which most distinguishes it from other pastoral economies, and is proof that it is possible radically to improve service levels in a nomadic and highly scattered population. Without further work it is impossible to calculate the cost of this service provision, although it is not thought to be impossibly high. The crucial difference with other situations is probably the high degree of organisation of pastoralists, and the firm commitment to service provision.

Mongolian pastoral services deserve much closer study as potential models for other pastoral areas.

Food security

The Mongolian pastoral environment is a risky one, with the double risk of droughts and heavy snow cover. Although the risk of natural disaster is not as great as in, say, the dry regions of Africa, it is considerable. Mongolia has however managed to avoid major food security crises, triggered by natural, economic or political causes; there has been no important 20th century famine in Mongolia, unlike many similar countries.

The main feature of the Mongolian system responsible for this is probably the guarantee of employment through the pastoral collectives, which, although designed for other purposes, serves as an effective food security safety net. Although it is unlikely that this system will survive unchanged through the present liberalisation policies, its central premise of guaranteeing work in certain circumstances is sufficiently important to be worth studying in other pastoral contexts, since it comes close to the sort of measure now being advocated by food security planners to reduce rural vulnerability to famine.

This employment guarantee depends, in the Mongolian case, on a certain level of collectively-owned animals; indeed the mix of private and collective animals is one of the most characteristic features of the Mongolian pastoral system. Although collective animals have been experimented in a number of other countries, this has rarely been done on a large scale, nor usually in combination with private ownership. One crucial difference from the herder's point of view is that the collective carries the risk on the animals it owns, which itself provides an important degree of security to herding households.

There are advantages and disadvantages to both private and collective animal ownership, and in Mongolia as elsewhere the trend is, for generally good economic reasons, towards private ownership even where collective ownership is still found. However, the potential risk-avoidance and food security implications of some level of collective herd, with the employment opportunities it creates, is worth detailed study, in Mongolia and other pastoral areas.

CONCLUSION

The papers in this collection document Mongolia's experience of pastoral development in the last 70 years, which is little known in the rest of the world. They are written by Mongolian scientists who have been actively involved in research and in policy analysis.

Mongolia's policies and achievements in pastoral development are specific to Mongolia's circumstances, but offer lessons and ideas which can be of value in very different circumstances. Just as Mongolia is now opening up to the experience of other countries in pastoral development, Mongolia's original solutions to problems which continue to bother pastoral planners elsewhere are a valuable resource which should be shared more widely.

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ECONOMIC AND BIOLOGICAL CHARACTERISTICS OF MONGOLIAN LIVESTOCK

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DISTRIBUTION AND NUMBERS OF MONGOLIAN LIVESTOCK

Specific geographic and ecological conditions in Mongolia influence the distribution, viability, production performance, breeding, fecundity and often biological and economic characteristics of the five principal kinds of Mongolian livestock.

Mongolian sheep

By their number and production, sheep have a leading place. The sheep population of Mongolia is estimated at over 14 million head and constitutes approximately 60 percent of the total number of livestock. Sheep are distributed throughout the country. However, the majority of sheep are found in the forest-steppe, steppe and Gobi zones, at an altitude of 1000-1500 metres above sea-level. Approximately, the country's sheep distribution in the different geographic zones is as follows:

- 9 percent in the Alpine zone;
- 58 percent in the steppe zone;
- above 20 percent in the Gobi zone.

Mongolian goat

Mongolia at present has some 4 million head of goats, which constitute 20 percent of the whole livestock population. Over 70 percent of the goat population in Mongolia is found in the Gobi and Altai mountain areas. They are remarkably adapted to unfavourable natural and climatic conditions, to a dry climate and bare mountain rocks and hill pastures rich in wormwood (Artemisia) and onion type of grasses.

Mongolian cattle and yak

Mongolia has 2.4 million head of cattle, which constitute 10 percent of the total livestock population. The distribution of cattle depends on ecological and geographic conditions: 28 percent of the whole cattle population is found in the Alpine, 25 percent in the forest-steppe and 29 percent in the steppe zone.

Cattle are best adapted to the forest-steppe zones, where the soil is soft and rich in thick high grasses and rivers. Most yaks are in the Alpine zone. About 40 percent of yaks are found in Arkhangai, Zavkhan and Khuvsgul provinces. Yaks are well adapted to high altitudes, and inhabit high mountain grasslands with an elevation of over 2000-3000 metres above sea-level. Mongolia at present has some 0.5 million head of yaks, taking the second place in the world.

Mongolian camel

Mongolia is among the major camel raising countries of the world, with a camel population of 550,000 in 1989. Camels are mostly limited to the Gobi and semi-desert zones, which make up 42 percent of the whole territory of the country: 68 percent of the country's camels inhabit the above mentioned zones, 20 percent in the depression of the Great Lakes, 8 percent in the eastern Mongolian plain and only 5 percent in the Alpine and forest-steppe zones.

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Camels have unique biological qualities: they graze on pasture which no other animal can use, including bitter and salty grasses, and they can endure the dry, hot temperatures and water deficiency of the Gobi and semi-desert zones.

Mongolian horse

The Mongolian herder's life is closely related to horse breeding. It is not accidental that many foreign travellers noted that "Mongols are born and grow on horse back". It is impossible to imagine Mongols keeping livestock without horses.

There are about 2 million horses in Mongolia, which amount to 8 percent of total population of the five traditional species. Horses are exclusively represented by the Mongolian indigenous breeds. They are unevenly spread in different regions. thirty one percent of the horse population is in the high mountain region, 18 percent in the forest-steppe region, 31 percent in the steppe region, 14 percent in the depression of the Great Lakes and 19 percent in the Gobi region. About 40 percent of horses are privately owned by individual families.

BIOLOGICAL CHARACTERISTICS

Mongolian native breeds of animals are characterized by an excellent ability to adapt to local environmental conditions, to utilize cheap feed very well all year round, and to resist difficult weather and different diseases. They are able to compensate for slow growth caused by insufficient feeding in winter and spring. In favourable summer and autumn conditions, their daily gain accelerates and they get fatter. They display behaviour traits such as a distinctly marked gregarious herd hierarchy, vitality and alertness. Excellent physiological characters of Mongolian native breeds, such as a strong constitution, good health, fertility, long life cycle, good hair coat and hardiness make them especially suitable for outdoor life.

Mongolian native breeds of animals which use different types of cheap pasture throughout the country, can be thought of as a sort of "living factory" for producing meat, milk, wool and other products. They are able to choose the most nutritious plants from amidst low quality pasture and to withstand a poor water supply. They can graze on poor quality dry grass pasture for 180-200 days of the year. Though they lose weight in winter and spring, by the autumn it has been made up again. Thus, spring live weight of shorn two-year old sheep increases by 22-58 percent in autumn, ewes by 22-48 percent, adult wethers by 41-61 percent; adult cattle gain 30-50 percent and young cattle 60-80 percent.

Metabolic energy, biochemical and physiological function, ecological and behavioural reactions of Mongolian native breeds depend on seasonal changes of plant cover, and on weather and temperature fluctuations. From early autumn, when it gets colder, they become thick-skinned, fat and compact, and well covered with long, thick hair. Solid constitution, short ears, neck, legs and tail, and a coarse wool-covering with long hair, make them very resistant to heat loss. The Mongolian native breeds spend most of their time in cold conditions. For example, there are more than 200 cold and cool days in the northern mountain region. An ability to accumulate body fat is one of the specific adaptations which enables them to resist cold.

As some investigations show, they can accumulate 7-10 or more kg fat in autumn when they are fattest. Sheep's tail, hump fat of camels, surface and inside fat, kidney fat of sheep, cattle and goat, and dewlap fat of horse serve as an energy and calorie source, which is used to get over the winter-spring food scarcity period. Well fleshed and well fattened animals on good grazing can resist frost at -40°C.

Lambs are born with thin brown fat on the neck, chest, back, dewlap and ribs. This brown fat, in the form of thin skin, is able to secrete much heat and disappears by oxidizing some days after the lamb's birth. It is considered that this dark fat is responsible for keeping a constant temperature in the newly born lamb's body and is linked to their resistance to frost.

The Mongolian native breeds of animals have a mainly dark colour in winter time, protecting them from freezing.

BEHAVIOURAL CHARACTERISTICS

The Mongolian breeds display three very positive characters: intelligence, obedience and high mothering instinct. They are very intelligent at finding places which protect them from cold and wind. Herd and flock instinct is highly developed. They usually seek fresh pasture and water, are not kept long on trampled pasture and do not drink dirty water.

The herds and flocks graze amicably, not fighting for pasture and water. The larger the flock, the more calmly the animals graze. A flock of sheep should ideally consist of 400-500 head. If flocks are too large, however, there is a danger of trampled pastures and an increase in the number of weakened sheep.

Mongolian cattle are quiet but watchful; they easily get accustomed not only to each other but to their herdsman, and are easily trained in harness. Yaks are noted for their thick hide, subcutaneous fat and dense hair. They are biologically adapted to the scarce and low vegetation of high altitude areas and steep slopes which form their natural habitat.

The nervous system in yaks is highly reactive. They easily get excited and quickly react to changes in environment. Their sexual reflex is suppressed in human presence. Yak herds are usually headed by a yak-cow. The instinct to protect the herd is clearly expressed.

Mongolian camels are quiet, usually graze dispersed, like to lie about and roll in ashes and salt-marshes: they are obedient, easily pacified, tolerant of saddling, harness and pack loading. Camels are kept in herds, headed usually by old she-camels.

Mongolian horses live in herds within which are groups of animals headed by a stallion. Horses are kept in the open air all year round. They are friendly, watchful, obedient, easily get accustomed to their owner and herdsman, and are very tolerant of work. Horses are sharp-sighted, and have an excellent sense of smell and hearing. Thanks to this, they can easily detect from quite a distance the noise and smell of humans and animals, or the approach to water and camps. Horses are good at finding their way in any locality; it often happened that Mongolian horses find pasture and water at hundreds of kilometres distance on their own.

Mongolian herdsmen have a rich experience in developing a willing disposition and behaviour, and in developing such features as frost resistance in their pastoral animals. They can easily train female animals to be suckled by abandoned or motherless young. To help this, herdsmen and their families sing to their animals, sometimes accompanied with a limb (flute) or char (national two string fiddle). Such singing also takes place when cows are trained and milked, without allowing their calves to suckle them in order to initiate milk let-down.

PRODUCTION PERFORMANCE

Mongolian livestock produce meat, wool, milk, cashmere, skin, moult hair and other products. Animals are used for riding, and to pull and carry loads. Even dried manure is in demand as energy, fuel, floor covering (for cattle/sheds) and fertilizer. Their internal organs, different body tissues, fluids and glands are of importance for medicine.

Fertility

The fertility of Mongolian livestock in conditions of extensive husbandry is quite satisfactory. The average numbers of yearlings reared each year per 100 females are as follows: 90 lambs, 85 kids, 80 calves, 75 foals and 36 camel calves. Twins are infrequent (3-4 percent for sheep and goats).

Meat

Comparative meat performance of the five kinds of animals is shown in Table 1.

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Table 1 **Meat performance of Mongolian breeds of animals**

Species and sex	Average live weight (kg)	Dressing percentage	Carcass weight (kg)	Inside fat (kg)
Ewe	54.7	50.3	23.3	1.4
Female goat	32.6	39.2	12.8	1.1
Mature castrated male goat	38.5	43.7	16.9	1.4
4 year old ox	320.0	52.9	161.0	9.0
3 year old castrated yak	250-350	49.5	125-130	7-9
6-9 year old castrated camel	420-600	51.8	249	17.5
Horse	280	52-55	145-150	-

Meat from the five animals is an essential food for Mongols. Mutton is much preferred. The composition of all sorts of meat is shown in Table 2.

Table 2 **Chemical and calorie composition of meat**

Kind of meat	Moisture %	Fat %	Protein %	Ash %	Energy from 1 kg of meat from medium finished animals (kilocalories)
Mutton	53.5	19.1	16.6	0.27	2590
Goat	58.4	23.8	18.8	0.84	2025
Beef	60.1	22.5	16.3	1.0	2766
Camel	60.2	21.0	17.8	0.85	2691
Horse	64.3	13.5	21.4	0.85	2186

The content of such amino-acids as lysine, hystedine, and glutamine in Mongolian mutton is much greater than in European purebred sheep. In comparison with beef, horse meat is distinguished by high content of valine, phenylalanine, methionine, cystine, aspiragine, serine, glutenine and tyrosine. Especially high content of glutamine makes horse meat more nutritious and easily digestible.

Wool

Wool of sheep and camels is used for making quilted mattresses, felt and felt articles, different types of threads, socks, gloves, felt under saddle blankets, and woollen cloths (blankets, pullovers, crafs). Some characteristics of the wool are presented in Table 3.

Table 3 Some characteristics of sheep and camel wool

Kind of wool	Average fleece yield (kg)	Fineness (micron)			Length (mm)			
		Under coat	Over hair	Inter-mediate hair	Kemp	Under coat	Over hair	Inter-mediate hair
Sheep	1.0-1.6	23.6	73.5	39.3	70-295	76	100	-
Camel	4.7-5.2	22.7	73	54.4	-	73-140	190-290	86-115

Cashmere

Cashmere from Mongolian goats is noted for its fineness, softness, lightness and warmth. Cashmere from goats is now the main raw material for the knitted, textile and wool manufacturing industry. The average diameter of wool fibres in Mongolian goats is 13-16 mkm. Wool yields are 230 gm for males with a range of 210-360 gm, 224 gm for females (190-230 gm), 200 gm for female yearlings (180-220 gm), 200 gm for male yearlings and 235 gm for adult castrates. The corresponding figures in terms of guard hair are 235 gm, 231 gm, 220 gm, 216 gm and 230 gm. Cashmere yield is related to the colour of goat. Black and red goats have 14-27 percent more yield than white and grey ones.

Mongolian breeds of horse, cattle, yak and khainag (hybrids between cattle and yak) give a considerable amount of hair and coarse fibres. A horse gives 500-600 gm of moult, and 400-420 gm coarse hair, crest and tail hair. The yield of moult and coarse hair in cattle, yak and khainag is approximately the same as in horses. Yak down is a valuable product, which can be used to make best quality cloth, knitted wear, and woven suitings.

Hides and skins

The skins and hides of animals are the main raw material for leather processing factories. Some characteristics of skins and hides are shown in Table 4.

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Table 4 **Some characteristics of skins and hides**

Skin or hide of	Weight (kg)	Size (dm^2)
1.5 year old sheep	3.2	113
3.5 year old sheep	4.7	125.5
3.5 year old goat	1.5-4	60-80
3.5 year old cow	14.7	-
Adult male cattle	29.4	254
Adult male horse	16-19	250-355
Adult male camel	24-28	400-900

Milk

Mongolians traditionally produce various types of dairy goods from the five principal kinds of animal milk. Mongolian animals do not have very high milk production (Table 5) but their milk is very nutritious (Table 6). Milk yields fluctuate according to ecological zones.

Table 5 **Average milk yields**

Kind of animal	Milk yield (kg)	Lactation period (days)
Khainag	800-1000	-
Cow	600-800	210-240
Ewe	55-97	200-230
Goat	60-70	225
Camel	320	528
Mare	300-500	90-120
Yak	600-700	-

Table 6 **Composition of milk from different species**

Milk from	Fat %	Protein %	Density %	Acidity T-%	Total solid content %	Sugar %	Ash %
Yak	6.79	5.03	33.8	21.84	17.78	5.1	0.86
Khainag	5.58	4.29	32.0	22.3	15.64	4.84	0.93
Ewe	5.82	6.48	-	-	17.23	3.78	-
Camel	5.65	3.81	-	-	14.66	3.17	0.67
Mare	1.3-2.1	2.0	33.0	5.51	-	-	-
Goat	5.84	3.87	-	-	15.44	4.87	0.89

A unique product of Mongolian horses is airag, prepared from fermented mare's milk. Mongols have a long tradition of preparing and using the national drink of airag: Central Asian nomadic tribes used airag in the first and second centuries BC.

The daily milk yield of a mare is 2.5-3.5 litres, when milked 6 times a day at 2 hour intervals. Milk of mares raised in the steppe zone has the following composition: fat 2.1 percent, lactose 8.8 percent, total protein 2.4 percent, casein 1.37 percent and vitamin C 104.1 mg/1.

Airag contains a number of biologically valuable substances such as carbonic acid, casein, simple protein group, free amino-acids, saturated and unsaturated fatty acids, different vitamins and minerals. During fermentation, under the influence of milk acid and spirit yeasts, great changes take place in milk in ethyl spirits, milk acid, carbonic acid and others. Therefore in terms of biochemical composition airag is different from the initial mare's milk. Airag contains a great number of free amino-acids, which play an important role in the synthesis of protein and which accelerate digestion processes. For this reason, airag is a unique nutritional and health product.

Work

From ancient times, horses, camels, cattle and yaks have played an important role in the Mongolian pastoral economy as the main transport, riding and pack animals.

Mongolian horses are able to cover long distances when ridden and of finding grass for themselves in all seasons of the year. Mongolians have an ancient tradition of horse racing over distances of 15-30 km, depending on the age of the horse. In races, a 5-6 year old racing horse can cover 16.5 km distance in around 25 minutes, or with the speed of almost 40 kph. Despite the fact that Mongolian horses have comparatively small bodies, they are able to compete with racing breeds of horses over long distances.

From ancient times Mongols very commonly used camels not only for riding but also as pack animals and in harness. The herdsmen themselves break in and train untamed camels for riding and pack transport. Mongolian camels can carry on their backs loads of 200-240 kg, pull 400-600 kg in harness, and cover 30-40 km road per day.

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Camel caravans cover 740 km of distance (from South Gobi to Ulan-Bator and return) in 24 days, each camel with 226-238 kg of load. At the end of the trip the camels have lost on average 58 kg of weight but are still able to work.

Mongols also traditionally used cattle, yaks and khainag-oxen for riding and traction.

LOCAL BREEDS

There are a number of selected, highly productive native strains of animals within the Mongolian breed, which are well adapted to local ecological conditions. These include:

Sheep: Bayad, Darkhad, Barga, Uzumchin, Gobi-Altai, Western Mongolian fat-tailed;

Camel: Galbiin Gobiin Ulaan, Khaniin Kheziin Khuren;

Cattle: Eastern Mongolian, Red cattle of Hogorgo;

Goat: Bayandelgeriin, Tullman khuht.

In recent years also, improved native strains of animals have been bred: Tugrig camels, Erchim Mountain black goats, Terkh river brown yaks, Sutai mountain white sheep, Tes river and Gal shar horses, white Darkhad horses and others.

There are in Mongolia occasional highly productive individual animals: these include a camel-bull that produced 17.5 kg of wool, a ram that produced 4.6 kg of wool, a buck that produced 710 gm of cashmere, a sheep of about 100 kg live weight. These testify to the valuable genetic potential of native animals in Mongolia.

One of the main objectives of animal breeding is to select animals taking account of such biological qualities as the survival of young, performance characteristics and the increased number of elite and first grade animals in the flock. We must pay special attention to further breeding from selected native strains of animals and using them as the nucleus of pedigree flocks.

Special attention must be paid to the creation of high productivity nucleus flocks of sheep, including different varieties and strains, and to selective mating based on such features as hardiness, viability and performance of offspring, achieving in this way an increased number of elite and first grade animals. It was observed that sheep which weigh more than 60 kg amount to 10 percent of the whole population. This indicates large reserves and good possibilities for selecting sheep for live weight and for increased mutton production.

Such valuable features of Mongolian sheep as hardiness and adaptability to harsh natural and climatic conditions must be considered, in selection work, as a main goal. These criteria must also be used in upgrading local sheep with high productivity breeds.

SOCIO-ECONOMIC CHANGES IN RURAL MONGOLIA

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Major changes in the life style of Mongolian herdsmen occurred in the 20th century, particularly after the revolution of 1921. As a main driving force of the revolution, the herdsmen aspired to improve their living conditions, overcome centuries-old backwardness, attain freedom and restore Mongolian statehood.

Since the 1921 revolution, Mongolia's population has increased 3.3 times; over 50 percent of the population now lives in the cities and towns, and 30 percent in rural settlements. Mongolia's pastoralists account for the remaining 20 percent of the population. In order to assist the pastoralists, the central authorities, government employees at all levels and industrial workers are all concerned with livestock development. Thus, animal husbandry, once the concern only of individual family households, which were restricted entirely to extensive pastoral management, has become an independent social industry based on scientific and technological support and assistance.

TRADITIONAL MONGOLIAN PASTORALISM

Before the 1921 revolution and collectivization, Mongolia's population of 640,000 people, almost in its entirety, lived and survived on animal husbandry. Although handicrafts and agriculture existed, they were restricted to individual family households and subordinated to the principal mode of life, livestock breeding.

From ancient times the Mongols lived a nomadic way of life and herded five species of animal: horses, camels, cattle, sheep and goats. These animals served specific economic purposes and constituted, from a biological and ecological point of view and in terms of pasture, water management and shelters, an interdependent and interlinked system.

The nomadic economy was largely dependent on natural conditions (pasture growth, drinking water and climate), limited pasture potential and local resources. Therefore, herdsmen migrated from pasture to pasture. This in turn obliged them to create viable livestock breeds, and skilful breeding methods. Otherwise, heavy snowfalls, low temperatures, drought and famine caused considerable damage to nomadic households and to the nomads themselves. These phenomena occurred sporadically throughout the entire country, which forced pastoralists to move from one place to another, and suffer great losses of livestock. The herding population was divided into poor and rich. These were the characteristics of nomadism.

Pastoralists abided by nomadic rules and natural laws of life, living according to the principle of self-reliance. Under these circumstances, trades such as skin processing, wool and felt making and dairy production were a "factory" within individual households.

Local trade with neighbouring and foreign merchants, and exchange of textiles, domestic implements, flour, rice, tea and sugar, for wool, skin and hides, were widespread towards the end of the 19th and beginning of the 20th centuries. Nonetheless, such trade failed to change radically the national economic mode of the family household.

Animal husbandry carried out by the vast majority of the population, based on natural production and controlled by small family households, limited the introduction of scientific and technological knowledge. However it is unrealistic to ignore the existence of the classical methods of livestock breeding and their contribution to the historical process of pastoral industry development.

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The general outlook of the nomadic household was determined by how men adjusted production to their way of life and natural environment. The Mongols, therefore, have their own cultural traditions. There were so-called "popular schools" and small school groups which were supposed to provide schooling and teach literacy and numeracy, though in fact they enroled few children. Because of the vast territory and long distances between human settlements, and the herdsmen's need to ensure the household labour supply, there were enormous difficulties to cultural revival. Mongolia was then one of the most backward nations, lagging far behind the rest of the world. The herders had to manage the pastoral economy without industrial support, modern construction or communications.

MODERN PASTORAL DEVELOPMENT POLICIES

Until the beginning of the 20th century, Mongolia was in a feudal world placed between the two least developed great powers. Following the revolution, major changes took place in the countryside, leading to better living standards and the development of animal husbandry. Most small producers became medium producers with over 110 head of different species of stock in their possession.

The policies adopted by the government at this time for the development of animal husbandry and for the improvement of the herder's life may be summarised as follows:

- herders were organised to harvest hay and prepare fodder, build fences and dig wells, and protect animals from snow storms and other natural hazards; pastures were improved and nomadic movement organised differently;

- the best herders were awarded prizes and were selected to attend congresses as a reward;

- the state started buying animal products, changing a subsistence economy into a commodity one;

- work was done on animal disease, and veterinary services were developed; horse transport services were organised in remote areas;

- cooperatives were organised, and basic goods supplied; state farms, hay and harvesting stations were organised, and virgin lands cultivated for wheat and animal fodder;

- medical centres and hospitals were built; living standards were improved; campaigns were launched against adult illiteracy, and starting in 1940 some children were enroled in school from 1st to 10th grade; cultural services were improved;

- unemployed herders were given work in industry, railways, trade or other branches of the economy.

These measures were not entirely successful and the initial attempts at collectivization were postponed. In particular, market relationships did not develop successfully. There was a need, arising from the country's internal development and external situation, to restructure animal husbandry into a more effective production sector, to reorganise small-size property owners and to introduce scientific and technological knowledge. A new collectivization campaign was started which ultimately came to completion in the 1960s.

COLLECTIVIZATION AND ITS CONSEQUENCES

This successful completion of the collectivization movement in Mongolia was accomplished peacefully by an economic policy aimed at fundamental institutional reorganisation and reordering of the social relations of production, eliminating exploitation of poor people by rich people, and restructuring livestock property into the socialist type, namely, cooperative, or collective ownership. This brought about not only a new form of ownership but created a new type of cooperative production unit and revolutionary changes in the mentality and mode of life of members of cooperatives.

The main consequences of the collectivization of herding were as follows:

1. Production

(1) Through centralisation of capital and labour and creation of large collectives, a new, more productive herding economy has been reached.

(2) There has been considerable application of scientific and technical achievements in livestock breeding, and training of skilled personnel.

(3) Labour productivity has been increased and labour distribution improved.

(4) Agriculture has been developed, the cereal problem was solved, production of cattle fodder has started.

(5) Diversification has taken place, including different kinds of services and pig and poultry keeping.

(6) As a result of the collectives, differences between richest and poorest have been eliminated.

2. Social aspects

(1) Herders have become politically aware, and they have acquired a degree of education and proper economic understanding.

(2) Herders are protected from the danger of livestock losses and destitution caused by unexpected natural hazards.

(3) Labour for the collectives is the main source of income of herder families. They also have the possibility of income from their private animals.

(4) The living standard of herders is improving as their needs are met by the incomes earned from collective and private household activity.

(5) Collectives pay their members' insurance and taxes, and members of collectives get various kinds of social security exemptions.

(6) Children of collective households are given free education and free boarding accommodation; free mother and child care is also provided.

(7) Herders now get better building materials, domestic utensils and clothing.

(8) A variety of high quality food products is increasingly widely available.

(9) Many holiday facilities, and health centres have been built for herders, and they get annual holidays.

(10) The national economy is organised to supply herders with necessary goods.

At the time of successful collectivization in the 1960s, private property in animals was allowed to continue within limits, so collective households herded their own animals as well as those belonging to the collectives. Since early 1990, the limits on private ownership of animals have been removed, and herders may have an unlimited number. Measures are being taken to guarantee a minimum of 30 animals for each household.

While collectivization preserved pastoral animal husbandry as such, it eradicated some aspects of traditional nomadism. The severe damage caused by drought and winter cold, which had previously been borne by the

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herders alone, was now the responsibility of state-run organisations and cooperatives, thus protecting the herders from natural disasters.

Our aim now is to make efficient use of Mongolian ecological and climatic conditions, and to improve traditional methods of pastoral management. Although at present the pastoral "method" is most useful, it is essential to improve the pastoral "way of life" and develop a new mode of living.

By the end of 1989 the total animal population was estimated at 24.6 million heads; 70 percent of these belong to cooperatives and state farms, and 26 percent are family owned. Therefore, the question arises: how many herdsmen are needed to raise family-owned stock and what organisational solutions are necessary?

For the last 30 years, due to the existence of vast pasture lands in Mongolia, private and publicly-owned livestock grazed the same pastures, unlike other countries. As well as getting paid for his labour in the cooperative, a herdsman can benefit from herding publicly-owned livestock by using their products and as a means of transport. Moreover, private livestock may benefit from the material base provided for the publicly-owned stock. A herder can take his own surplus products to the market. It is possible, therefore, to improve the living standards of the herders and develop a socialist economy and socialist production relations through efficient combination of both public and private ownership.

Rapid industrial development, urbanisation and concentration of the country's population in the cities have an immediate impact on rural development. A closer relationship between urban and rural development, and better organisation of state provision of scientific and technological know-how, food, fuel, transport and construction necessitate coordinated management of animal husbandry, and make it an area of overall national economic concern. In short, animal husbandry is a major determinant of the country's overall production potential.

PROBLEMS RESULTING FROM COLLECTIVIZATION

Government policy, and the socio-economic changes in rural areas which resulted from collectivization, are now being assessed at their true value. There have been many positive aspects. But it must be noted that errors in government policy, and the difficulties they have caused, have prevented the country's development and an increase in livestock numbers.

The main mistakes made during this period in the field of animal husbandry may be summarised as follows:

(1) Private property was considered capitalist and theoretically criticised as productively "weak".

(2) It was said that private ownership would cause "ever lasting exploitation" and would therefore lead to the "birth of capitalism". This led to changing policies towards household ownership of livestock.

(3) For national development, and the extension of foreign trade, increasing amounts of raw materials from agriculture and herding were required. Farmers and herders had to carry this burden. They were loaded with taxes, given strict plans for livestock production and obligatory targets for meat, milk and wool deliveries. As a result, herders were dissatisfied.

(4) In the 1930s, when objective conditions were not yet ready, households were forcibly "settled" in collectives imposed from above as an experiment from abroad. This caused an enormous loss of livestock.

(5) Because the children of herders were forced into school, there was a lack of young people engaged in herding.

(6) Livestock production, as the main branch of country's economy, should have been supported by industry. Instead, it was treated only as a raw material supplier mainly depending on nature. In

place of a mutually beneficial relationship between industry and the livestock sector, trade and industry were given priority.

(7) As result of a single-minded policy of intensification and cross breeding of indigenous livestock, some of the hardy qualities of local livestock were lost, and some traditional livestock selection methods were abandoned.

(8) Unscientific organisation of pasture use led to uninhabited areas, to the destruction of pastures by roads and urban and industrial buildings, and to pasture damage by rodents. The area of pasture was considerably reduced.

Many distortions in economic development were caused by these mistakes. These include:

(1) Important political and social measures were undertaken to strengthen collectives, but because too many young people were assigned to the construction branch between 1960 and 1970 there was a lack of men and women for livestock production; this had a negative influence on herding.

(2) As a result of centralised and top-down state plans for the productive and social activities of collectives, there was a limited development of markets, and the growth of livestock numbers stopped.

(3) The mistaken appropriation of collective property by the state, which also forced the collectives to cover some expenses, has restricted the latter's independence.

(4) There was a strict limit on the number of private livestock at 50-70 head; this policy led to stagnation in the private livestock herd.

(5) According to the plans, the herders had to deliver an extremely large quantity of products from their animals; those who refused were fined.

(6) Because of low purchase prices for agricultural products, collective households failed to cover their very high expenses. Herders' incomes are still much lower than the salaries of industrial workers and the urban population.

(7) The large number of unresolved social problems of herders led to visible differences between city and countryside.

(8) Because of the lack of herders, the number of livestock per family became too large; this caused disfunctions and led to changes in traditional stock-breeding methods, and to the failure of collective labour.

(9) Because of a neglect of collective democracy and the malfunctioning of distribution systems, collective labour and management principles were abandoned and collective property deteriorated.

CONCLUSION: THE FUTURE

Today, when perestroika is occurring throughout the country, proper measures are being taken to renew livestock development policy, in order to escape from economic stagnation and to set in motion positive changes in living standards and the cultural level of the population.

In "Outlooks of MPR policy in the next years" the main ways to solve the socio-economic problems of rural areas are set out. The main measures proposed in this policy document are as follows:

(1) To undertake economic and organisational measures to protect natural pastures, to use them properly, and to increase and renew their stock.

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(2) To develop production based on different forms of property, such as state, collective, private, etc.

(3) To support the interests and develop the activities of herders; to increase the number of livestock, increase the number of herders, and reduce the number of livestock per family.

(4) To change the educational system for herders' children, stop the assignment of herders to other branches of the economy and to other jobs, and to correct the balance and structure of population and labour forces.

(5) To change the rules of delivery of products from the herding sector, to support market relations and market activities, and to improve the supply of raw materials and food products.

(6) To increase herders' salaries, to support private economic activities at household level, to improve and extend social services such as electrification and mail services, and to establish TV stations.

(7) To bring herder's salaries, exemptions, and holidays nearer to the level of industrial workers.

(8) To increase the purchase prices of livestock products, to increase marketed volumes of these products, to increase the incomes and effectiveness of collective households, and to strengthen the productive basis of intensive livestock production.

(9) To develop private activities in stock breeding, and to reduce the differences between private and state activities in the livestock sector.

(10) To increase employment in the countryside, and develop new types of food production in desert regions.

Although meeting these objectives will not fully eliminate the differences between urban and rural areas, these measures will provide a better basis for living and working in rural areas, and for the development of the livestock sector.

TRADITIONAL PASTORAL LIVESTOCK MANAGEMENT IN MONGOLIA

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From ancient times the Mongols have herded five kinds of livestock in the severe Central Asian climate, have grazed them throughout the year on open pastures, and have mastered the "Mongolian type" of skills to raise and select them. These skills, Mongolia's pastoralists' intellectual tradition, have made a contribution not only to the Central Asian animal husbandry heritage, but to the whole world.

MONGOLIA'S ECOLOGICAL CONDITIONS

Mongolia is situated in Central Asia, at an average 1580 m altitude; it is land-locked, surrounded by mountains and hills, and has a severe continental climate. As it combines highlands, vast steppes and desert steppes with scarce rainfall, temperatures vary greatly, not only seasonally but daily.

From the point of view of physical geography, vegetation and livestock management, Mongolia is divided into three main zones: mountain (Khangai), steppe and Gobi desert. The main features of each of these zones is shown in Table 1.

Since Mongolia has a severe continental climate, there is a very cold winter (in December, January and February) and a hot summer (in June, July and August). Average winter temperatures in the mountain zone are as low as -20 to -30°C, in the steppe -20 to -25°C and in the Gobi, -15 to -20°C. However, summer temperatures are as high as 15-20°C in the mountains and steppe, and 20-25°C in the Gobi. While hot temperatures are found in mountains and steppe zones for up to 110 days, in the Gobi they last for 140 days.

The total annual rainfall is very variable: mountain areas get an average of 250-300 mm, the steppe gets 150-200 mm, the Gobi 100-150 mm and some years even less. Although snowfall varies from year to year, generally it occurs in October. Snowfall in the mountains reaches 15-20 cm, in the steppe 10-15 cm and in the Gobi 2-5 cm. However, in some years, there is heavy snow and this has a disastrous effect on livestock. Sometimes even without snow, cold temperatures and frozen rivers can cause severe damage to livestock because water becomes inaccessible. Though 70-80 percent of annual precipitation occurs in summer, in some years there is no rain; this causes damage to livestock.

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Table 1 The climate of the main geographical zones of Mongolia

	Khangai (mountain)	Steppe	Gobi (desert)
Average monthly temperature °C: in winter, (Dec, Jan, Feb)	-20 to -30	-20 to -25	-15 to -20
in summer, (June, July, August)	+15 to +20	+15 to +20	+2- to +25
Number of warm days per year	90	90 - 100	140
Annual rainfall (mm)	250 - 350	150 - 200	100 - 150
Depth of snow cover (cm)	15 - 20	10 - 15	2 - 5
Average pasture yield (in terms of hay) centner/ha	5 - 8	3 - 4	1 - 3

VEGETATION

Mongolia has nearly 125 million hectares of natural pastures. There are almost two thousand types of plant, over six hundred of which are used for animal fodder. Pasture yields vary with altitude and with location, decreasing in quantity from north to south, although pasture quality and fertility improves from south to north. The crop capacity of summer pasture, in terms of hay, is in mountain pastures from 5-8 centners, in steppe pastures 3-4 centners, and in Gobi pastures 1-3 centners per hectare.

Pasture growth begins in April and usually reaches its maximum in August. If this high season standing pasture is taken as 100 percent, late autumn will be 70-80 percent, winter 50-60 percent and spring 30-40 percent. At the same time the quality of vegetation decreases 2-3 times and its protein content by 3-4 times.

Mongolian livestock get over 90 percent of their annual fodder from the pasture. However, since in winter the grass dries off, and its quality worsens, all kinds of livestock get only 40-60 percent of required fodder daily. Therefore autumn weight loss is as much as 25-30 percent.

The even distribution of grazing animals, rotation and correct management of pasture allows the land under pasture to be economised by 30-50 percent and the coefficient of pasture utilisation to be increased by 20-40 percent. However, grazing livestock on the same pasture year after year, and mismanagement of pasture, can lead to a reduction in its capacity. The consequent change in vegetation makes it unsuitable for livestock, and livestock production will be negatively affected.

Mongolian herdsmen pay a great deal of attention to correct and efficient utilisation of winter and spring pasture, and provide different kinds of supplementary feed in warm periods to prevent weight loss in their

livestock. In recent years, important measures have been taken to improve fodder production by increased hay making, cultivated production of mixed feed and creation of cultivated pastures and arable grasslands.

PASTURE SELECTION FOR DIFFERENT KINDS OF LIVESTOCK

The Mongols have accumulated much experience in selecting pasture according to the kind of livestock. Daily herding practice is adapted not only to the seasons but also to weather. Selection of pasture in any season is made generally after an on-site inspection to decide the type of pasture growth and vegetation, for which kinds of livestock the pasture is suitable, for how many herds and for how long it will last, and if drinking water and soda are available.

Herdsmen prefer to keep sheep on largely arid hillsides, valleys and foot-hills. The prevailing vegetation should be Festuca, Agropyron cristatum, Stipa capillata, Koeleria gracilis, Agropyron repens, Artemisia, Pulsatilla amoigna, Medicago, Poa attenuata, Termopsis, Cleistogenes squarrosa, Allium polyrhizum, Allium mongolicum. However, in early autumn Anabastic aphylla, Kalidium, Allium polyrhizum, Allium mongolicum and other strong sour herbs, are more effective, while in summer and spring Medicago, Onobrychis and other leguminous plants, as well as flowers and leaves abundant in the pastures, are most suitable for sheep. Goat pasture resembles sheep pasture. But goats chiefly eat the upper part of plants. When goats are herded separately from sheep, a pasture with an uneven and hard surface, and with plants such as Rubus sachalinensis, Artemisia, Anemisia ancthifolia, Allium polyrhizum, Allium mongolicum and Allium senscens is suitable.

Because cows wrap their tongues around grass and tear it off, the best soil surface and vegetation for pasturing herds of cows is that of mountain slopes, the banks of rivers, dry and wide meadows, the gaps between isolated hills, and a soil which though soft is not sandy and with a lumpy, tough vegetation. Of this, cows eat chiefly Agropyron cristatum, Agropyron repens, Carex, Koeleria, Poa attenuata, Medicago, Cleistogenes squarrosa, Stipa, Fragrostis minor, Psammochloa villosa, Achanaterum splendens, Artemisia and other abundant flower and leaf vegetation. If cows are pastured only on the banks of rivers and on boggy land throughout summer, they cannot put on weight and fatten satisfactorily. Therefore it is necessary to alternate the use of steppe and meadow pasture.

Although horse pasture is not particularly different from smallstock pasture, wide steppe and valley grasslands are more suitable. At any season of the year horses like a pasture with Agropyron cristatum, Agropyron repens, Cleistogenes squarrosa, Poa attenuata, Koeleria gracilis, Festuca, Allium senscens, Stipa, Artemisia and Fragrostis minor.

For pasturing camels, a pasture with Gobi soil and with the main growth consisting of Salsola, Anabasis brebifolia, Sympegma regelii, Haloxylon ammadendron and Ulimus pumila is suitable. At the same time as pasture of this kind, in all seasons camels should be grazed on steppe pasture which has plants like Agropyron cristatum, Agropyron repens, Artemisia and Anemisia anethifolia.

Mongolian herdsmen are very observant people. They can easily determine by watching their animals whether they have been put on the correct pasture. Especially experienced herdsmen pay attention to behaviour and to changes in body conformation of their livestock. On this basis, they decide to move or to change their daily herding practices. The main tasks of the herding household at different times of year are summarised in Figure 1.

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Figure 1: The annual work schedule of a Mongolian pastoral household

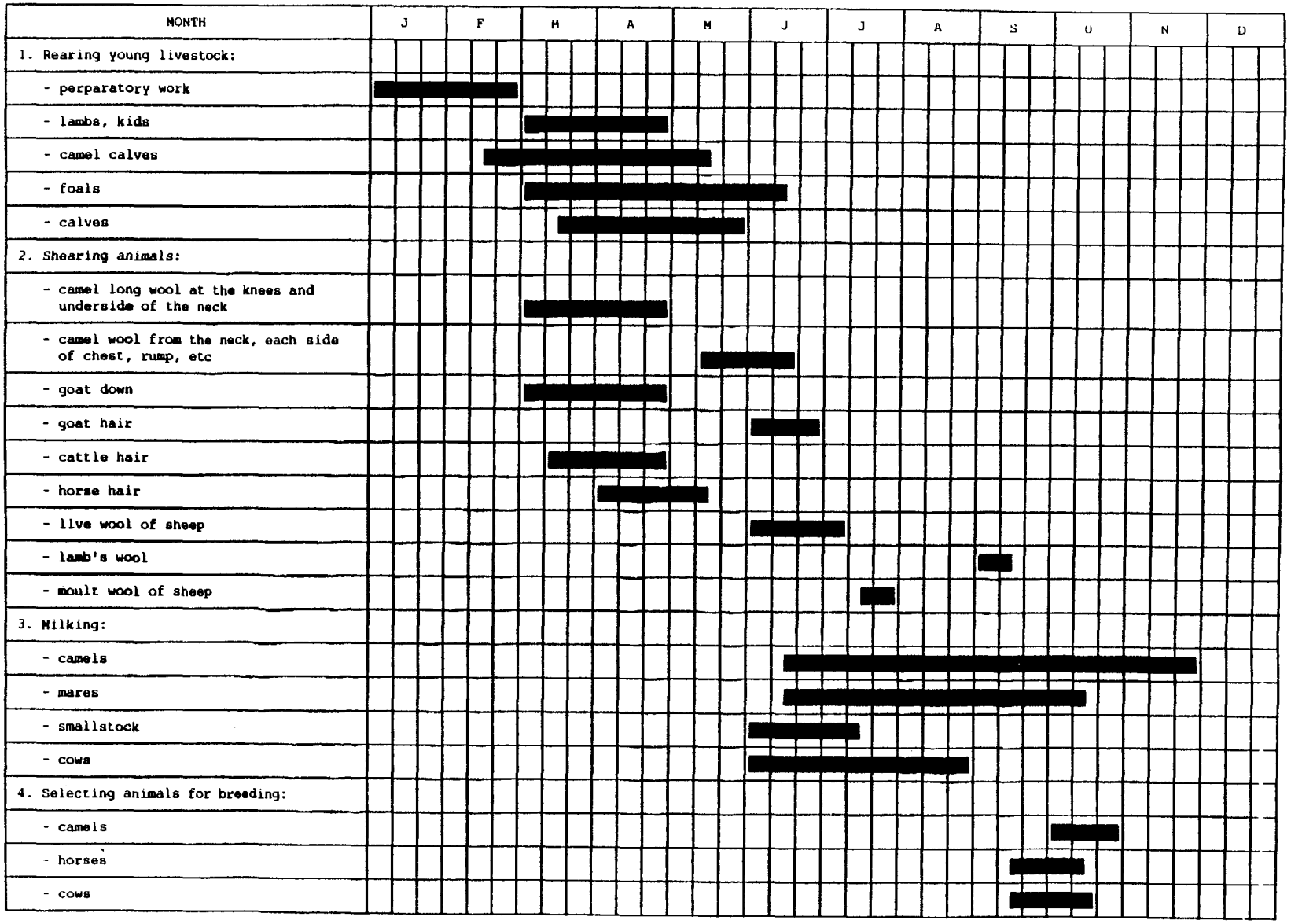

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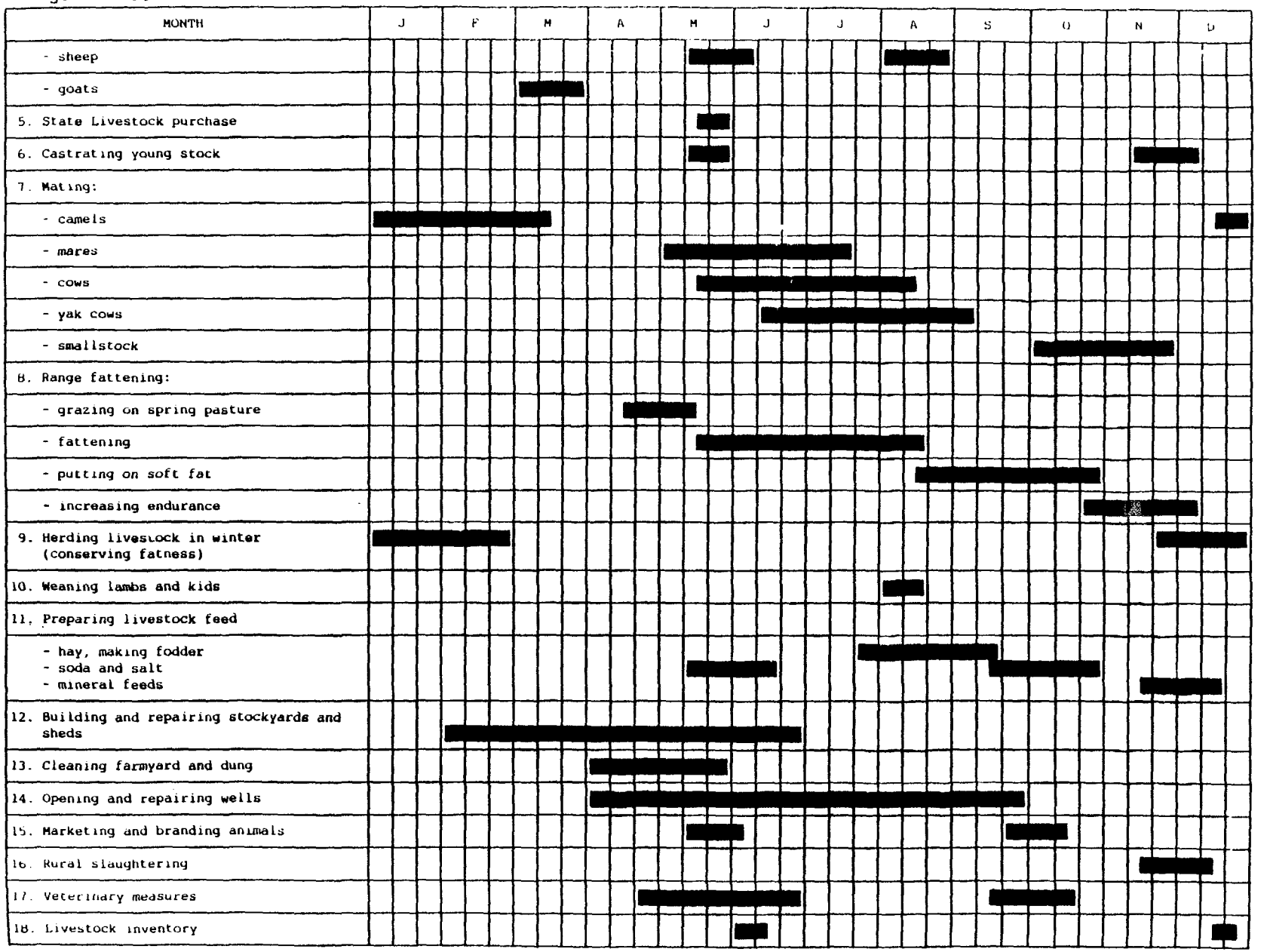
Figure 1 cont.



TRADITIONAL METHODS OF PASTURING LIVESTOCK

The main methods of grazing management by Mongolian herdsmen depend on the season. They can be classified as follows:

- Late spring and early summer: the period of recuperation by livestock grazing on green vegetation;
- Summer: the period when recuperation is completed; livestock which fattened early become especially strong in this period;
- Autumn: the period when livestock put on soft fat;
- Late autumn and early winter: the period when fatness is consolidated, and the ability of livestock to endure cold is built up;
- Winter and spring: the period of conservation of fatness.

Based on this seasonal classification, and taking into account the growth of grass, water and soda supply, Mongolian herdsmen take all species of livestock to distant pastures. Moving lightly and rapidly, in an organised way, is one nomadic mode which is called in Mongolia otorlakh, otort yavakh, meaning "to go a long way from home territory, looking for better pasture in a bad season". In choosing distant pasture herdsmen must travel widely, study conditions, find the pasture, water and soda and assess how long they can use it.

There are many forms of utilisation of distant pastures namely, penning on pasture, replacing of base-camp, changing of pasture, long distance camping or winter camping. These are illustrated in Figures 2 - 4.

Late spring

Livestock are first taken to distant pastures in April when the grass turns green, sending out new shoots from old roots. To put strength and fat on their animals as early as possible, herdsmen choose a pasture facing south, and hill-valleys or meadows where the soil surface is soft, which has the most nourishing vegetation. However, when new pasture growth is insufficient for livestock, they graze quickly by smell and lose condition.

Also, when livestock eat nothing but the juicy new grass, they get sick. So animals should be herded on old pasture in the morning and on new grass in the afternoon. If livestock are crowded together on pasture, they have to chew and gnaw the roots of grass and get tired. To avoid this, livestock should be herded in a dispersed fashion.

Summer

During summer and autumn, livestock are herded on the pasture as long as possible. Most herdsmen graze their small stock and cattle 12 to 14 hours, experienced herdsmen 15 to 16 hours a day. For this, on hot summer mornings, livestock should be pastured on low ground when the sun's heat has increased, they should be taken to high ground up wind, and allowed to lie down and cool for one to two hours when it gets hottest at noon. In the afternoon, livestock are herded up wind until dusk.

In summer, when it gets hot at noon, livestock stop grazing and bunch up together. So, at this time, they are allowed no more than two hours for a short rest and they are put back to pasture up wind. Especially on sunny hot days, horses must not stand in water for a long time.

One base camp is used for 15 to 20 days and the herdsmen work to make profit, by shearing wool and making milk products. Some experienced herdsmen change their base camp every 7 to 10 days. When pasture has been correctly chosen, smallstock eat 3.5 to 4.5 kg of grass daily, and live weight increases by

150-200 grammes; cattle eats 30-35 kg of grass, and live weight increases by 400-600 grammes per day in the summer.

Autumn

In August, at the beginning of autumn, vegetation quality and pasture yields reach their maximum, the sun's heat has weakened, and the number of flies and gnats decreases; as a result, the most favourable conditions are created for livestock to put on additional strength and fat.

From this time, herding of all livestock species is differently organised from the summer. Herding tries to limit the movement of livestock, to enable them to put on good weight and strength, and to consolidate their condition. For that purpose, pastures on low lying ground, steppe and Gobi is chosen. Cattle and smallstock are kept on pasture 10-12 hours each day. The main thing is that water and soda should be near the pasture within 1.5 - 3 kilometres from the base camp.

In autumn, special attention is given to not driving livestock too hard, not frightening them, and not grazing them on steep slopes where they have to climb up or down. In autumn, such plants as Allium polyrhizum, Allium mongolicum, Allium senscens, Allium lineare, Salicornia hervacea, Termopsis, Artemisia, Agropyron cristatum, Furotia ceratoides, Salsola, and Ammopiptanthus caragana are considered the most nourishing vegetation for livestock to get "soft fat". Pasture with such plants is used for 7-10 days.

From the middle of October, when it begins to get cool, work to consolidate the conditioning of livestock should be started. For this purpose, smallstock are herded on cool low ground where the growth of green grasses is plentiful. Sheep and goats are put out to pasture in the early morning, before sunrise, down wind; they are watered at noon at a river or well and penned after sunset. At night, sheep and goats should be given a hard surface to sleep on, on high, cool ground. They are not allowed to bunch up.

In late autumn, horses herded for several nights on pasture with a hard surface on high, cool ground are in better condition. For the same reason, draught horses are tied up in the evening and taken to pasture in the morning for 7-10 days during the frost. All kinds of livestock treated this way can endure greater hardship when they encounter bad weather.

Winter

In winter, any place selected for the winter camp and shelter-pen should be sheltered, not exposed to strong winds and dust, with thin snow cover, sunny and warm. Under such conditions snow melts early and grass grows well. Unfrozen pools, or water bubbling up from the ground and soda ought to be close to the pasture.

In the selection of winter pasture, it is believed that pasture is most nutritious when the grass looks brown from a distance; if it looks whitish, it is not nutritious. The feed value of Festuca and Stipa is considered high when their roots are green; if they are yellowish from top to roots, they are of low nutritional value. At the same time, grass is believed nutritious if it does not crumble easily but is not nutritious if it crumbles when torn off and twirled. Also, when grass is burned, if its smoke is black and its ash sticks to the fingers, then it is nutritious. If the smoke and ash are whitish, the ash does not stick to the fingers and is rough, it is not considered nutritious.

Herdsmen are not in a hurry to move to their winter camp when it is not so cold, because they consider that with early use of shelters, livestock will lose endurance, pasture capacity around the camp will be reduced and they will have to move again. In winter, smallstock are mainly sheltered or penned. But stockyards are not built for camels and horses.

Special attention is given to supplying cattle with warm litter in the winter cold. If cattle cannot be provided with warm litter, they should stay for the winter together with the smallstock; alternatively, an old smallstock

base camp can be used. Without litter, cattle lose weight, their udders freeze and some may have miscarriages.

Winter pasture can be divided into four main types as shown in figure 4; long distance, short distance, reserved and special purpose. Long distance pasture is situated more than 2.5 km away from the camp along the main lee side on the steppe or on the northern side of mountains and ridges. Use of this pasture starts soon after arrival at winter camp, and before the animals' advanced pregnancy.

Short distance pasture is within 2.5 km of camp, on ridges running down from small hills where snow fall is thin. It is used when the foetus is growing heavy. Reserved pasture is mostly chosen in a sheltered spot with southern exposure in mountains and valley mouths; it is used only on windy, gusty days or when it is extremely cold.

The special pasture is kept around a winter camp by driving livestock through it in a narrow corridor towards other pastures. It is reserved for first and second-year calves, weak animals and riding horses.

In winter, a pasture with fine grasses, where the snow is soft and where soda and salt are plentiful, is suitable for horses. But on a warm, bright day the important thing is to herd the horses along the ridges of the hill, in valleys and the lower skirts of mountains. On a windy day, they should be herded along the southern side of the mountain or sheltered area. In the extremely cold period of winter in the mountains, it is important to rest the horse herd regularly, allowing them to stand huddled together, so that it is warm for the young horses.

In winter, camels should be herded in a scattered pattern, and not allowed to bunch up. They can then graze without interruption. Camels separated from the herd should be assembled one by one. When it gets dark, camel herds should be gathered together in the pasture and allowed to lie down. Cow camels with first and second year calves are brought to a special place (with litter) near the base camp.

Spring

In the spring, days are warm, nights are cold, moisture is low, and the weather becomes dry. It frequently gets cold. There are many days of wind and dust. At this time, pasture and grass reserves are scarce. Because of the lack of prepared fodder, livestock lose weight and strength, and sometimes many die. That is why herdsmen call the spring season a testing period. They have several ways of protecting livestock from bad weather and minimising the losses.

Spring camps are built on the southern side of the mountain or in a generally low area, sheltered from long distance strong winds, where pastures are good, with water and soda nearby, and maximum exposure to the sun.

However, Gobi herdsmen usually prefer to use Gobi and steppe pastures where wide valleys are covered with osier, Achanaterum splendens, shrubs and brushwood. Herdsmen from mountain and steppe zones use pasture covered with, Achanaterum splendens, canes and reeds. Hollows, dips and valley mouths are not suitable for spring quarters; instead a high place or shelf where the soil is exposed to the cool air is chosen.

Herding households must move to spring quarters 7-10 days before livestock begin to give birth; that is at the end of February, in some places at the beginning of March. Spring quarter pastures are divided into long distance, short distance, sheltered and reserved.

Long distance pasture are used just after the herders settle in the spring quarter; however this pasture is close to the camp compared to the long distance pasture of winter. Short distance pasture is set aside for livestock that have given birth, sheltered pastures are used when the weather is bad, and reserved pastures are devoted to female livestock with newborn and thin and tired animals. Some herdsmen have special pastures for young animals and riding horses.

In spring, horse herds should be pastured on low ground with unfrozen pools. When mares are dropping their foals, horse herds should be cared for all day and watched all night.

Herdsmen consider it very important to supply all kinds of livestock with water and soda in all seasons. Depending on season, rainfall and moisture in the grass, the quantity of water to be given to livestock will be different. On average per day, camels drink 30-40 litres, horses and cows 20-30 litres, sheep and goats 2-4 litres. For drinking water, the best temperature is 7-12°C.

All kinds of livestock must be watered 1-2 times a day in summer and autumn. In winter and spring, even though the pasture is under snow, livestock must be watered at least once a day or once in 2 days. However, some herdsmen consider it not necessary to water livestock when there is snow. In spring, after the snow melts, livestock are watered 1-2 times every day.

Every herdsman attaches great importance to soda and salt in the fattening of livestock and the consolidating of their fatness. All kinds of livestock are given soda and salt 1-2 times every seven days. Where no soda and salt are available, they must be brought from other areas and distributed to the animals. In getting mineral supplements, an average of 10-15 grammes for small livestock and 50-70 grammes for large livestock a day is calculated.

PEOPLE'S METHODS OF SELECTION

Since ancient times Mongols have developed their own individual traditions, breeding livestock on the basis of people's methods of selection. Traditional methods of selection have the following principles.

For breeding, herders usually select livestock which put on fat and strength in the summer and autumn, do not easily get thin during the cold season, and are very hardy under pasture conditions. Livestock which get thin in winter and spring, because they have not been able to put on condition during summer and autumn, are rejected. Fertility is a main criteria of selection. Livestock which have not been pregnant at the first age to begin mating or dams which were barren during two years are usually rejected.

Young animals which grow and develop well are chosen for breeding. This coincides with the contemporary method of selecting by the quality of offspring. Also, young animals which have preserved the good qualities of their genitors are selected for breeding.

The general appearance of the body plays an important role in traditional Mongolian methods of selection. Animals that are weak, with an ugly exterior, a light head, or a pointed muzzle are rejected. Herdsmen select horses for speed by their balanced appearance. There are herdsmen who can recognise a fast horse from among a thousand horses.

As a result of many years of such methods of selection, Mongolian domestic animals have assumed special characteristics: they are of great endurance and well adapted to all year maintenance on open ranges; on pasture they can store good fat and strength in summer and autumn, and economically use them up in winter; and they produce very cheap meat, milk, wool and other products.

BREEDING PERIODS OF MONGOLIAN LIVESTOCK

The breeding periods and culling ages of Mongolian livestock depend on their growth and the conditions under which they are fed and herded. Table 2 shows the range of figures.

The productive period of Mongolian livestock, especially males, can be longer, depending on the individual peculiarities of sires. For example, a very fast racing stallion may be used for breeding up to 20-25 years of age. In that case, the number of mares allotted to it should not be many. Also, sheep and goats which have high wool or cashmere yield, and twin heredity, are used for breeding up to 10 years of age.

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Table 2 **Reproductive indices for Mongolian livestock**

Animal	Age at first mating (months)	Breeding period (number of years)	Age at culling (years)
Camel-bull	58-60	10-12	15-17
Cow-camel	46-48	14-16	18-20
Stallion	34-36	9-10	12-13
Mare	34-36	11-12	14-15
Bull	24-26	6-7	8-9
Cow	24-26	8-9	10-11
Yak-bull	36-38	4-5	7-8
Yak-cow	24-26	8-9	10-11
Ram, billy-goat (sire)	18-20	4-5	6-7
Ewe, goat (female)	18-20	5-6	7-8

BREEDING IN MONGOLIAN LIVESTOCK

Free, spontaneous breeding was the main method from ancient times. However, in cow-camels and mares, group covering was more common.

Camels

Cow-camels are covered from the end of December to the middle of February. The number of cow-camels that should be allotted to a four year old camel-bull is 8-9, to a healthy and strong adult camel-bull up to 20. They should be herded together before mating begins.

When a camel bull is in rut, his behaviour changes: he becomes more mobile, does not usually go to pasture to eat his full but loses weight, tightens up his guts and belly, exudes foam from his mouth and a thick secretory liquid from the back of his head. Camel-bulls in rut drive away castrated males from their herds.

Heat in cow-camels normally lasts for two weeks, but may continue for several weeks until the camel is mated. When cow-camels come into heat, they bunch up and approach the camel-bull, become restless, swish their tails and often squat down. Sometimes, young cow-camels escape from the camel-bull when it takes up the mating position. During the period of mating it is possible to use the camel-bull once, or if he is well-fed twice, per day.

Horses

Mares are covered from May to July. Young mares that are breeding for the first time are separated from the others. The appropriate numbers are, respectively: for a stallion of four years old, 8-10 mares; for an adult stallion, 18-20 mares. During the mating period, changing stallions around and moving mares from one herd to another are the main reasons for barrenness in mares.

Cattle

Cows are covered from the middle of May to the middle August, yak cows one month later; 25-30 cows are served by a healthy bull, 15-20 cows by a yak bull. The weight of cows at first mating must not be less than 180 kg; that of yak cows 160 kg.

Smallstock

In most areas of Mongolia, smallstock are covered from the beginning of October; lambing and kidding time is in March. Because of a shortage of manpower, the covering of smallstock starts in some areas at the end of October.

Mass lambing occurs when a single male is used to mate 25-30 females. If 40-50 dams are served by one male, lambing will not be so intensive. In order to interrupt lambing, sires should be separated from the herd for 10 days. To improve the performance of sheep and goat sires before mating, they are fed up on cool pasture for 4-5 days with short duration pasturing.

The gestation period of each kind of livestock is on average as follows: a cow-camel 450 days, a mare 340 days, cow 285 days and small livestock 150 days. The periods are influenced by nutrition and herding conditions.

After mating, herdsmen pay special attention to protection of the embryo, by choosing the pasture and supplying water and soda. Especially when the foetus is growing heavy, soda and extra minerals are required.

REARING YOUNG LIVESTOCK

Before the cooperative movement reached all private households, young sheep and goats were raised separately, tethered in mobile huts (gers) or pens; they were allowed to suckle their mothers twice daily.

However upon the completion of the cooperative movement, and as livestock shelters, fodder and watering facilities improved in the 1960s, a new method of rearing young livestock was introduced. The essence of this is to raise the young livestock through stages.

Newly born livestock are kept together with their mothers for 7-10 days. In the second stage, 20-30 head of young livestock are kept separate from their mothers. They stay there until they reach 15-20 days old. This method can be used in various ways depending on the local conditions, and on the extent to which the collectives are provided with animal shelters and fodder. For example, in some farms, lambs and kids are kept at the first stage for 3-5 days, and at the intermediate one for 5-10 days.

In some places, the method of suckle-rearing of young livestock is widely used. Under this method young livestock are kept with their mothers on pasture. In this case the advantage is that the young livestock are permanently with their mothers and since they are always sufficiently fed and moving around, their growth is faster.

However, this method has a negative side too. Because of the great grazing distances, the young stock are quickly exhausted and feed insufficiently to grow fast; the consequence is low production. So, if there are signs of exhaustion, it is important to feed the mother well to increase the milk yield, to take good care of the young, and to improve herdsmanship.

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There are four major methods of raising calves: suckling, partial suckling, weaning and manual milk feeding. The suckling method is used at beef-breeding farms, and partial suckling at seasonal milking and butter producing farms. Also at seasonal milk farms, calves are weaned and adopted by other cow for suckling. Manual feeding is used at dairy farms.

Mares drop their foals in April and May at pasture in late evening or early morning. So they should be grazed during day time and watched at night. Some herdsmen put the mares which are just about to give birth in enclosures in order to prevent loss of foals. Mares do not generally need assistance in foaling. Sometimes the foal can be suffocated, and some mares may abandon their foals. In such cases one should help the foal to get out; mares which are leaving their foal should be hobbled or put together with their foal in a pen. The foal should be allowed to suckle its mother.

It is important in raising foals that pasture and water are easily available. New born foals sleep often and sometimes they lose their mothers when the horse herd is rounded up. Therefore, first of all, it is worthwhile to go around the area and awaken sleeping foals.

Pregnant camels begin to secrete colostrum in the udders 3-4 days before giving birth. They do not eat or drink, look disturbed, keep a distance from the herd and tears appear in their eyes; they utter high-pitched sound, frequently stand and sit down, taking the urinating position.

Compared with other animals a camel's birth is difficult. Newly-born camel calves are often weak and unable to stand or feed quickly. So, one should constantly watch pregnant cow-camels, not allow them to stray from the herd, graze them in day-time and keep a watch at night, and help them give birth by pulling at the baby camel.

When the baby camel has just been born, it must be cleaned and dried, and covered by a warm blanket for about an hour. Camel calves are slow to get up and stand by themselves, and can easily fall down and injure themselves. Two hours after the baby calf has dropped from the mother, it should be given the support it needs and put to the mother to suckle for the first time.

Newly-born baby camels are very sensitive to cold. It is necessary to cover them warmly and tether them in warm places. The mother camel secretes colostrum for a week after its birth and the baby camel normally suckles its mother's milk several times a day with short interruptions. As new grass appears, and cow-camels begin to graze at distant pastures, baby camels should be allowed to graze undisturbed at near-by pasture and be suckled twice daily.

In winter, camel calves in their first and second years and their mothers must be separated from barren camels; they are herded on good pasture with warm litter and water.

LIVESTOCK PRODUCTION

Mongolian livestock herds usually consist of several hundred head with 2-3 herdsmen to look after them. Since livestock are grazed on pasture the whole year, their products are low cost.

Dairy produce

When the grass is new and green, cattle are managed for milk and dairy products. Starting from first of June until first of September, seasonal milk farms are organized which produce butter and other dairy products. Cows are milked twice a day, after first giving suck to the calves.

During the milking season, sheep and goats are milked at a rate of 100-200 head per milk maid. During the milking period, two methods of separating young smallstock from their mothers are used. First, two shepherds erect their ger at 0.5-1 km distance from each other. They exchange their lambs and kids with each other. She-goats and ewes having been milked in the afternoon, young stock are returned to their mothers and pastured with them until it gets dark. In the evening they are again separated from their

mothers and driven to the neighbour's flock. Alternatively, a small fence is built for young stock where they are penned at night. In the morning they graze by themselves until noon.

Mares are tethered for milking from the middle of June to the middle of October. One milk maid is responsible for 20-25 mares and milks them 6-8 times a day in summer and 3-4 times a day in late autumn. For tethering mares, a place with green grass, fresh water and soda is chosen. It is necessary to change pasture every 2-3 weeks.

Unlike other livestock, if you milk mares more often you get more milk. Mares can be milked every two hours. In that case foals will not be thirsty and are not too much exposed to the sun. When you first round mares up, they should be hobbled and gently milked. If the correct training for milking has been given to mares, they become accustomed to it in 3-4 days and become quiet and tame. The milking of mares stops in October. However, if additional fodder is given to mares with foals, they can be milked till November and December.

In comparison with other animals, the lactation period of cow-camels is longer, lasting 16-18 months. After the first suckling by baby camels, cow-camels are milked 2-3 times a day in summer and autumn, 1-2 times a day at the end of autumn and in winter. At sunrise, cow-camels are milked and the baby calves are given to their mothers to suckle. After that the cow-camels are driven to pasture; later on the calves camels are driven in the opposite direction.

Shearing and combing under wool

When Mongolian sheep are sated with fresh grass, their wool starts to separate into tufts and the content of fatty sweat in wool increases. Wool shearing usually begins in the middle of June; lambs are sheared from the middle of July, wethers are done for a second time in September. Nowadays, one shepherd working by hand can shear from 25-30 sheep in an 8 hour working day. Some shepherds wash sheep in cold water immediately after shearing them, to protect them from unexpected frosts. This procedure also encourages new hair to grow quickly.

The underwool of goats is harvested by combing from March onwards. First, castrated and barren goats, then she-goats, and finally one year old kids are combed. A shepherd can comb 25-30 goats per day. During the process the underwool is separated from the hair. Goat hair is clipped off in May and June. It is possible to clip the hair from 60-70 goats with scissors in a day.

Camel wool is sheared in stages: in March, the long wool at the knees and on the underside of the neck; from the middle of April, the hair on the neck and each side of the chest; in May the other parts of body.

The end of March is the season for cutting horses' manes and tails. Stallions are not involved. The mare's mane is trimmed quite short. The mane of castrated horses is also trimmed but a little is left between the ears. The tails of horses and mares should be cut below the middle of the hind legs.

Although the moult of horses and cattle hangs loose from the end of March, its collection starts in April, first by shearing fat, strong horses and cattle, then the three year olds, the two year olds and pregnant livestock. The moult of horses and cattle is sheared in the following succession: neck, shoulders, back, loins, and croup.

Yak hair comes loose in April and the process of shearing is repeated 5-6 times with the help of special combs and brushes.

Special enclosures are used for shearing large livestock, in particular the moult and coarse hair of horses. They protect them from injury and also lighten the work.

TRAINING MONGOLIAN LIVESTOCK FOR RIDING AND DRAUGHT

Mongolian horses are mainly used for riding and draught. Every herdsman prefers to have docile, gentle and quiet horses. Mongols train their children to ride horses, from the age of 5-6 years.

In order to have horses with endurance, experienced herdsmen break horses starting from two years old when they become strong on fresh grass. Two year old horses are usually broken by schoolboys or a man who is light enough to ride such animals. Horses are broken in a field isolated from the herd. The rider holds the rein straight and must avoid sawing the horse's mouth with the bit, pulling the rein off, whipping cruelly and so on. Newly broken horses are repeatedly saddled and mounted. Such training lasts 2-3 days, and the young horses then join the herd. Four or five days afterwards the exercises are repeated.

Three-year old horses become relatively weak because their teeth change at this age. So they should be employed no more than once or twice during the summer. After this they become tough enough to ride.

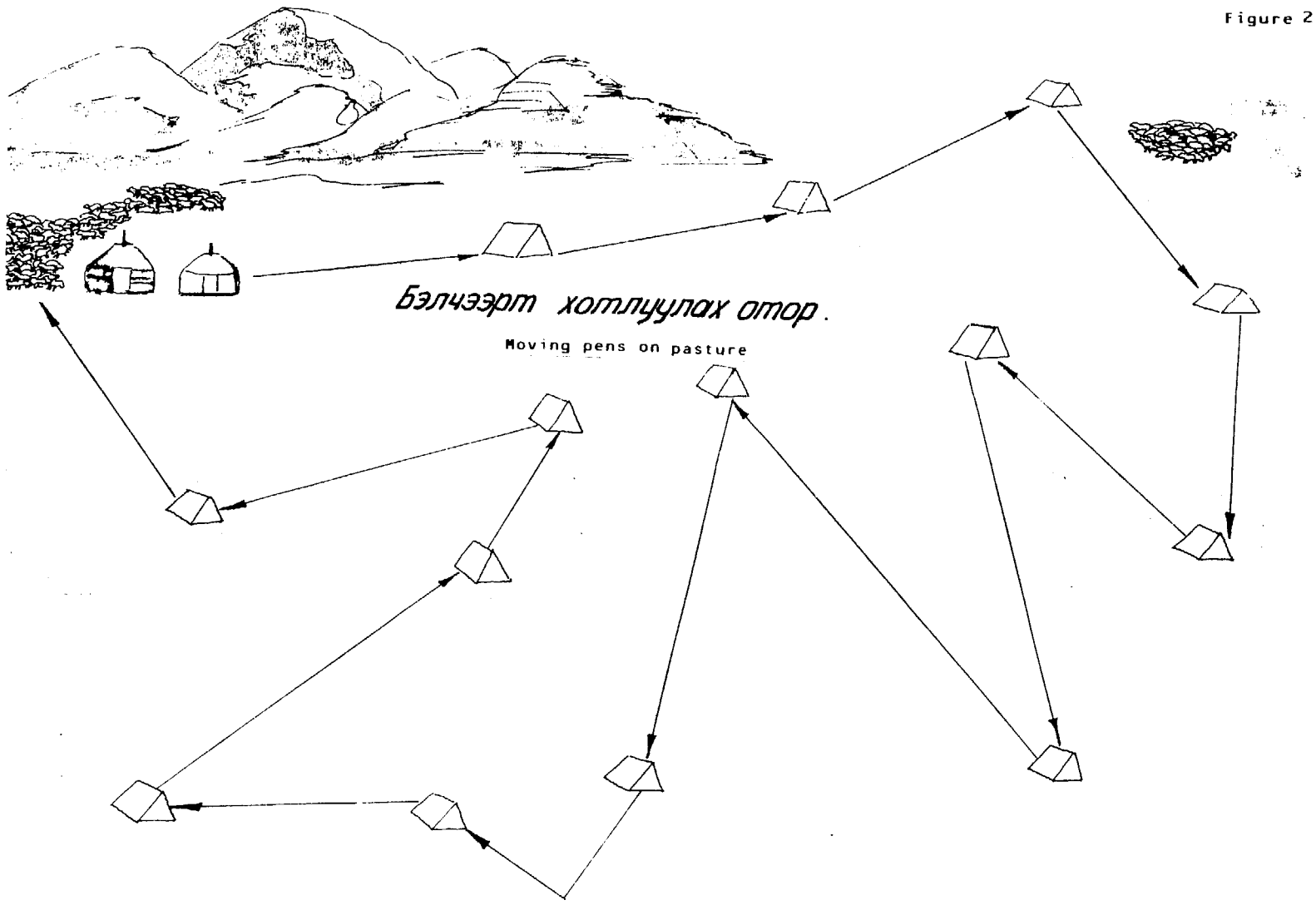
According to Mongolian tradition, all trained horses are divided into the following groups depending on their nature, hardiness, constitutional and exterior peculiarities: horses for catching other horses, for pasturing sheep, for ceremonial occasions, for draught, for long distance and racing.

Training camels for work makes it easy to shear, milk and even to couple them. If one tames camels from birth they are very friendly with their masters. Such a humane attitude towards young camels makes it possible to train them for riding and baggage carrying. The proper thing is to pierce their nostrils for the nose-peg when they are two, sometimes three, years old and to train them for work.

To train camels for riding, they should be tied up for 2-3 days in a cool place. Their two front legs are tied, to get them used to kneeling, squatting and standing up again. If camels are handled quietly and as gently as possible, they become very docile. When a young camel has become accustomed to being ridden it is easy to train it to carry a load and to pull carts.

In Mongolia before 1960, private households often used castrated bulls or oxen for moving from one camp site to another, and for transporting hay and wood. Recently, with the appearance of modern transportation, the use of ox carts has been reduced. But ox carts remain very cheap and convenient.

Figure 2

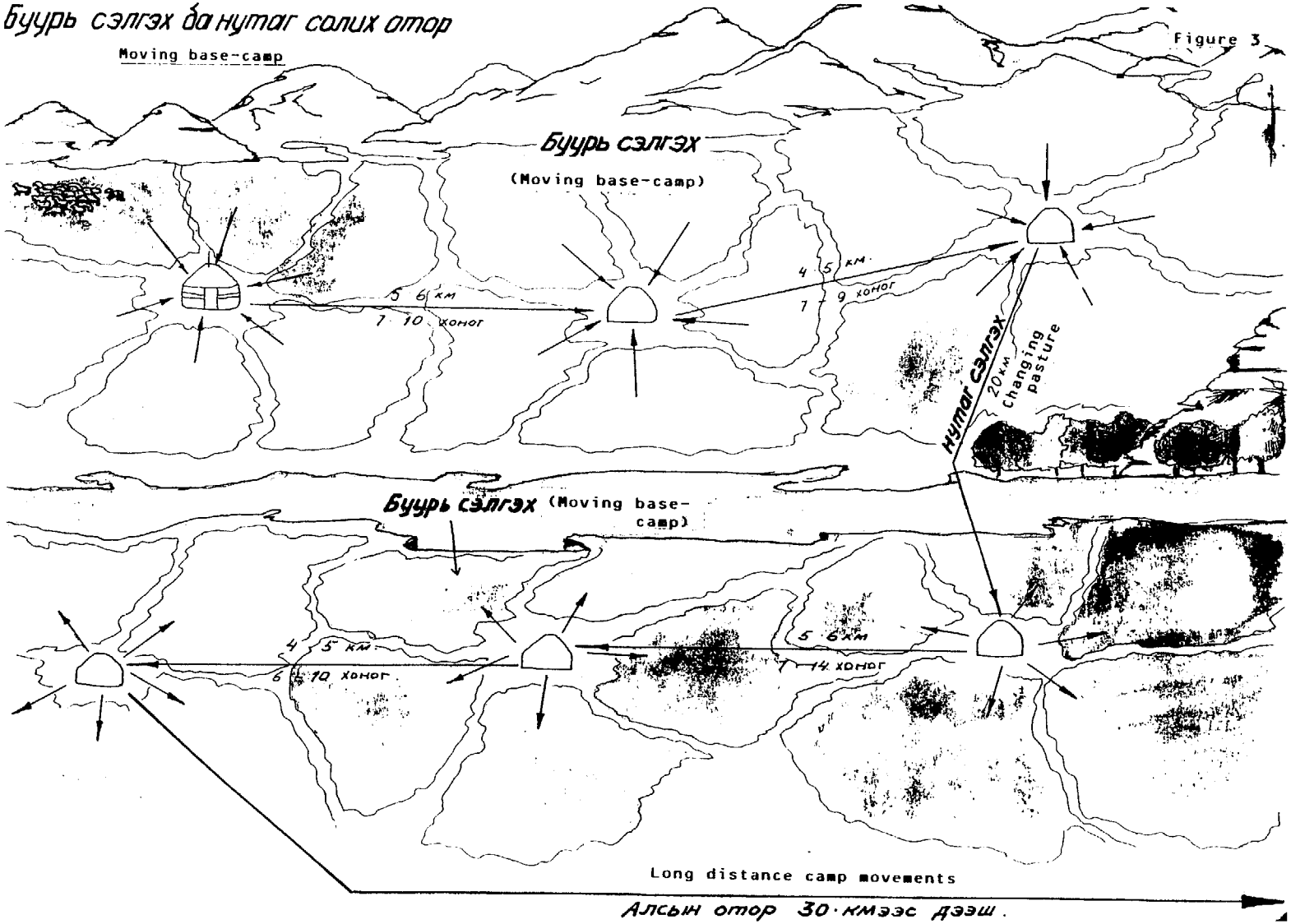


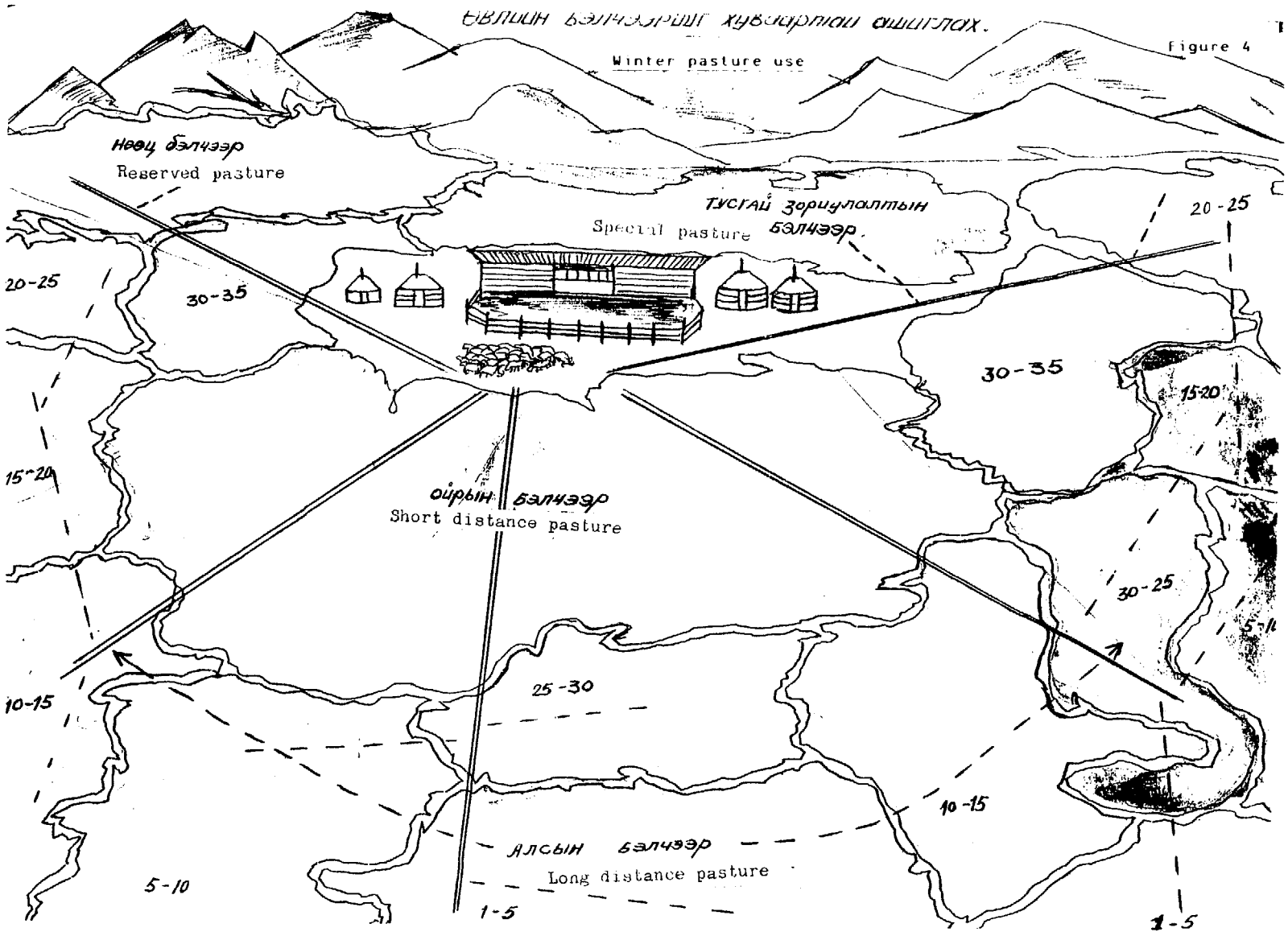
Moving pens on pasture

Буурь сэлгэх ба нутаг солих отор

Moving base-camp

Figure 3




Өвлийн бэлчээрийг хувиарлаж ашиглах.
Winter pasture use
Figure 4
Нөөц бэлчээр
Reserved pasture
Тусгай зориулалтын бэлчээр.
Special pasture
20-25
30-35
30-35
15-20
15-20
Ойрын бэлчээр
Short distance pasture
30-25
25-30
10-15
10-15
Алсын бэлчээр
Long distance pasture
5-10
1-5
1-5

MONGOLIAN TRADITIONAL VETERINARY SCIENCE

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The Mongols have accumulated wide experience of treating and prophylaxis of disorders and diseases of livestock. Kh. Perlee, a historian of science, has noted that in the Khitan and Khunnu epoch (from the 10th century AD) livestock received various kinds of veterinary treatment.

Nowadays, scientists do not doubt that modern veterinary medicine has much in common with human medicine. The historical roots of Mongolian traditional veterinary medicine should be looked for first in literary sources about Oriental human medicine.

In 754-794 AD the Tibetan king invited to his country doctors from nine countries, with a Mongolian, Nalashandir, among them. In Tibet, Nalashandir translated from Mongolian into Tibetan a number of medical works, including Mongolyn Tusgai Undes ("Mongolian Jud") and Sudas Zasal (Pulsotherapy).

The elder Yutigyondongombo, author of a famous book on Oriental medicine Jud-shi, showed in his debates with the scientists of that time that "in the time of the Mongolian doctor Nalashandir, there was a rich heritage of healing methods". This places Nalashandir and the Mongolian tradition within the context of Oriental medicine, the philosophy of which concerns five initial elements: soil, water, fire, metal and wood.

One of the chapters of the Mongolian Danjur is wholly dedicated to veterinary questions. Tsevelvanchigdorj's collection, written in the 18th century (he came from the present Uburkhangai aimag) consists of a number of sutras which are the only independent literature on veterinary medicine that we have from that period; in them, the methods of diagnosing and treating the diseases of the five kinds of livestock are stated. According to the custom of that time, Tsevelvanchigdorj begins with the phrase, 'I pray to the teacher Namgur'; further, describing individual methods of treatment, he refers of Deleg, Tögsjargal and other authors. This gives us reason to think that in Mongolia at that time there were a number of specialists and that a veterinary school prospered. The fact that matters of veterinary medicine appear in sutras on magic methods of the 19th century confirms this supposition.

Ts. Khaidav, a researcher in Oriental medicine, notes that methods of healing the wounds of horses and other livestock and some diseases of foals, are found in Ayurconducting sutras. And in Tibetan works we find prescriptions for use with domestic animals.

Since the 1921 revolution, traditional Mongolian veterinary medicine has been studied in greater detail. A. Sodnomdarjaa, Ts. Khaidav, Lamjav, D. Tudev and other scientists have studied ancient sources, and A. Ravjir, T. Sharavdorj, S. Lebedinsky, M. Dash, J. Sambuu and other researchers have published accounts of modern use of traditional methods.

This research leads to the following conclusions. Experienced Mongolian herdsmen skilfully identify sick animals, and most of the time they correctly diagnose various diseases and ailments. As in the classical sources, the symptoms and syndromes of diseases are differentiated by the stand of opposites. The theoretical basis of traditional Mongolian veterinary medicine is the teaching that is widespread in the Orient about the two opposite principles: arga and bilig in Mongolian, or uni and yan in Chinese. According to this

teaching, the symptoms and syndromes of the diseases are opposed as internal and external displays, depression and excitement, cold and hot syndromes and others, as is customary in Mongolian medicine.

Chill, fever, dishevelled appearance and loss of lustre of the coat, salivation, defecation, lameness and others are attributed to external syndromes, and lack of appetite, panting and others, to internal ones. In certain concrete situations, internal syndromes may take the part of externals ("absolutisation"). For example, if a dishevelled appearance, loss of the coat lustre and belly tightening are intensified and go with frequent defecation, then these syndromes are attributed wholly to the internal and considered to be a sign of disorder of internal organs. A violent irritable condition, extra keenness of eyesight, and dilatation and contraction of the pupils are usually considered a sign of nervous and cardio-vascular system pathology or poisoning. It is clear from this that the principles of diagnostics are related to malfunctions of organ-systems, including the respiratory organs, the cardio-vascular system and the digestive system.

Along with a wide assortment of medicinal preparation and many surgical and physical methods, various types of magic for curing injured animals were used previously in Mongolia. These include shib-shleg (charm), dom-tarni (exorcism), mereg-tölög (fortune telling), sang (incense), shamanism and others. They are of great ethnographic interest. However, we should also look at them for possible uses in the field of veterinary medicine. There are, for example, methods of exorcism that may be of interest to veterinary specialists. To cure acute mastitis, the exorcist usually comes quietly at night to the sick animal and scratches its udder with a bear paw three times and says three times: 'When the udder is swollen, it is cured with the bear paw. Potion-magic.' Meteorism in sheep was cured by exorcism. A man sits on the sheep facing its tail and waves a wolf or fox skin on the sheep's head and says three times: 'Go away meteorism. Potion-magic.' This method is widely practised at present. Possibly these methods of exorcism influence the neuro-humoral system of the animal.

Medicinal preparations used by the Mongols can be divided into three groups, of animal, vegetable and mineral origin. They include sour milk, airag (fermented mare's milk), dairy home-brew, meat and bone broth, bile, blood, horns and bones of various wild animals, soot and ashes of individual tree species, various plants, natural salts, agates, sulphur, copper, silver and others, either in natural form or as components of compound prescriptions. Although many of these have a Tibetan origin, the Tibetan prescription was not simply copied by the Mongols; local raw materials were substituted and the medicines produced on the spot.

As for surgical and physical methods, fracture mending, horse shoeing, camels' sole sewing, castration and others are widely practised in Mongolia. The literary sources show that the Mongols have long used effective interventions to aid healing of scars, and enemas for primary constipation of baby-camels and foals.

Cold and hot compresses, cauterization and blood-letting are very widely used on animals. For horses alone, our herder specialists use more than 30 points for blood-letting. However, acupuncture, in contrast to Chinese traditional veterinary medicine, where it is widely used, is hardly known in Mongolia.

To summarise:

1. Mongolian traditional veterinary medicine is rooted in the ancient past; it is an important part of Oriental civilisation.

2. Because of its background and shared philosophy, traditional medicine has a lot in common with Oriental, especially Indo-Tibetan and Chinese medicine. This is the result of the mutual penetration of these cultural heritages and great historical links.

3. Though traditional methods of animal treatment were ignored for years in Mongolia, on account of the introduction of modern veterinary medicine, they still demonstrate their vitality and continue to be of use to herders. More attention should be paid to the study of this heritage.

MONGOLIAN PASTORAL WEATHER FORECASTING

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Knowing what the weather will be like is vital for Mongolian herdsmen since, under free-range conditions, animals have to be tended, fed, watered and given sufficient vitamins and salts in accordance with the conditions of the day, month, and season. The signs helping herdsmen forecast the weather can be divided into four categories.

ANIMAL BEHAVIOUR PATTERNS AS SIGNS OF CHANGING WEATHER

Weather conditions and changes in them are known to have an impact on the physical and psychological well-being of both humans and animals. When a type of weather sets in and persists for some time, living creatures physiologically get accustomed to it and any change in it entails transformations in the processes going on in their bodies. These transformations may manifest themselves quite clearly through alterations in the behaviour of animals which are sensitive to processes that are not apparent to the eye but nevertheless are there, and which finally occur as a change in weather.

A keen observer of these transitions from calm behaviour to restlessness, or busy storing of seeds for feed or migrations would be able to know what kind of weather to expect. Helpful observations would be:

Signs predicting changes in weather a few days ahead

- if yaks keep to the higher parts of mountains and hills this means the weather will be warm and stable in the next few days; if they come down to the valleys this is a sign of impending cold and storms;
- if baby and young camels are noisy and restless the weather will worsen;
- if camels lie down in ravines and other places protected from the wind with their heads in the direction of the wind, the weather will get cold;
- if the paunches of slaughtered sheep appear more "hairy" than normal, winter will be snowy;
- if sheep wool is wet, abundant precipitation should be expected;
- if, at the beginning of autumn, mountain deer choose the peripheral parts of woods to spend nights, winter will be mild;
- if male deer are late with their mating calls, winter also will be mild;
- if mountain partridge and deer descend from the mountains, cold and snowy weather will set in at higher altitudes;
- if sparrows fly in flocks, frequently landing and taking off, and shake their bodies often, this indicates a drop in temperature;

- if mice store large quantities of winter feed, the winter is going to be a severe one, and if they settle down with moderate stocks of feed the contrary will occur;

- if marmots store up their feed and hibernate early, the winter will be a cold one; a later start of their winter preparations signals a milder cold season;

- if marmots settle for hibernation close to the mouths of their holes, winter will be mild; if they hide deep in the holes, the contrary should be expected;

- if marmots encircle the entrances to their holes with dirt and stones, heavy rains and floods may follow;

Signs predicting change of weather during the day

- if cattle are noisy before leaving for pasture, the day will turn cold with snow and storms;

- in summer, rain is to be expected if calves keep close to their mothers as if seeking greater protection;

- a bull calling in the rain indicates that the sky will clear up;

- it will soon rain if she-camels make a lot of noise and keep close to their calves; if on a rainy day they leave their calves and head for the pasture, the rain will stop;

- if marmots are heard loudly on a rainy day, it will soon stop raining.

Mongolian herdsmen still use this knowledge of forecasting in their everyday life. For example, in 1950, during an earthquake in Gov'altai province, herdsmenavoided heavy losses: they saw wild sheep, goats and yaks descending from the mountains three days before the natural calamity occurred, and took appropriate measures.

PLANTS WHICH HELP PREDICT CHANGES IN WEATHER

As mentioned, all living creatures react to the changing environment. This also applies to plants, whose growth and appearance are affected by the changes in the weather. There are many ways in which plants can be used to forecast weather. Some of them are:

- if plants start flowering before their growth is over and stems are mature, this indicates generally dry weather;

- if fresh green grass starts growing in autumn in places protected from the wind, one can predict a mild winter;

- if grass on pastures matures and fades early, winter will be snowy and cold;

- if snowdrops in valleys grow long stems, heavy snows are to be expected in winter;

- if Taraxacum is abundant, the summer will be unfavourable both in terms of weather and the amount of grass in the pastures;

- summer will be threatened by drought if irises bloom early along rivers;

- abundance of Leontopodium also indicates a dry summer;

- insufficient summer precipitation can be expected if trees become green and grass grows in spring;

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- if the flowers Adonis and Campanula close their petals and Convolvulus folds its leaves, it will soon rain;

- if the stems of Trypolium straighten up and the leaves of Potentilla spp, and the petals of Potentilla acanles spread out, this also indicates rainy weather;

In 1988 and 1989 snowdrops flowered for a second time and this helped the herdsmen correctly predict winter and summer weather favourable to animal husbandry.

OBJECTS WHICH INDICATE CHANGES IN WEATHER

Keen observation of changes in the appearance and qualities of some objects can help forecast transformations in weather that are likely to occur during the same or following day. These changes are mostly linked to changes in the level of air humidity. For example:

- rain should be expected if sheared wool, hair, and the hair ropes holding the upper cover of the ger and all other ropes of wool and leather shrink in volume and length;

- rainy weather is likely if felt, and the ger's covers of cloth and particularly canvas shrink and tighten;

- the same weather is likely to occur if dung and wood burn poorly;

- if smoke going out of the chimney is straight, the weather will be stable and the sky clear in the near future; smoke going parallel to the ground indicates that the wind will grow stronger and the weather will change for the worse with heavier precipitation;

- one can expect snow or rain if clothes and other materials as well as salt become damp;

SUN, MOON AND STARS AS INDICATORS OF CHANGES IN WEATHER

Mongolian herdsmen believe that sunrise and sunset, and the appearance of the moon, stars and planets can provide much information on weather and probable changes in it. Apart from this they often link changes in weather with certain days of the week or the month, which perhaps is a consequence of their knowledge of the relationships between weather phenomena and the location of the heavenly bodies.

- a red sunset indicates that tomorrow's sky will be clear, and that there will be a cool night and a warm day;

- the sun setting down into clouds means it will snow or rain the next day;

- strong winds, cloudy sky and precipitation are indicated by haloes round the sun or the moon or by the optical phenomenon of "three suns"; if the haloes are close to the luminaries, precipitation should be expected; if they are further, the sky will clear up;

- hot days and cool nights are signs of a dry summer;

- it will continue to rain for a long time if the falling rain makes little noise; and a loud rain is likely to be a short one;

- in the warm time of the year, chains of small white clouds connected at their bases indicate approaching thunderstorms;

- although it is widely believed that morning mist condensing into a cloud entails rain, this sign sometimes fails to justify itself;

- it is also believed that the weather of the 17th day of a month under the traditional system of time-counting, "sets the trend" for the following month;

- frozen morning mist in early autumn and grass blades individually frozen during the first autumn snow mean that the coming winter and spring will be snowy;

- if by the end of October the Milky Way disappears and is seen again within 7 days, the weather will be mild; if it is not seen for more than 7 days, heavy snows should be expected; it is said to have disappeared for 18 and 16 days respectively in the years of the Ape (1944) and the Boar (1945) which had extremely severe winters,

- if in the the first autumn snows one can discern distant mirage-like optical phenomena in the steppe between 9 and 10 in the morning and 5 and 7 in the afternoon, and the grass appears to be waxy and dark, this indicates cold and snowy weather; a bright white morning dew in early autumn means one will have to wait for quite a time for the first snow;

- if the quarter moon of the second day of the Lunar new year is in an upright position (◡) this would be a sign of a warm month and few snowstorms;

- the same moon leaning backwards (◠) indicates a cold winter and severe storms in spring;

- the Moon and the Pleiades counterface each other in the first winter month; if the weather was bad prior to this phenomenon, it will improve for the following month; if the weather worsens after this phenomenon occurs, it will remain so for the same period of time;

- if the Pleiades almost disappear in the light of the Moon when the two are crossing each other, snow will definitely fall; good weather can be expected for the whole year if the two cross each other at a distance; the Moon passing over the Pleiades means a mild year with few gales and storms; in the opposite case, there will be heavy snowstorms and poor pasture; the Moon and the Pleiades meet eight times a year;

- Venus is known to be visible sometimes at dawn and sometimes in the evening; this regularly occurring alternation is disrupted once in 2-3 years; the year in which this happens is said to be harsh for the nomadic herdsman;

- snow or rain which start on Saturday and Sunday are said to continue till the next weekend; if they do not stop, the weather will be hard to deal with;

- if, in spring and winter, comets are seen in large numbers in the north-western part of the firmament, this indicates that a sudden calamity may happen shortly afterwards; in 1959, Uburkhangai province suffered a loss of 12,000 farm animals in a snowstorm seven days after a number of comets was observed in November.

Experienced herdsmen hold that severe winters with heavy snow-falls occur in the years of the Ape, the Ox and the Boar in every 12-year cycle of the Lunar calendar. Although Nature often confirms this assertion, it still needs greater scientific substantiation. The same view is shared by our veteran herdsmen who invariably emphasize the importance of accurate observations.

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NATURAL PASTURE AS THE BASIS FOR LIVESTOCK PRODUCTION IN MONGOLIA

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Mongolia is one of the few countries where a pastoral nomadic economy, with its historical traditions of animal husbandry, has survived with its original structures. Mongolia has more than 120 million hectares of pasture land, covering vast areas of mountain-forest, mountain-steppe and Gobi-desert ecological zones, with an extreme continental and dry climate typical of Central Asia. These pasture areas could be classified into more than 120 ecological units according to their quality; there are the main fodder resource for the domestic animals of the Mongols all year round.

Mongolian domestic animals, well suited for pastoral grazing, get fat, grow and produce during summer and autumn; during winter and spring they survive by using their fat reserves and by reducing their requirements. This biological rhythm is the main adjustment of Mongolian pastoral livestock.

Natural pasture is a better fodder than any other in terms of its biological quality and, certainly, its cost. Mongolian pastures contain some 2,500 species, including hundreds valuable for fodder use. Domestic livestock can select their favourite grasses in the pasture.

Compared to wetter countries, Mongolia's dry climate means that pasture grasses have less moisture, and are richer in protein, carbohydrate, vitamin and minerals, and thus have greater nutrient quality. Such an ecosystem is more typical of the Gobi zone than the Khangai mountain zone.

According to our research, green grass in Mongolian pastures has the following average composition: water 51.1-69.3 percent, protein 2.8-7.5 percent (of which 2.0-5.1 percent albumen), fat 0.9-1.8 percent, cellulose 7.3-14.6 percent, nitrogen-free extracts 13.2-25.5 percent, ash 2.7-8.3 percent. Mongolian domestic animals well adjusted to extensive grazing normally digest up to 88 percent of nitrogen in green grass, 91 percent of fat, 83 percent of cellulose and 88 percent of nitrogen-free extracts. The high quality of pasture grass in Mongolia is clear also from the following indices: 1 kg of green grass contains 0.26-0.46 fodder units (oats units), and 20-50 gm of digestible protein; when absolutely dry, 1 kg contains 0.62-1.13 fodder units and 42-122 gm of digestible protein (see table 1).

Green grass also contains 2.98-5.16 percent sugar, 3.69-4.85 percent starch and a large number of replaceable and irreplaceable amino acids: lysine 6.6, histidine 8.3, thionine 4.3, methionine 3.0, balinine 6.4, phenyl-alinine 5.3, leucine 7.8, asparagine acid 13.8, sulphur 2.0, wistaria 1.5, glutanine acid 14.5, alinine 10.3, proline 5.5, and tyrosine up to 2.7 gm/kg. But different plants have different amino acid contents. For example, Gobi grasses like the multi-rooted onion and the Mongolian onion contain: asparagine acid 17.1, glutanin acid 13.1, lysine 5.9, gistidine 7.3, balinine 6.3, phenyl-alinine 9.3, and lysine 15.3 gm/kg. Such plants rich in organic acids and albumin are always available in the country, and there are also plenty of plants with a delicate aroma and taste.

The pasture plants in Mongolia are also rich in vitamins: 1 kg absolutely dry grass contains up to 340 mg carotine, to up 1685 mg vitamin C and is also rich in macro- and micro-elements.

The greatest advantage of pasture grasses is in their nutrient quality and variety compared with cultivated pasture. This feature of pasture means that grazing animals can select the sorts of grass they need for their

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nourishment. Each plant has its biological specificity including duration of growth; grass species supplement each other in different seasons, thus making the pasture productive all year round.

This means, for example, that livestock begin to put on weight in early spring when the fringed sagebrush and anemone are dominant, but complete their growth on autumn pastures rich in multi-root onion, wild onion, fringed sagebrush, and other succulent grasses.

In addition, many pharmaceutical plants grow in Mongolian pastures, and are used effectively for the treatment of various diseases.

All this shows that pasture plants are the main source of fodder for Mongolian livestock. The particular characteristics of natural plants influence the size and quality of meat and dairy products, and specially make the meat of Mongolian livestock more tasty and of high quality. The specific taste and quality of meat becomes more evident south of the Khangai mountain zone towards the Gobi. There is also another advantage of the natural pasture in Mongolia: it is free of the chemical fertilisers and poisonous substances used in many countries.

Every year Mongolia prepares approximately 900 thousand tonnes of cultivated fodder, to feed mainly dairy cows on mechanised farms, and pigs and poultry for the winter; this fodder also goes into reserves to protect open range animals from an unexpected natural disaster. However, most livestock production in Mongolia is based on natural pasture grasses.

Table 1: Chemical Composition of Mongolian Pasture Plants in Summer

Pasture Classification	Chemical composition (percent)							Per 1 kg grass (green)		Per 1 kg grass (dry)	
	water	protein	albumin	fat	cellulose	nitrogen-free exts.	ash	fodder units	digestible protein (g)	fodder units	digestible protein (g)
Alpine	56.5	6.7	5.1	1.4	10.6	20.9	4.4	0.36	51	0.82	112
Alpine-forest	67.0	5.9	4.5	0.9	7.8	15.3	3.1	0.26	38	0.80	115
Meadow, steppe	51.1	4.4	3.1	1.2	14.6	25.5	3.2	0.44	31	0.91	63
Steppe	53.6	4.0	3.7	1.6	13.3	23.8	3.7	0.33	30	0.72	64
Gobi desert	54.8	5.8	4.2	1.8	10.5	22.4	4.7	0.47	47	1.04	106
Desert	69.3	4.7	3.3	1.6	8.3	13.2	2.7	0.35	40	1.13	122
Saksaul	53.0	2.8	2.0	1.1	12.1	22.8	8.2	0.29	20	0.62	42
Desert shrub	59.5	7.5	4.6	0.7	7.3	19.5	5.5	0.28	24	0.70	56
Meadow, valley	64.4	4.7	3.5	1.1	9.4	17.2	3.2	0.30	34	0.84	96
Saline depression	56.7	5.3	2.9	1.2	8.3	20.3	8.3	0.30	37	0.66	86

FEED AND FODDER SUPPLY IN PASTORAL LIVESTOCK HUSBANDRY IN MONGOLIA

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At present, the first priority of agricultural policy in Mongolia is to improve fodder production for the livestock industry. Mongolia's fodder production potential depends largely on natural pastures and haymaking. Natural pasture occupies nearly 120 million hectares, on which the animals obtain about 90 percent of the fodder they need. There some specificities about grazing on Mongolian pastures which makes it even more important as a food resource.

In winter and spring 45-50 percent of the total yield of pastoral grasses remains as litter and provides the animals with costless fodder. The litter is used as food for about 180-200 days. In addition, some plants are able to spend the whole winter and spring in a green state. Because of early autumn cold and frost, pastoral grasses dry early but they retain good digestibility for all kinds of animals. Mongolian pastoral grasses have a good regrowth capability, which allows them to be grazed for a long time.

There are about 160 types of pasture in Mongolia. Even within each cooperative territory there are many types of the pasture which are used by different animals in different seasons.

For a country like Mongolia, where the pastoral economy is dominant, the elaboration of a system of pasture use is the main task which deserves a lot of attention. Methods have been developed on the basis of the centuries-old experience of the herdsmen as well as on scientific studies. According to the season and type of animal, pasture areas are chosen, which are then sub-divided into small parts for use at different times in the season.

One of the features of the Mongolian livestock industry is nomadic movement between different seasonal pastures. Nomadism is an efficient method for rational pasture management. Mongolian herdsmen have developed a system for daily and seasonal use of pastures which give more effective grazing of the parts.

Despite this, many pasture areas have been degraded, mostly as a result of inefficient use of agricultural land and a lack of main roads in rural areas. As result, in the country as a whole 250,000 ha of agricultural land, which could grow 1.9 million tonnes of high quality food, have been degraded.

Research findings indicate that seasonal grazing of stock on the same pasture year after year, or too heavy a concentration of livestock on the pasture, cause damage to grazing lands. It is estimated that at present about 3.0 million ha of pasture land has been damaged. The yield of the degraded pasture decreases by 50-60 percent, and the proportion of high quality plants declines.

Mongolian pastures have been used very heavily. Annually there are pasturing 50 million sheep equivalents, which graze 14-16 million tonnes of fodder. However, research findings indicate that the grazing capacity can be increased by one third, using irrigation and pasture improvement techniques. Rotational methods of pasture use have been developed by the research institutes which can restore degraded pastures, and increase pasture yields by 5.4-8.6 cent/ha.

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The conclusion is that we must pay a great deal of attention to rational use and protection of the pasture and hayland. There is an urgent need to work out a system of protection and effective use of pastoral areas in the various regions, as well as the legal basis for land tenure in the country.

Industrial feed production plays a smaller part in total fodder use by pastoral animal husbandry. At present, average annual fodder production is estimated at 1.1-1.2 million tonnes (in terms of fodder units), which is about 20-25 percent of all supplementary feed of the animal population in winter and spring. Haymaking fields total about 1.9 million ha, and yield annually 1.2 million tonnes of hay. In the pastoral economy, a cutting rotation is the main form of use of the hayland. The yield of hayfields in a cutting rotation increases by 20 percent and their botanical composition also improves. It is estimated that there are 25.6 million ha of valley and mountain meadows and 11.0 million ha of flatland pasture in Mongolia, which can give high yields of hay with appropriate management.

Several years use of the same pastoral and hayland areas without improvement lead to decreasing pasture yields and to deteriorating vegetation composition. The use of fertilizers significantly increases hay yields. Research indicates that the effect of fertilizers depends on the type of pastoral and hayland area. Nowadays the total size of improved hayland areas is about 100,000 ha, with an average yield of 15-20 cent/ha.

One of the main ways to increase fodder availability is through forage production. Cultivated fodder plays an important role in providing fodder enterprises with raw materials and in supplying high potential animals with high quality food. To improve the efficiency of cultivated forage production it is necessary to implement a sowing rotation, choose the right combination of annual and perennial fodder crops, organise high quality seed production, and master the appropriate techniques.

At present it is estimated that alfalfa, oats, rye and fodder beans are the most productive fodder crops for the forest-steppe zone. These crops are also able to give a good harvest in irrigated desert steppe and Gobi areas. It is important to increase the efficiency of the irrigation systems in different parts in the country. At the same time there is a need for measures to prevent soil erosion and to renew soil fertility through sowing mainly perennial crops.

Fodder technology has now been developed by the research institutes, which is applied to fodder production enterprises in the whole country. One of the aims is to fatten animals and dairy cattle between autumn (October-November) and early spring (May-June) when natural pasture grass is scarce. Besides yield, attention must be given to high protein content, because the supplementary fodder available for animals lacks about 300,000 tonnes of digestible protein. For this purpose it is suggested to increase the proportion of high protein crops like alfalfa, in the total crop rotation.

Elaboration and application of improved fodder technology is a way of increasing forage resources. As result of the introduction of silage technologies in the last 10 years, the total amount of green fodder and silage has increased by about 20 percent.

There are now 19 specialised fodder production enterprises which have substantially increased annual fodder production. In addition, each co-operative and state farm has its own fodder production unit. Many fodder production enterprises specialise in preparing concentrates and mixed forages. It is estimated that they produce 107.5-174.1 thousand tonnes of fodder units.

From the point of view of the pastoral livestock industry, the most important problem is how to organise supplementary feeding. For this purpose Mongolian scientists have worked out basic balanced rations, applicable for various categories of productive animal at different times of the year.

In the near future there needs to be a policy for increasing feeding efficiency. To effectively supply the livestock industry with high quality fodder, we must increase total fodder production to three times the present volume. In the pastoral livestock economy, fodder production must be one of the main branches with its own tasks and an improved material and technical base. A national strategy, based on more research on livestock production, should be developed.

TRADITIONAL MONGOLIAN METHODS FOR MAKING LIVESTOCK PRODUCTS

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In our paper we describe the traditional methods of Mongolians who process and use, in daily life, various types of food of animal origin, and in particular dairy products. The Mongols use over 150 kinds of dairy product and over 200 meat foods, and have over 50 kinds of composite dishes (46)[1]. Some of these are described in this paper.

Over many centuries, Mongolians engaged in pastoral livestock husbandry have developed simple, traditional methods of processing the milk, meat, skin, hair and wool of the five species of animals, in accordance with specific local climatic and living conditions. Some traces of these traditions are depicted on rocks and preserved in designs (1,2) of materials found in graveyards dating back some five thousand years. In the middle ages, historical sources, in particular the towering historic and cultural work The Secret History of the Mongols (3), and the travel notes of envoys, messengers and travellers (23, 17, 37) describe in detail how meat and dairy products were made, how skins, hides, hair and wool were processed, how draught pack and riding animals were used and trained, and how agricultural implements and harnesses were made.

TRADITIONAL DAIRY PRODUCTS

Dairy products occupy an important place in Mongolian food. In Mongolian, the word tsagaan (white), besides its basic meaning of colour, denotes loftiness, straightforwardness, symbolism and goodwill. The first month of the year is tsagaan sar (white month), and a positive description is tsagaan tsailgan (good hearted). Everything pure and lofty is compared with milk. Guests of honour and elders are offered milk and milk products, and the best of milk products is sprinkled as a libation to the heavens and local deities. All this is part of present cultural practice.

Different groups in different parts of Mongolia have developed different technologies for producing dairy goods; however, generally speaking, the entire Mongolian people have evolved similar methods of processing milk products.

As milk products contain nutritious components that are easily digestible and which have curative and preventive characteristics, they naturally attracted the attention of scholars. Since the 1930s Ya. Tsevel (45, 46) and others have investigated the tradition of processing milk products, classified dairy goods, and described the treatment of milk products. In recent years, researchers (4, 5, 15, 16, 18-20, 22, 30-34, 38, 40-43, 47) have published a number of works on folk methods of making dairy products, their composition and nutritional value. D. Nyamaa (34) started a mechanised factory producing dairy products.

Dairy production is seasonal in character. In the first month when the dams give birth, milk and beestings become available, in summer plenty, in autumn less. In March, ewes, goats, cows and camels give birth and various milk products and drinks are made. In mid-summer animals are fed fresh grass and give more milk. As a result, the variety of milk products increases and then declines in autumn as the lactation period ends. At the turn of the seasons the types of milk products and their production technologies are different. When

1. Numbered references at the end of the paper.

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there is less milk yield, herdsmen consume shar tos, tsagaan tos, aaruul (dried curds), eezgii (dried cottage cheese), tarag (yoghourt), aarts (curds), airag (fermented mare's milk) and knoormog (yoghourt together with milk) which contain more biological elements such as vitamins. They enrich the type of food and make it easily digestible. Meat which is consumed more in winter benefits from this treatment.

Ya. Tsevel (45) noted that when Mongols made food from milk, they did not produce one particular type, but made various types of dairy product by using the different constituents of milk in the production process. Primary processing of milk is by warming, fermentation and souring; from this milk other types of dairy goods are produced. Different dairy products are suu (milk), orom (scum on boiled milk), xusam (sediment on the bottom of pot after boiling milk), zookhii (cream), and shar tos. Microbiological processes take place in collected orom or scum and when this microbiologically processed orom is melted, shar tos is obtained. When shar tos is separated from collected orom, the remaining part is tsagaan tos. By fermentation, sour milk drinks are obtained such as sour cow's and camel's milk, mare's fermented milk; yoghourt is made from cow, ewe and goat milk, added to an existing yoghourt, and from them are made tsagaa (boiled yoghourt), aarts (yoghourt separated whey), and aaruul (dried aarts pressed into shape). By souring milk, some dairy goods are obtained such as leavened milk, cheese and cottage cheese.

COLOSTRUM PRODUCTS

When animals give birth, the colostrum, except that of the mare, is used for several types of milk products. Colostrum is prepared in a special vessel in boiled water.

Colostrum prepared in this way is sliced and consumed. When colostrum becomes diluted (somewhat fluid) after 2-3 days it is warmed up slowly in a pot, and is ladled and poured into the pot repeatedly while boiling. When the colostrum becomes sticky and thick it is consumed. This drink between colostrum and milk is called xelgii uurag ('mute colostrum', because it is soundless while being poured).

The ram colostrum which is warmed up and thickened in a vessel on a low fire is called xataasan uurag (dried clotted colostrum).

In the Gobi region in spring when she-camels give birth, camel's colostrum is collected in a special vessel; as soon as it is fermented, it is warmed and stirred in a pot on a low fire, and consumed.

There is also a technology of making cottage cheese out of the colostrum of sheep, goats and cows by souring and wheying the colostrum and by having the whey absorbed in the colostrum. Colostrum of sheep and goats is collected and after a while is soured by adding milk and boiling. Thus tsorom is obtained, and out of it tsoromiin aaruul (curds) are made.

In mountainous areas and the northern regions, colostrum is soured by adding milk, and cheese is produced.

PROCESSING MILK BY WARMING

Orom is obtained from cow, ewe or goat milk by warming at 82-84°C (20, 41). As soon as the milk is warm, the fire is extinguished, and for 15-20 minutes the milk is ladled up and poured down above the embers, then cooled down (18-20).

Together with protein, the fat globules in milk compounds are light, so when milk is warmed, the globules float up and foam on the surface of the milk. Orom (scum) is formed as a result. When the milk cools down and the foam disappears, it is again warmed by a low fire in order to raise the cream up.

The warmed milk is rewarmed on a low fire one or two times, then is left for 12-25 hours in a stable state. Orom is skimmed off from milk in the pot by a scraper around its border, and it is folded with the creamy part inside.

Orom is consumed fresh as well as preserved for making zookhii, shar tos, tsagaan tos and other foodstuff, and also it is dried for later use. In late autumn orom is frozen for winter consumption.

Orom is kept in rumens, colons and wooden or enamelled vessels in a cool place. In preserved orom, milk acid bacteria reproduce and a microbiological process takes place. Microbiologically processed orom is rich in various vitamins and protein organic acids, and is a source of valuable and easily digestible food products.

Xusam (sediment on the bottom of pot after boiling)

Xusam is sediment formed at the bottom and sides of the cast-iron pot, and the remaining part of the rim of orom. This is a favourite and nutritious food for children.

Zookhii is almost the same as orom. But in some areas of Mongolia the skim of the milk just after warming, ladling and pouring is called zookhii.

Khutguush and khailmag

Fresh orom mixed with dried and crushed eezgii (dried cottage cheese) is called khutguush. Orom and zookhii melted and mixed with dried and crushed eezgii and flour is called khailmag.

Shar tos

Shar tos is obtained from orom. When collected orom is melted, it becomes shar tos and tsov (the remaining part after shar tos is separated from orom); the separated shar tos is kept in a rumen colon or wooden vessel. Shar tos has a sharp smell because of various organic compounds, formed in the microbiological process that occur in the collected orom. Shar tos is of a yellowish colour as it contains a large quantity of vitamins dissolved in oil, particularly vitamin A. Mongols do not consume shar tos as butter spread on bread, but only in small quantities in their tea, tsagaa (boiled yoghourt) and Mongol vodka in the cold season. When they are on a caravan journey they consume barley flour mixed with shar tos.

Tsagaan tos

What remains after separating shar tos from orom is tsov. Tsov added to eezgii (dried cottage cheese), flour, some edible plants and sugar is called tsagaan tos. There are also tos with viviparous snake-weed, tos with Polygonum and tos with Sphallerocarpus gracilis and others.

Tsagaan tos is rich in protein, sugar, minerals and various vitamins. Tsagaan tos is preserved in a rumen almost everywhere in the country.

PROCESSING MILK BY FERMENTATION

Tarag (yoghourt)

The milk is warmed to 42-45°C (18) and fermented with milk and bacteria amounting to 3 percent of milk, ladled and poured many times, and kept at 35-45°C. After 2-3 hours tarag is coagulated.

Tarag is fermented by the decomposition of sugar in milk by milk acid bacteria into milk acid. The total acidity of fresh yoghourt is 65-70T. All the nutritious character is preserved in yoghourt and antibiotic substances are accumulated by milk acid bacteria and yeast.

Aarts (cottage cheese).

Aarts is made of milk of all types of animals, and accordingly bears different names. Aarts is also obtained after distillation of any fermented milk, and this kind of aarts is called tsagaa. The filtrated tsagaa, boiled airag and yoghourt is aarts.

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Aaruul (dried curds).

Whey-free tsagaa is pressed, out of which aaruul (curds) is made in different shapes. The wet aaruul is dried on a special board. The shapes of aaruul are formed by hand or sliced by a horse-tail string (40). The shapes are called atgamal or bazmal aaruul (squeezed in the fist), zoos aaruul (coit-shaped), khorhoi aaruul (worm-shaped or squeezed through a sieve). Aaruul is a product containing protein.

Mare's fermented milk (airag)

Airag (koumiss in Russian) is of high nutritional value, easily digested and has curative and preventive feature. This wonderfully refreshing drink was invented by the Mongols and is highly respected. The Italian traveller Marco Polo stated that over ten thousand white mares were milked to produce airag for the ceremonies in the grand palace of Kubilai Khan. Mare's fermented milk contains the necessary amino-acids, vitamins, easily digestible protein, and unsaturated fatty acids. Some researchers (5, 30, 38) have established that the micro-organisms of airag decompose as well as synthesize the protein. Mare's milk is fermented by natural micro-organisms and a pure culture of lactic acid bacteria. Airag micro-organisms contain lactic acid, Bacillus kochii and yeast. These lactic acid bacilli and yeast decompose milk sugar into lactic acid, spirits and carbonic acid gas.

In late autumn the milk season ends and slightly fermented airag is filtered and dried, or frozen or absorbed into different materials as micro-organisms or yeast for the following year's fermentation.

Fermented mare's milk is a sour milk product, combining lactic acid and spirits. Therefore airag fermenting technology needs the correct addition of the above two substances for fermentation. In order to ferment, mare's milk must be filtrated and mixed with micro-organisms. At the time of mixing, the acidity should be not less than 60 T. After mixing, it must be stirred 3000-5000 times (20, 40).

As a result of stirring, the component micro-organisms and fresh milk are evenly mixed, aerated and suitable conditions are created for breeding micro-organisms. As airag ferments, the total acidity increases, the growth of lactic acid bacteria slows, and spirit forming micro-organisms quickly activate. In the fermentation process, certain changes take place in the composition of fat and protein, the airag becomes easily digestible, vitamin B increases and lactic acid, alcohol, carbonic acid gas as well as antibiotics capable of resisting some infectious diseases are accumulated. As airag is rich in amino acids, vitamin C, fat, various organic acids, it is a valuable beverage.

Airag stimulates nervous activity, restores blood elements and improves the secretion of gastric juices. It also neutralizes and arrests the process of suppuration in the intestines. Airag is used to treat TB, scurvy, neurasthenia, anaemia, hypo-acidity and gives positive results.

Airag butter

Airag butter is secreted while souring and stirring the mare's milk and is kept as shar tos. Airag butter has a sourer taste than shar tos. Its colour is yellowish and it has more nutritious features. Airag butter melted becomes orom and its shar tos is separated from tsov and thus consumed.

Undaa

Undaa is made of cow, sheep and goat milk. This type of sour milk beverage is a combination of lactic acid and alcohol fermentation called undaa or khoormog and in some regions airag. Undaa is consumed as a drink. Out of it, milk vodka is distilled. The remains after distillation are used to make aarts and aaruul (dried curds). Undaa is similar to fermented mare's milk (airag) and tarag (yoghourt) in its nutritive and curative features, lactic acid bacteria and yeast components. Filtrated and dried undaa and tarag are used as yeast to sour undaa. Approximately 1-2 litres of yeast are used per 10 litres of milk. Milk is mixed with yeast in a hide sack or wooden vessel and stirred (beaten) some 1000 times. Undaa is well soured at 25-30° C and its acidity reaches 100-150 T.

Camel's fermented milk

In general, methods of fermenting camel's milk are the same as those of fermenting mare's milk, but it can be produced throughout the year. Camel's milk is filtrated and cooled a little, then mixed with yeast. The mixture of milk and yeast is beaten for 30 minutes and left at 20-25°C for 3-4 hours. When the acidity of camel's fermented milk reaches 60-70 T it is stirred again. Under such conditions camel's airag is ready within 10-16 hours. It has a curative character against intestinal and kidney diseases and it reduces swellings. There are several sanatoria in Mongolia treating patients with camel's airag.

Distillation of airag

Milk vodka is obtained through the Mongolian way of distilling airag made of different types of animals' milk. This kind of vodka is called arkhi. The re-distillation of arkhi becomes arz; the third distillation, sharz, and the fourth distillation, khorz. Milk vodka is used for prophylactic purposes.

Airag and milk vodka may be combined with fruits, berries, sweets and various medicinal herbs distilled by Mongols. The distillation is called dars (liquor). Dars is consumed to treat chronic diseases.

PROCESSING MILK BY CURDLING

Eedem (curdled milk)

Eedem is made from cow, sheep and goat milk. To hot milk, yoghourt is added and curdled, and fresh milk is added again to reduce the sour taste and consumed.

Cheese

Cheese is made from fresh or boiled milk of cows, sheep and goats. Warm milk is added to yoghourt, slowly stirred and boiled to 80°C (18).

When dregs and whey appear, curdled milk is poured into an easily filtrating cloth sack. The filtrated dregs are pressed in between boards and kept for 2-3 hours. In curdling, mostly fresh yoghourt is used. Yeast constitutes 5-6 percent of the total curdling milk. Cheese is easily digestible and rich in protein elements. Cheese is sliced thinly and linked with string and dried for later consumption. Cheese dried in this way is soaked quickly.

Eezgii (cottage cheese)

Eezgii is made of cow, sheep and goat milk. In producing eezgii, the curdling process is almost the same as in making cheese. When the dregs descend, the curdled milk is boiled on a milk fire until the whey is absorbed into the dregs. Then the eedem (curdled milk) is roasted until it gets orange or yellowish brown colour, and is dried in a special board. Eezgii is rich in proteins, fat, lactic sugar, minerals and vitamins which are contained in milk and are useful for the human organism. As eezgii contains to a great extent irreplaceable amino-acids such as methionine, lysine and others, it has a specific use in meeting protein deficiency and improving liver function, in a way radically different from other milk products.

Suun khuruud

Suun khuruud is a milk product obtained as a result of the rancidity of milk by the influence of lactic acid bacteria.

Fresh milk becomes rancid at 25°C within 8-12 hours and when its total acidity reaches 75-86 T, the cream rises to the surface and it is taken away and the dregs are filtered out. While being warmed, the dregs should be well stirred, the whey taken out, then the dregs should be kneaded well and pressed tightly in a

wooden moulder. After drying out a little, the dregs are taken out of the moulder and cut into different shapes.

PRODUCING MEAT PRODUCTS

Mongols produce different types of meat product which suit the climatic and living conditions of the country; these traditional methods are almost unknown to other nations of the world. The meat of any type of Mongolian animal is said to be exceptionally tasty and of high quality. The reason is that Mongol breeds, well adapted to specific natural and climatic conditions, choose and eat the most nutritious grasses on natural pasture; there are also other factors, such as their unique biological peculiarities. Mongols prefer mutton to other types of meat. Furthermore in their folk medicine, they use mutton, the Achilles tendon, the kneepan (patella), the five viscera, the coccyx and bone broth for treating various diseases (39). According to investigations (7-10, 14, 25-27, 44), the ratio of meat per 1 kg of bone in Mongolian sheep is 6.26 kg, the bones are light and flesh is abundant. Protein quality index is 8.2, succulence is 67 percent, M.Long-dorsi protein is 21.9 percent, moisture is 73.5 percent, content is 4970.3 joules. In terms of irreplaceable amino acids, Mongol sheep meat is higher than that of fine and semi-fine fleeced sheep. Its muscular fibre is 2-4 microns finer and the total amount of unsaturated fatty acid is higher. Meat of Mongolian cattle and other types of animals have rather high meat quality indicators.

Division of the carcass by joints

Mongols divide any carcass first into two - the fore and hind parts - then into seven equal parts: four legs, rump, neck and vertebrae, sternum and flank. While doing this no bone is broken. When animals are slaughtered, the internal organs, shin-bones and heads are specially treated and used as food. In order to have the succulence absorbed in the flesh, the carcass of sheep and goats is divided into the front and hind parts, while the carcass of large animals is divided into seven equal parts as mentioned above and is stiffened in the cold. This kind of stiffening prevents the decomposition of the connective fluid of molecular structures of protein and is related to the metamorphosis of biological active matters. It has been concluded that there is much glutamic acid, alanice, leucine-isoleucin; a combination of these amino acids is the main factor in meat flavour and quality (21).

Preserving meat

Mongol people have different traditional methods for preserving meat. There are two main types, open and closed.

Borts

Borts (dried meat) belongs to the open method. It is of two type ukhaa borts (dried meat of light yellow colour) has its moisture gradually evaporated in the open air in the very cold season, while khar borts (dried meat of dark colour) is exposed to the sun or dried in a cool place in the warm season.

To freeze meat under natural conditions and dry it in the wind is a tested method which is still used throughout the country (11-13, 49). Borts is made from the meat of well-fed cattle and camels in November and December. In most parts of the country, borts is made by cutting along the fibre. The flesh is separated from tendons and fat and finely sliced, along muscular tissues 2-5 cm thick and 20-30 cm long. The slices are dried in the wind in wooden huts, on ropes, lined 15-20 cm from each other, covered with a dust proof cloth.

When meat is frozen, the moisture in the muscular cell and inter-muscular tissues freezes and gradually evaporates, the surface layer slowly dries in the wind and the nutritious substances are absorbed into the flesh. This gives food made of borts its exceptionally pleasant flavour and smell. The process of making borts lasts 4-5 months. As the frozen meat dries in the wind it gradually gets soft; when it is pounded, it comes apart along the long muscular fibre.

Borts made in winter does not change in volume while stored, but becomes friable. Properly made beef borts becomes soft and friable; its colour is somewhat pale and the fat is yellowish. Camel's meat is pale and the fat becomes more or less white.

The moisture content of camel meat borts is around 7 percent, fat is 20 percent, protein 60 percent, ash 3.75 percent; the energy content of 1 kg of camel borts is 11,571 joules (49). The moisture in beef borts is 7-8 percent, fat 11 percent, protein 78 percent and the energy content of 1 kg beef borts is 11,412 joules. According to the same data, when 1 kg meat is dried its weight reduces by 4 times: that is, 1 kg meat becomes 210 g of borts. Elders say that a whole beef carcass, separated into joints, can be kept in its rumen, but when it is made into borts it will fit in the bladder. Borts has a high content of protein, fat and energy. Borts is kept in a sack or wooden box for later use. Borts is used not only to make soup but also other types of meat dish. When borts is soaked in water for 40 minutes, its volume increases by 2.5 times and after 18 minutes of boiling it is ready for consumption.

When a sheep or a goat is slaughtered, the carcass is stiffened. The brisket is then separated and taken out, the ribs are separated at the pelvic and rump joints. The spinal column is disjointed at the vertebra just before the three hind ribs. Inside the carcass, the kidneys, heart, brisket, rectum and disjointed tibias, shin-bones, radii and humeri are separated and put in, and the fore and hind parts of the carcass are bent together; then it is wrapped in the skin and frozen. Sometimes it is also put into the rumen. Beef is also wrapped in the hide or in its rumen. Frozen meat is mostly kept in holes dug in the ground or in the snow. However the ways of keeping frozen meat vary in different parts of the country.

Meat preserved in the rumen

This is a method used by people to preserve meat in the cold season. Mutton and goat meat, separated from the bone, is put in the rumen and preserved. Skill is required to put the meat in the rumen. A skilled man can put all the meat of a sheep or goat in the rumen including its head, shin-bones and tripe.

In the cold season, preserved meat is kept fresh.

Siusa

Siusa is meat specially preserved by salting for longer use. In warm periods, to keep meat for longer, siusa is made. After slaughtering, the meat is kept in an open place for some time. Siusa is prepared with boiled and unboiled meat. The meat is cut into small pieces. To make siusa of a whole sheep, a cup of salt is added and it is fried without adding any water. Afterwards, the meat is kept in a tightly closed pot or in the rumen.

The quality of the siusa prepared from raw meat is better than that from boiled meat; however, the keeping period is shorter. Siusa gets reddish when it is kept for a long time , but this does not affect the quality of the meat. Siusa is also served with Mongolian milk tea. In other words, siusa is a kind of canned meat.

Kiramsag

Late in the autumn, during the time of slaughtering for winter and spring food, kiramsag is prepared. Tripe is cleaned, washed, and packed in an oval-shaped rumen, so as to be suitable for chopping. Sausage of cow blood is preserved and frozen together with the tripe. It is served with kiramsag or separately with other meats.

TANNING HIDES

Over the centuries, the Mongols have developed a special technology for tanning hides. Technologies vary from place to place throughout the country.

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After slaughtering, the hides are cleaned of meat, and soaked in water. Hides for leather ropes are stripped of hair.

One of the main methods for processing hides is tanning. Tanning takes two forms: milk tanning and water tanning. Milk tanning is a way of tanning hides in yoghourt or boiled yoghourt; water tanning is a method of processing hides in ash and water. As a result of tanning, the surface of the hide becomes thick and unbreakable. To tan a hide, 5-6 kg of marsh salt is dissolved into 50-60 litres of water and the hide is put into it for 10-12 days. Skins of foals and calves are tanned for 5 days. Rugs are made of tanned hide. Rugs made of foal and calf skins are useful for camping or country travelling because they do not get wet when placed directly on damp ground.

Horse and cow hides are used for different purposes. Horse hide is used to make saddle cloth, horse-locks and harnesses. The hide is kept in boiled yoghourt for a week and tanned. Hide is also used to make bridle reins.

Camel hide is used to fasten the ger (yurt) lattice. Traditionally, leather strips are widely used for many purposes including harnesses. In this respect, the Darkhats (an ethnic group) are famous for their leather work.

Tanning leather bands (sur)

To make leather bands for all purposes, the neck and legs of the tanned hide are cut off, making it round in shape. Bridle reins are cut along the body part of the hide from front to back. Leather bands are cut in different ways: cutting in a circle around the whole hide, or only chest and back parts, and so on. The width of a lasso and a bridle rein is about 5-6 cm. Leather bands for tanning are buried in the wet soil and after softening, they are tanned by turning, twisting and beating.

After the moisture in the leather band is removed, at the end of tanning, the band is oiled with animal fat. Leather bands tanned in a factory with the help of chemicals are not strong enough and are easily deformed. Leather bands processed in the traditional way are strong and thick. Goods are also made from various parts of the hide are designated for making leather bands. Darkhat and neighbouring Khalkha people make leather rings out of the ear, eye and navel part of the hide for bridle reins. All over the country, both raw and tanned hides are used to make leather bands.

Tanning sheepskin

Sheepskins have different names according to the age of sheep and season of the year: nekei is the skin of a fully grown sheep; azargan nekei is a long-haired skin; secsygyrge is an autumn lamb skin. Debel (gown) is made of sheepskin. Soft, strong skins, with fairly curled, thick hair of 2.5 cm length are good for a debel. Sheep and goat skins are placed in tanning liquid for processing. From 0.5-0.8 kg of marsh salt is required for a skin. Yoghourt, sour milk and boiled yoghourt is used simultaneously. Tanning takes 8 days. Afterwards the skin is scraped and beaten.

MAKING HAIR AND WOOLLEN ARTICLES

Felt

Since ancient times, the Mongols have made felt every autumn. Felt making is a collective labour feast. Short or lamb's wool is suitable for felt making. For an average size of felt 20 kg, and for a bigger one 25 kg of wool, are required.

To make felt, first a moulding felt is wetted, and wool is placed on it in three layers. This process is called zuluhai tatah, meaning to put wool in layers. The wool is first laid from right to left, then from left to right and so on. After laying a layer, the wool is sprinkled with water. Sprinkling is repeated at each layer. Three layers of wool are tightly and evenly rolled by 3-4 strong men. It is then wrapped up in hide and the two ends

are tied. Two camel or horsemen drag the wool roll through the pasture to compact it. First the roll is pulled slowly, then faster. After it has been pulled 15-20 km, the roll is opened and the new felt spread.

The felt is designed for the roof and wall covering of gers (yurt), as well as for roof coverings, felt doors and felt carpets. On an auspicious day, people living near-by get together with scissors, needles and threads to make ger coverings. At the end of work, the host gives them food and drinks, and presents them with small felt gifts like socks, cushions, saddle-clothes and rugs.

Hair rope

According to shape, degesu (hair rope) is divided double, triple, cylindrical and square. Double twisted ropes are easily deformed and broken. Triple rope is twisted from three ropes; at first it is deformed but later it keeps its form. Flat rope consists of 4-5 parallel twisted ropes. It is used for the ger. Double twisted rope is used for camel and cattle leading cords. From four to eight ropes may be put together, making a strong rope of square shape.

Wool and hair for twisting are beaten with a stick, so that they become loose and suitable for twisting. Wool balls are made by hand weighing 150-200 grams. Twisting is carried out with two wool balls by splicing by hand. At every clapping, one twist is added.

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THE QUALITY OF MONGOLIAN OPEN RANGE BEEF AND MUTTON

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INTRODUCTION

Mongolians have raised livestock for many centuries using selective breeding techniques. Mongolian livestock provide meat, dairy and other products at low cost, being pastured throughout the year on the open range, despite the severe continental climate of Central Asia. The pasture is a mixture of open steppe, high mountainous regions, and semi-desert or Gobi.

The unpolluted Mongolian countryside, with its own characteristic geographical, climatic and ecological conditions, provides good pasture for the Mongolian herds. The animals are well accustomed to these conditions, and the conditions themselves mean that only the hardiest and best adapted breeds are able to survive. This form of natural selection has been helped by the breeding techniques of Mongolian herdsmen over many generations. This means that Mongolian breeds are breeds in their own right, with their own specific ecological patterns.

Mongolian animals have learnt to choose the most nutritious grasses and herbs in the pasture. They easily gain weight in summer and autumn and their meat has more flavour than that of animals which have been kept inside. Mongolians have grown to prefer the meat of animals which have fed on the wild leeks and onions of the steppe. Over centuries, Mongolians have maintained their nomadic form of herding and have obtained from their animals the main requisites of their life.

By 1990, the population of Mongolia had grown to over 2 million. Mongolia has a territory of 1,570,000 square kilometers in which there are between 23 and 24 million farm animals (table 1). Thirty four percent of Mongolia's population is directly involved in livestock breeding.

Table 1 Livestock in Mongolia

	Number	Percentage
Sheep	13,450,900	57
Goats	4,747,300	20
Cattle/yaks	2,541,400	11
Horses	2,102,900	9
Camels	552,900	2
Total	23,395,400	100

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MEAT PRODUCTION IN MONGOLIA

Over 90 percent of Mongolian livestock are raised on the open range. They produce products of high quality which have excellent organic properties. Fifteen percent of sheep and goats, and 5 percent of cows, yaks, horses and camels are slaughtered every year in mechanised abbatoirs which have been built centrally in the pastures.

The output of the abbatoirs is processed for the food industry and also in order to obtain biochemical products and biologically active hormones and fermentation products for medical and veterinary use. Meat production is the major part of the food industry of Mongolia, meat still being the staple diet of the population. Table 2 shows recent statistics on consumption of meat and other animal products.

On average, over the nation as a whole, individual consumption of meat per year is around 90 kg per person. Of that, over 40 percent is mutton, 9 percent goat, 26 percent beef, 16 percent horse and 5 percent camel meat.

In the centralised abbatoirs, however, 60 percent of the total meat procurement is mutton and 16 percent beef. The traditional preference for mutton by Mongolians is maintained in this way.

RESEARCH ON MEAT QUALITY

Since the 1930s Mongolian researchers have studied the meat quality of free range animals, taking into consideration the animal's age, sex, fatness and breed. The studies analysed meat yields after slaughter, the ratio of fat to lean meat, the chemical composition of meat and its calorific value. These studies, however, were limited to animals which were slaughtered by hand using the traditional methods of the steppe.

As the issue of supplying the population with first class animal protein is crucial in Mongolia, a comprehensive study of the quality of the meat of free range herds is very important, especially as such herds are able to gain body weight so rapidly. Therefore, in recent years, the Meat and Meat Products Department of the Food Industry Research and Project Design Institute has carried out research on the quality of Mongolian meat, at times working jointly with other research institutions.

It is well established that the chemical composition of meat and its other characteristics depend on the animal's age, sex, body weight, conditions of feed, and so on. The effects of processes which occur after Mongolian herds have been fattened, while being driven to the abbatoirs and then slaughtered using industrial methods, are now being studied. This includes such things as the effects of freezing. Assessment is made of the chemical composition of the meat together with levels of the vitamins B1, B2, PP7-8, and of various minerals. The amino and fatty acid content and the nutritional protein value is also measured. Normal laboratory methods of research, as well as atom absorption spectrophotometers, gas-liquid chromatography and automatic analysers, are being used in this.

RESEARCH RESULTS

Under the research project on the "Quality of the meat of free range herds", experiments have been conducted to assess the chemical, biochemical and nutritional value and muscle texture of Mongolian mutton and beef. Some results of these studies are given in the annex to this paper.

Preliminary results indicate that the basic level of quality-hydrate in the meat is very high, up to 75 percent in warm meat, and 66 percent in frozen meat. It has also been found that the level of animal starch-glucogen in muscle meat is high too. Since glucogen degenerates and turns into milk acid after the animal has been slaughtered, the lactic acid reduces the PH level and prevents the multiplication of micro-organisms in the meat. From this it is clear that the high level of glucogen improves the storage properties of Mongolian meat.

The chemical composition of Mongolian meat has been found to be similar to that of herds in Europe which have been kept penned inside. However, the level of nutritional protein, the ratio of the complete protein amino acid tryptophane and incomplete protein amino acid oxyproline, averaging out at 7.5, is higher in the Mongolian animals.

In 100 grammes of Mongolian meat, the levels of irreplacable amino acids, unsaturated fatty acids, vitamins and minerals have been found to be higher than in the same quantity of meat originating Europe. Arteriosclerosis is rare in Mongolia. This could be explained by the fact that Mongolian meat has a higher level of unsaturated fatty acids.

It has also been found that the muscle fibre of Mongolian free range mutton is thinner by 10 mm, compared to the meat of foreign sheep bred specifically for meat or for wool. This indicates that when a free range sheep gains weight, fat accumulates between the muscle fibres.

The results of this feature is that the meat of Mongolian free range herds is very tender and juicy.

Table 2 **Consumption of basic food stuffs of animal derivation**

	1986		1987		1988	
Product	Per capita target (kg)	Actual consumption (kg)	Per capita target (kg)	Actual consumption (kg)	Per capita target (kg)	Actual consumption (kg)
Meat & Meat Products	88.0	89.2	88.8	86.6	88.8	89.8
Milk & Milk Products	113.0	114.9	115.0	116.5	117.4	123.1
Butter	2.8	3.1	3.0	3.0	3.0	2.9

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CONCLUSION

Preliminary results indicate that:

- As the water binding property of free range livestock is high, the meat from such herds is a high quality raw material for the meat processing industry.
- As the pH of such meat is low, the meat has a longer storage life.
- The chemical composition and some of the parameters of the quality of Mongolian free range herds are higher than those of pure-bred animals which are penned inside.
- As the levels of nutritionally important, biologically active substances are sufficiently high in Mongolian meat, deficiencies of protein, vitamins and minerals are rare in Mongolia.
- As fat accumulates between the muscle fibres of the animals, Mongolian free range meat is tender and juicy.

ANNEX Characteristics of meat from free range Mongolian livestock

Table A. **Chemical composition of meat (%)**

	Moisture		Fat		Ash		Protein	
	Beef	Mutton	Beef	Mutton	Beef	Mutton	Beef	Mutton
M. Semimenbranasus	75.82	76.31	1.56	2.52	1.32	1.38	20.87	19.75
M.Tricepts brahialis	76.47	75.61	1.47	3.52	1.7	1.33	19.03	18.47
M. Longismus dorsi	76	75.5	1.42	2.33	1.3	1.36	19.9	20.08
Average	76.1	75.8	1.48	2.78	1.44	1.36	19.93	19.43

Table B. **Meat quality indices (MG%)**

	M.Semimenbranasus:		M.Tricepts brahial:		M. Long. dorsi		Average	
	Beef	Mutton	Beef	Mutton	Beef	Mutton	Beef	Mutton
Thiamine B1	.019	.056	.016	.029	.019	.026	.018	.037
Riboflavin vitamin B2	410	.510	.400	.560	.400	.560	.400	540
Niacin PP	3.6-9	2.2-6	4.2-7.6	3.6-5	4.1-8.8	2.4-6.8	8.47	6
Tryptophane	216.150	217.510	217.970	208.720	224.480	212.600	219.530	212.940
Oxyproline	28.250	28.070	33.330	34.330	27.000	27.730	29.530	30.040
Tryptophane/ oxyproline	7.650	7.750	6.540	6.070	8.400	7.670	7.400	7.100

Table C. **Quality of minerals in meat (MG%)**

	Beef				Mutton			
	Hind leg	fore leg	back	average	Hind leg	fore leg	back	average
Potassium	374.00	315.00	269.00	319.30	340.00	319.00	335.00	331.00
Natrium	176.00	122.00	181.00	159.70	164.00	180.00	143.00	162.00
Magnesium	52.00	22.00	24.00	32.70	28.00	35.00	38.00	33.70
Calcium	16.00	16.00	18.00	17.50	10.00	26.00	17.00	17.70
Iron	10.10	10.40	8.20	9.60	5.08	9.88	2.85	5.94
Copper	.70	1.60	.70	1.30	.60	1.90	.60	1.03
Zinc	5.50	4.90	3.70	4.70	4.00	4.00	1.90	3.30

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Table D. **Amount of protein amino acids in mutton**

	Hind leg Protein NG/100g	%	Fore leg Protein NG/100g	%	Back Protein NG/100g	%	Average Protein NG/100g	%
Irreplacable amino acids	8386.6	37.7	7301.2	38.01	9212.6	39.13	38.3	8300.13
Lysine	1913.83	8.6	1888.5	8.74	2240	9.53	8.96	2014.11
Threonine	983.5	4.4	964.7	4.47	1067.3	4.5	4.46	1005.16
Valine	1114.3	5	1073.3	5	1188	5	5	1125.2
Methienine	631	2.8	628.7	2.9	675	2.9	2.9	644.9
Isoleucine	1035.8	4.7	1013.3	4.7	1131	4.8	4.73	1060
Leucine	1710	7.7	1669	7.7	1848	7.9	7.77	1742.3
Phenylalenine	998.2	4.5	963.7	4.5	1063.3	4.5	4.5	1008.4
Replacable amino acid	12658.6	57.23	12293.4	56.9	13087.3	55.8	56.44	12679.8
Histidine	878.3	3.9	774.3	3.6	985.2	4.2	3.9	879.3
Arginine	1365.8	6.1	1342.8	6.2	1433.8	6.1	6.13	1380.8
Aspartate	2095.5	9.4	1946.7	9	2113.2	9	9.13	2051.8
Serine	748.2	3.36	722.5	3.3	789.7	3.4	3.35	753.5
Glutamine acid	3263	14.6	3255.7	15.1	3520	15	14.9	3346.2
Proline	1085.8	4.9	1047.3	4.8	1029.3	4.4	4.7	1054.13
Glycine	974.7	4.4	954	4.4	955.2	4.1	4.3	961.3
Alanine	1285.3	5.8	1290	6	1238.2	5.3	5.7	1271.17
Half cystine	249.5	1.1	254.3	1.2	256	1.1	1.13	253.27
Tyrosine	699.8	3.1	705.8	3.3	766.7	3.2	3.2	724.1
Ornitine	12.7	.57						
Total amino acid	21045.2		19594.6		22299.9			20979.9

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Table E Chemical composition of internal organs of sheep
some quality indices, MG, %

Samples	Moisture	Fat	Ash	Protein	Tryptophane	Oxyproline	Vit.B2	Vitamin PP
Liver	70.97	3.72	1.60	20.74	172.59	17.42	2.00	4.66-10.47
Kidneys	80.15	2.39	1.50	15.78	165.65	40.97	1.38	3.2-6
Heart	79.25	2.00	1.30	15.70	187.93	30.88	.76	3.22-4.28
Lungs	80.26	1.60	1.40	15.00	146.60	105.93	.54	2.64-4
Rumen	83.02	3.78	.65	11.20	152.63	141.41	.40	.85-2.25
Stomach	82.97	4.46	.90	10.33	137.96	81.37	.64	1.29-2.78
Spleen	76.63	1.90	1.70	18.63	159.47	21.75	.43	.8-2.54
Peticulum	84.51	2.09	.70	10.10	146.67	133.68	.36	.65-3.17

Table F Chemical composition of internal organs of cattle
some quality indices, MG, %

Samples	Moisture	Fat	Ash	Protein	Tryptophane	Oxyproline	Vit.B2	Vitamin PP
Liver	73.09	2.89	1.60	20.50	197.35	22.81	1.74	4.07-9.88
Kidneys	82.90	1.24	1.60	14.43	166.40	44.63	1.12	4.83
Heart	79.43	2.17	1.20	16.50	191.38	36.22	.70	3. 8-6.45
Lungs	79.80	1.70	1.30	16.70	160.11	112.85	.50	3.25-4.11
Rumen	83.08	1.15	.84	12.40	153.22	119.67	.44	3.02
Stomach	81.92	6.30	.70	10.97	138.48	105.55	.37	2.63
Spleen	78.90	1.67	1.50	16.00	153.08	35.96	.53	1.66-3.61
Peticulum	86.30	1.51	.80	10.74	152.25	136.87	.38	1.45-2.22

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A SCIENTIFIC AND TECHNICAL APPROACH TO LIVESTOCK PRODUCTION IN MONGOLIA

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INTRODUCTION

The improved material and technical base of the Mongolian livestock industry and the use of scientific principles and trained specialists makes it possible to develop a long-term system of livestock management and efficient production methods within Mongolia's geographic and economic conditions.

Generally, Mongols have extensive skills in pastoral animal husbandry, as well as a wealth of empirical knowledge passed from generation to generation. The traditional methods of Mongolian herdsmen have been accumulated as a result of their hard work and have become a system of proven knowledge. Our forefathers adopted and abandoned particular approaches and methods of animal herding, the principles of which were based on good professional judgement. That is why, although they were only herdsmen, they were highly qualified livestock specialists.

DEVELOPMENT OF AGRICULTURAL SCIENCE

Agricultural science in Mongolia developed in the following phases:

Phase I started with an emergence of animal science from 1921 to 1940. By 1940 measures were taken to improve the quality of the national herd, especially through field research and the investigation of Mongolian races and their biological characteristics. A two-tiered system of animal husbandry management was introduced at state and provincial level. In addition, scientific research in the national livestock industry laid the foundation for the development of long-term principles and for further development of agricultural sciences.

Phase II covers the period from 1941 to 1960 when socialist reorganisation took place in animal husbandry and socialist production methods dominated the agricultural sector. Agricultural science developed and particular emphasis was put on research in livestock production and technology: research took place on livestock quality, improvement and disease prevention. Adoption of the "Resolution on the selection of highly productive indigenous livestock" in 1959 accelerated the process of scientific based selection and pure breeding of Mongolian native livestock breeds and using them to create highly productive new breeds. Scientific innovations such as semen processing stations, cattle and sheep breeding units, and small size dairy farms were made in the 1950s. Animal breeding and technology services were expanded at three levels, state, province (aimak) and county (somon).

Phase III covers the period after 1960, during which the material and technical base of socialism has been constructed in several main fields and technological and technical policies were focussed on the elaboration and expansion of livestock management systems applicable in pastoral animal husbandry.

To meet the increased scope of research in Mongolia's animal husbandry, the Agriculture Institute was founded in 1961, as the first national scientific research institution. Towards the end of the 1960s, several research institutes and stations were founded in order to intensify theoretical and practical research on animal feed and fodder production, and the mechanisation of the main labour processes in pastoral livestock husbandry.

ORGANISATION OF SCIENCE AND TECHNOLOGY

Comparing Mongolia's present situation with that of the pre-collectivisation period, when dispersed private individual households were the rule, great changes have occurred, especially in the application of modern scientific methods, advanced technology and experience to livestock production. As a result, important progress has been made in reorganizing nomadic animal husbandry into an improved livestock industry.

Modern science and technology contributes to a solution of many problems in pastoral livestock management, including the structure and type of production, labour organization, farm management, the training of technicians and specialists, as well as other economic and social problems.

During the last 30 years, the government has taken important measures to strengthen the use of research in animal husbandry, and there is now an organized unified system for the application of modern scientific and technical information in the livestock industry. The Council of Agricultural Sciences at the Ministry of Agriculture, Light and Food Industry is the central organization which provides leadership and makes policy in science and technology in various fields of Mongolian agriculture. At present the Council has 22 research institutes and stations.

The main research duties of these scientific organizations are to conduct research on matters on national importance at the request of the Ministry and other agricultural organizations and institutions (state and cooperative farm and intercooperative enterprises). Financial support for this comes mainly from the government budget. A great deal of emphasis is placed on agreements with other industrial organizations, as long as they have their own funds for this purpose. Research results are submitted to the departments at the Ministry and the organizations which commissioned the work. As well as research, the institutes and stations take an active part in extension work about science and technology, and the implementation of results in the industry, through the use of their own resources. They also assist higher and collaborating organizations to carry out planned programmes, and with legislative documents and other actions of public importance.

Thus, today the conclusions and suggestions of the research institutions and of the scientists are taken into account. Recently, in some fields of agriculture, a new organizational format, a research-production unification (RPU) has been established to increase the role of science and technology in improving and intensifying animal husbandry.

Usually the RPU are under the supervision of the research institutions, which enables better extension of the scientific results. There are currently 4 RPU, with various profiles. Some research units of the scientific institutes also function as part of other industrial organizations, as economic units under their direct and combined leadership. These forms of cooperation have a number of advantages: in particular, they permit direct participation of research institutes and their units in a closer relationship between science and industry.

In order to improve their internal structure, several institutes and stations have organised their own special production units, which provide an outlet to internal and foreign markets for their own products.

The main objective of agricultural science and technical knowledge is to make qualitative changes in all sectors of production, its technical processes and organisation through the application of scientific and technological methods, with a prospect of resolving outstanding problems.

In 1990 the specialised research institutes for animal husbandry and veterinary science, including field stations and laboratories, have more than 3,100 research staff, 22 percent of whom are research workers, 14 percent technical staff and 47 percent technicians and other persons engaged in experimental production and applied fields. Among the research workers are 9 doctors and more than 120 candidates of sciences.

In addition, specialists of the Agricultural University and the personnel of the vocational training schools assist with research in pastoral and industrial animal husbandry.

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RESEARCH PRIORITIES

The basic priorities for research and experimentation in the animal husbandry research institutes are the following:

1. To develop an economic management system for pastoral livestock production, adapted to Mongolia's different ecological and climatic zones, and technology for animal grazing and increased productivity;

2. To develop highly productive animal breeds and to improve the quality of indigenous livestock;

3. To improve fodder production through increased pasture growth and cultivated fodder production and to develop technologies for fodder production, storage and efficient use;

4. To initiate research to reduce the heavy labour involved in animal production through the introduction of small-scale mechanisation and electrification in the daily tasks of herdsmen;

5. To introduce progressive forms of labour organisation, salary systems, management and planning in agriculture to improve its economic efficiency, and to develop more effective economic mechanisms;

6. To elaborate methods of animal disease prevention, diagnosis and treatment.

In order to increase the scientific base for intensive agricultural development in all regions, especially for close cooperation between science and technology, four specialised regional research institutes and stations were established in 1987 mainly through enlargement and reorganisation of existing institutions and redistribution of their research assignments. These organisations have as their main tasks to work on a scientific definition of global problems within well-defined economic and geographic regions.

When it comes to the pastoral economy, the Mongols have extensive experience and a wealth of traditional empirical knowledge. Mongolia has applied an evolutionary approach to the introduction of scientific and technological advances in the pastoral economy. This has involved gradually updating production technologies in concert with traditional knowledge and experience.

ANIMAL BREEDING

Research institutes guide selection processes for the creation of highly productive breeds, adapted to the country's ecological and climatic conditions, using native animal breeds as primary selection materials. They have also guided research aimed at improving indigenous livestock and increasing productivity.

Under the supervision of our scientists and with direct participation of herders, new breeds and breed groups have been developed, as follows: semi-fine wooled "Orhon" sheep, carpet wool production "Baidrag" sheep, fine wooled "Hangai" sheep, crossbred semi-fine wooled "Eroo" sheep, meat-fat-wool "Torguut" sheep, fat-tailed and semi-fine wooled "Jargalant" sheep, cashmere-wooled "Gobi-Gurvansaihan" goat, wool "Onjuul" goats and major "Seleng" beef cattle breeds. This is a major contribution by Mongolian specialists to the reorganisation of traditional livestock production and to intensified development of the livestock industry.

A great deal of attention is paid to increasing the number and distribution of native Mongolian animals by selectively raising high productivity animals and using them to improve the local herds and flocks of indigenous Mongolian livestock. This helps preserve of the gene pool of native animals.

Ninety percent of Mongolia's total livestock population comprises indigenous stock raised by natural and herder selection. There are nearly 50 highly productive and breed groups, and some valuable strains of local livestock, over 30 of which are native breeds. A great deal of attention is paid to selecting animals with high yields of meat, milk, wool and cashmere, and to increasing their productivity through increases in size and

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quality. Our research results suggest that the main priority in livestock breeding should be raising indigenous races as a genetic nucleus.

The research institutes participate in this work through the Animal Breeds Council and Breeding Zones Council. The Councils are composed of specialists from the research institutes, and central and local specialists. They establish priorities and zones for raising specific breed or breed groups, improving breed quality and productivity, defining animal migration policy, and introducing technologies, techniques and instructions worked out by research institutions. These councils are entitled to inspect and instruct individual breeding units, farms, agricultural cooperatives or state farms for a given animal breed, and to provide professional and practical expertise.

At present, animal breeding zones are made up of 26 cooperative farms which pasture fine and semi-fine wooled sheep in the forest and eastern steppe zones, and 23 cooperatives which pasture beef cattle in the forest-steppe and steppe zones. Beef and dairy cattle hybrids are produced by 33 cooperative, and cashmere and wool production goats are raised in the steppe and Gobi-Altai mountain zones. There are six state breeding farms and 44 dairy farms throughout the country which raise improved breeds and supply other agricultural cooperatives with high quality breeding stock.

Priority has been given to applying the results of modern biotechnological research in Mongolia's animal husbandry. Since the 1970s frozen bull and ram semen has been imported from abroad and used on an experimental basis. In 1980 a state bank for frozen bull semen was established and production of frozen semen was started. In 1985 the state semen bank was expanded and a central station with an annual capacity of 200,000 doses of frozen dairy and beef bull semen was established. By 1989 nearly 160,000 doses of frozen semen had been produced from bulls of 10 different breeds. At present the Research Institute of Animal Husbandry is conducting studies on the freezing of ram, goat and yak bull semen. With access to technology for freezing and conserving semen it became possible to preserve semen of indigenous Mongolian breeds, and thus to protect their genetic foundations.

In 1987, with technical assistance from the UN Food and Agriculture Organisation, the Animal Husbandry Research Institute established an Embryo Transfer Laboratory and now works on the development of embryo transfer methods and technologies applicable to Mongolia.

Mongolian goats are famous for the production of high quality cashmere. From 1988, experiments started to transfer embryos to ordinary goat herds in order to increase the production of high quality white cashmere.

Through intensive research on production of frozen semen and embryo transfer, Mongolia will be able to participate actively in the international exchange of valuable purebred stock and their frozen semen and embryos.

PASTURE AND FODDER

The first priority is now to improve fodder production for the livestock industry. There are now 19 fodder production state farms, 9 fodder production enterprises and 145 fodder production lines with 174 industrial installations which have substantially increased annual fodder production. At present average annual fodder production is estimated at 1.0-1.2 million tonnes (in terms of fodder units). An important priority is to expand fodder production and its effective use.

Mongolia's fodder production potential depends largely on natural pastures. More work needs to be done on effective pasture management and to increase the amount and diversity of industrial fodder production.

It is necessary in the near future to prepare a national atlas of vegetation and soil, to study effective pasture management and to establish pasture in various provinces and regional areas. Research findings indicate that seasonal grazing of stock on the same pasture year after year, or too heavy a concentration of livestock on the pasture, can cause damage to grazing lands. For a country like Mongolia, where the pastoral economy

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is predominant, a system of natural pasture management, the protection of native vegetation and improvement of soil fertility are essential. In the future it is likely that grazing will be allocated seasonally according to the species of livestock, and that pastures will be partitioned according to the needs of animal specialisation, intensification and settlement.

At present 30 enterprises annually produce about 100,000 tonnes of silage and mixed fodder from grass, straw and cereals. Research institutes specialise in the development of technologies and recipes for industrial fodder production. Hay is by far the most important source of feed produced in Mongolia. In 1989 about 1.2 million tonnes of hay were cut. Hay is the main source of supplementary feed for animals during winter and spring.

By improving pasture management and increasing industrial feed production and hay-making, it is possible to solve the feed problem. In connection with this the research institutes are primarily concerned with increasing hay production by using fertilisers, flood diversion or sprinkler irrigation of natural pasture and greater hay cultivation technologies.

In view of the existing imbalance between land devoted to hay cultivation and agricultural fields, there is scope to expand hay production areas up to 3 million hectares by irrigation, fertiliser application and increased seeding. It is estimated that nationally there are 3.6 million hectares of valley meadows, 22.0 million hectares of mountain meadows and 11.4 million hectares of flatland pastures in the country's land reserves.

Research indicates that as many as 15-20 centners of hay per hectare can readily be produced from cultivated meadow pastures. There is special interest in the use of cultivated pastures near mechanised dairy farms and animal fattening units and complexes.

MECHANISATION

There are over 60 operations in animal husbandry which can be mechanised. In 27 of these operations technology and technical equipment have been introduced. Nowadays, 11,500 machines of almost 60 different types are used in livestock production.

Research is under way to apply modern technology as widely as possible, to experiment with and to produce locally equipment now manufactured in foreign countries, and to introduce new technologies for the household. Mechanised equipment such as livestock spraying equipment, mobile milk separator machines, skin processing equipment, different types of carts and other technical aids has been mass produced and supplied.

MANAGEMENT

Economists now design systems for agricultural administration and management, planning and construction, cost-accounting, and finance and loans for agricultural cooperatives, state farms and smaller production units. Research institutes are now analysing the present level of agricultural production and potential improvements in efficiency, and are working out schemes for agricultural production, allocation and diversification. New procedures have been introduced in drawing up contracts and leases in livestock production, and in agricultural production as a whole.

Research has started on how to develop agro-industrial enterprises and how to improve the system of cost-accounting, including expense payment checks.

TRAINING

A system has been established for training national specialists, capable of providing scientific support for Mongolia's animal husbandry. By 1989 there was one university, four technical training schools, ten technical vocational schools and institutes which train annually over 400 specialists with advanced and professional

education. Once trained, these specialists organise livestock production in rural areas and introduce scientific and technological knowledge and advanced experience into agricultural production.

Over 700 zootechnical and veterinary service facilities employ 7,000 professional specialists. The facilities have enough engineers and technical specialists as well as economic and finance experts for Mongolia's present needs in animal production. Since the most important sector of Mongolia's agriculture (the pastoral economy) is largely dependent on ecological and climatic conditions, the role of specialists is essential at all levels. Their efforts have to be directed to minimising natural disasters, reducing animal morbidity and introducing appropriate technologies and methods of pastoral management adapted to the geographical and ecological conditions in this country.

The history of Mongolia's livestock economy shows that agricultural training institutes have to pay greater attention to the specific needs of pastoral livestock management. This is particularly important in Mongolia where there are both pastoral and industrial types of livestock production.

It is a challenge to train the younger generation of herdsmen for the pastoral economy. It is appropriate, first, to employ young people in animal husbandry on a voluntary basis and, second, to provide those young people wishing to work in this sector with professional knowledge and education. Over the past 20 years more than 50,000 young people have entered work in the agriculture sector. In all central and local schools a training course in animal husbandry is now introduced at 6th grade. Thus, school children and young people are drawn into the training programs and exposed to a certain degree of scientific and technological knowledge and professional experience.

Young herdsmen are provided with additional stock and a dwelling free of charge, and extra financial support. These measures are effective in providing stable employment of young herdsmen and encourage their increased interest in working in the livestock sector.

The assignment of experienced herdsmen as consultants in provinces (aimaks), counties (somons) and other small units has become widespread: these older herdsmen share their knowledge and expertise, and give useful practical advice.

INVESTMENT

Improvement in agricultural development has been helped by increased capital investment. In 1987 the operating budget in the agriculture sector amounted to 6.5 billion tugrik. It is estimated that an average agricultural cooperative has a budget of 12 million tugrik and has more than 60,000 head of livestock, an average of 44 tractors, 18 four-wheel drive vehicles, plus many machines and equipment. An average state farm has a budget of nearly 40 million tugrik and has 9,400 hectares of arable lands, 270 tractors, 37 harvesting combines and 42 four-wheel drive vehicles.

The livestock sector share of overall agricultural investment increases each year. During 1980-1986, 10 percent of the seven-year budget was allocated for setting up mechanised dairy farms, breeding farms and units, 28 percent to pasture irrigation, 2 percent to veterinary services, 25 percent to construction of animal shelters and 22 percent to the purchase of vehicles, machines and other equipment. At present there are 67,500 animal shelters in the agricultural sector, capable of housing 30 million head of livestock. There are 44,800 manual or mechanically operated wells. Almost 7.7 million hectares of pastures are irrigated, which is more than 60 percent of land under pasture.

FUTURE NEEDS

Although much work has been done to apply scientific and technological knowledge to the pastoral economy, and to improve its efficiency, much remains to be done. There is an urgent need for research institutes to concentrate attention on the most acute problems that face animal husbandry today.

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In my personal opinion, there are a number of deficiencies in the coordination of research and applied work. First, research is far removed from the practical needs of the industrial organisations which in the end must use the results. There are errors in planning and carrying out projects, which do not adequately take into consideration the problems and needs of the livestock industry. Because of this, it has been difficult to come to a common understanding with the leaders and specialists of the livestock industry, who are mainly interested in practical questions. Different approaches to the same problem make it difficult to be successful or to expect support from their side. We should now turn our attention to these questions, which will determine the success of our efforts to apply the results of science and technology in pastoral livestock production.

We also have to bear in mind that research has to be planned in close relationship with local producers as well as with specific cooperatives. Only then will the application of the research findings accelerate production, enhance the relationship between science and production, and combine the efforts of the research institutes and commercial organisations.

Successful application of scientific and technological knowledge to the pastoral economy in particular, and livestock production in general, depends on the choice of interested and economically strong and informed partners. The success of our activities depends on the benefits the recipient ultimately receives. People in the livestock industry must benefit from the achievements of modern science and technology, so that they understand that at present it is not possible to solve problems of any importance without a strong scientific input.

CONCLUSION

In my opinion the failure of previous measures is due to the following main reasons:

1. Because of the narrow approach herdsmen and specialists adopt to production processes, basic problems of technological policy in most cases escape their daily attention.

2. Many livestock specialists rely on the advantages of traditional pastoral animal husbandry instead of properly considering the application of modern science and technology, which can be a powerful factor in development.

3. No effective measures have been taken to combine scientific and technical training with a mastery of the traditional methods and skills of herding. In other words, every herdsman should become a highly qualified specialist trained by systematic programmes to combine the best of two worlds.

4. Training of the younger generation of herdsmen has been inefficient, but they remain practical masters of the traditional expertise of their parents. The conclusion is that traditional experience and skills are compatible with scientific knowledge, but mastery of both of these can not be achieved through current methods of training.

5. Adequately detailed study is not being made of the scientific bases of traditional knowledge in pastoral livestock production. We have accumulated a large number of documents of descriptive information which are unsatisfactory for a complete understanding of the problems. There needs to be a detailed scientific analysis of the traditional methods of Mongolian herdsmen and how young herdsmen can rationally master them.

6. The organisation and management of animal husbandry in recent years, as has been criticised by our scientists, leads to a breakdown in the organic relationships between property and its owners. This unusual situation exerts a negative influence on the herdsmen's interest in continued improvement in animal husbandry and on their support for new achievements and progress.

7. For the 30 years after collectivisation, the government campaigned for mass improvement in livestock production by means of modern scientific innovations. In the end this proved to be not

very profitable or reasonable, because of insufficient material and technical support, and inadequate provision of scientific and basic personnel. These faults have led to a loss of confidence by the livestock industry in science and technology. This situation continues today. In other words we cannot be successful unless we make the administrators, specialists and herdsmen understand that it is possible to increase livestock production efficiency and to solve existing problems not only through advanced industrial technology but also through the combination of science and production efforts.

Since the 1960s, when socialist industrial relations of production were achieved in Mongolian agriculture, failures have been made which were excused in the name of improving the livestock industry as a whole.

Now we must pay a great deal of attention to correcting these problems. But it must be done by taking into account the historical aspects of its development as well as future prospects. Some scientists and specialists wish to intensify animal husbandry by improving the productivity of each individual animal. For this purpose there were attempts to expand mass hybridisation of native animals. But the climate and unsatisfactory material and technical conditions in Mongolia, do not favour breeding a large number of high yielding animals and their hybrids. Despite this, in order to improve the material and technical basis of the pastoral livestock industry, many agricultural techniques and equipment were imported, aimed at improving herding, nutrition and management. Many enclosures and barns were built and a great deal of effort was put into improving water supply and fodder. In the end these activities did not bring the expected results and successes.

As a result, a tremendous capital investment was made, without a perceptible change in the size of the livestock population, or in animal production.

The real reasons for that are the growing consumption needs of the population, export and rising raw material needs of light industry. In addition, the loss of animals from different reasons (disease, natural calamity, infertility, loss of young livestock, poor management, etc), was not noticeably reduced.

Therefore we have not increased the productivity and population of animals, which has remained stable for many years. This means that to improve pastoral livestock production a material-technical basis must be created, which corresponds to s productive capacity and its technological peculiarity.

From the pastoral point of view, nomadism and the use of extensive pastures are the main production characteristics of pastoral livestock husbandry. Thus, policies of pastoral animal husbandry must focus on the technological problems related to better use of pastures through nomadism. Livestock production in a fixed location and nomadism are not compatible. Nevertheless during the last few years a lot of large buildings were constructed at many cooperatives and state farms. Such investments do not benefit pastoral livestock husbandry.

In my opinion it is essential to analyse in depth the progress that has been made so far in the intensification of the pastoral economy, and to define short and long-term goals in this field. It is important to develop technology which will minimise negative ecological and climatic influences on Mongolian pastoral livestock husbandry. Both fundamental and applied projects are important to define the respective places of traditional methods and new scientific information. Much time, effort and traditional knowledge were lost in the development process so far, with no better result than the situation today, where the development of a science-based system of livestock management remains an open question. We must learn from this past experience.

It is is necessary, therefore, to accelerate basic research, while reviewing the centuries-old traditional experience accumulated by herdsmen. In this context, much can be adapted from the experience of other countries with pastoral economies. It is entirely possible to benefit from the valuable traditional Mongolian traditional experience of grazing five species of animals in finding new ways and means of livestock management.

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In order to improve the scientific basis of pastoral animal husbandry, it is essential to cooperate with the research institutions of foreign countries, exchange scientific and technological information, and establish joint research projects and experiments. Furthermore, it is important to participate in meetings, seminars and basic and applied conferences sponsored by international organisations, and to exchange knowledge and experience with fellow scientists and livestock producers around the world.

ANNEX VIII

PROFILE: MONGOLIA

THE WORLD BANK / IFC / MIGA

OFFICE MEMORANDUM

cc: R Buck, S Cleave
w/ fwd sage

DATE: May 6, 1992

TO: Distribution

FROM: Shahid Javed Burki, Director EA2

EXTENSION: 82338

SUBJECT: MONGOLIA: 2nd Assistance Group Meeting, May 28-29, 1992

1. Further to my memo of April 27, 1991, I am distributing the following two Bank reports for the second Mongolia Assistance Group (MAG) meeting on Thursday and Friday, May 28 and 29, 1992 in Tokyo:

(i) Recent Economic Trends; and
(ii) Aid Utilization and Assistance Priorities for 1992-93.

2. The Bank's recently issued Country Economic Memorandum "Mongolia: Towards a Market Economy" (Report No. 10108-MON dated Dec., 2, 1991) and a report by the Mongolian Government will be available at the meeting.

U.S.: ESF $12m for FY-92 not prev'ly anncd.
TA: $3m

Attachments

Distribution:

Executive Directors for:

Australia, Korea, New Zealand
Belgium
Canada
China
Denmark, Finland, Norway, Sweden
France
Germany
Italy
Japan
Netherlands
Singapore, Thailand
United Kingdom
United States

European Economic Commission

Mr. Saito, Director, East Asia & South Pacific Department, IMF
Mr. Watanabe, Director, Programs Department (East), ADB
Mr. Behrstock, Chief, EAPAC, UNDP

For Information:

Tokyo Office

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June 1992
Official Name:
Mongolia

DRAFT

PROFILE

GEOGRAPHY

AREA: 1,566,500 sq. km. (604,103 sq. mi.); slightly smaller than Arizona, New Mexico, Texas, and Louisiana combined (land boundaries 8,158 km).
CITIES: Capital--Ulaanbaatar (pop. 500,000, 1986). Other cities--Darhan (63,300), Erdenet (48,000).
TERRAIN: Almost 90% of land area is pasture or desert wasteland, of varying usefulness; .9% is arable; 8.9% is forested.
CLIMATE: Continental, with little precipitation and sharp seasonal fluctuations.

PEOPLE

NOUN AND ADJECTIVE: Mongolian(s).
POPULATION (1992): 2.156.3 million (expected to reach 2.4 million by 1996). 73% are under age 30, 45.2% of whom are under 16.
RURAL POPULATION (1990): 43%.
ANNUAL GROWTH RATE (1991): 2.6%.
BIRTH RATE (1991): 33.1/1000.
INFANT MORTALITY RATE (1991): 61-62/1000.
LIFE EXPECTANCY (1992): 63-65 years.
DEATH RATE (1991): 8.3/1000.
ETHNIC GROUPS: Predominantly Mongol (77.5% Khalka, 11.7% other Mongolian groups), 5.3% Kazakh, 2% Chinese, 2% Russian, 2% other. Languages: Khalkha Mongol, more than 90%; minor languages include Kazakh, Chinese, and Russian.
RELIGIONS: Tibetan Buddhist Lamaism 94% of the population, Muslim 6% (primarily in the southwest) and Shamanism. Religious activity, though guaranteed in the 1960 constitution, had been limited by the communist regime; however, beginning in January 1990 monasteries and mosques began to reopen.
EDUCATION: Years compulsory--8 years (provided free by the government). Instruction in the old Mongolian script has replaced Cyrillic.
Literacy--over 90%.

GOVERNMENT

TYPE: Parliamentary form of government with the President second in authority to the State Great Hural.
INDEPENDENCE: 1921; democratic reform and independence from Soviet Union declared 1989.
CONSTITUTIONS: 1960 and February 12, 1992.
BRANCHES: Executive - Power divided between a President and a Prime Minister, both elected by the People's Great Hural in September 1990, with new elections for the President to be chosen by popular vote in 1993. A cabinet nominated by the Prime Minister was formed by the Small Hural in October 1990.
Legislative - with the June 1992 election, the Mongolian Parliament will be unicameral. The new State Great Hural will have 76 deputies.
Judicial - the Constitutional Court, empowered to supervise the implementation of the Constitution, makes judgment on the violation of its provisions and solve disputes. Legal code under revision. No provision for judicial review of legislative acts. Legal education at Mongolian State University. Just recently, Mongolia began accepting International Court of Justice jurisdiction.
POLITICAL PARTIES: 16 announced political parties, 13 registered for the June 1992 election.
SUFFRAGE: Universal 18 and older, except mentally ill.
ELECTIONS: Set by the February 1992 constitution.
ADMINISTRATIVE SUBDIVISIONS: 18 aimags (provinces) and 3 autonomous cities (Ulaanbaatar, Darhan, and Erdenet).
DEFENSE EXPENDITURES: About 7.5% of total GNP (1990 estimate); 748 million tugriks.
NATIONAL HOLIDAYS: International Socialist Workers' Day, May 1; People's Revolution Day, July 11.
FLAG: Three vertical bands--red, sky-blue, red; on the left red band the golden soyombo (the Mongolian national emblem, composed of a flame, sun, moon, two triangles, four rectangles and two fish).
OFFICIAL DIPLOMATIC RELATIONS WITH U.S.: established January 27, 1987.

GNP: $1.7 billion, $522 per capita (1989, IMF estimate); 1990 GNP fell 2.1%, first decline in many years; 1991 GNP fell 15-20% from 1990.
NATURAL RESOURCES: Coal, copper, molybdenum, iron, phosphates, tin, nickel, zinc, wolfram, fluorspar, gold, uranium, petroleum.
AGRICULTURE: 20% of 1990 GDP, livelihood for approximately 50% of population (1990); products include livestock, wheat, oats, barley, hay fodder, vegetables.
INDUSTRY: Estimated 27% of GNP; Minerals (primarily copper), animal-derived products, building materials, food/beverage, mining (esp. coal); production fell 10% in first quarter 1991.
ELECTRIC POWER: 2,950 million kWh produced, 1,380 kWh per capita in 1990.
COMMUNICATIONS: Railroad 1,815 km. (1990), all broad (Russian) gauge (1.524 m.); Highways 49,150 km. total, composed of concrete, asphalt, crushed stone, gravel, and earth (42,610 km. are unpaved).
TRADE: Exports--livestock, animal products, wool, hides, fluorspar, nonferrous metals, minerals. Imports--machinery and equipment, fuels, food products, industrial consumer goods, tea, chemicals, building equipment, sugar. Partners (1991)--former Soviet Union (76%), former CMEA, China.
US-Mongolia trade--$2.1 million (1990), $13.4 million (1991).
Total turnover--About $1.6 billion (1990 World Bank estimate).
AID RECEIVED: About $500-700 million annually from USSR (1989);
About $300 million trade credits and $34 million grants from USSR, $7.4 million from UNDP (1990);
Western lenders promised $220 million in aid/loans for winter 1991-92.
OFFICIAL EXCHANGE RATE (May 1992): 40 tugriks=US$1 (unofficial rate 170-210 tugriks=US$1).
FISCAL YEAR: Calendar year.

Membership in International Organizations:
UN and some of its specialized agencies including United Nations Development Program (UNDP), Food and Agricultural Organization (FAO), United Nations Industrial Development Organization (UNIDO), United Nations Fund for Population Activities, International Atomic Energy Agency (IAEA), International Labor Organization (ILO), International Telecommunications Union (ITU), UPU, WHO, WMO, ICAO; Interparliamentary Union; Economic and Social Commission for Asia and the Pacific (ESCAP), Asian Development Bank, International Monetary Fund, the International Bank for Reconstruction and Development, and the International Finance Corporation. In 1991, Mongolia joined both the non-aligned movement and the Group of 77.

Mongolia is in central Asia, with Russia to the north and China to the south. To the southeast is Inner Mongolia, an autonomous region in northern China, and Buryat Mongolia, in southern Russia, is to the north.

In the southeast, the Gobi desert supports almost no vegetation and is sparsely populated. North and west of the Gobi, the landscape changes gradually to rugged mountains rising to elevations of more than 3,962 meters (13,000 ft.) above sea level. The highest peak in Mongolia is Nayramdal Uul at 4,374 m. (14,350 ft.). Many salt lakes and prairies dot the country. Water is more abundant in the habitable north, although the rivers in this area are rough and uncontrolled.

The climate is continental, with little precipitation, sharply defined seasons, great diurnal temperature changes, long, cold winters (October-April), short summers, and some of the highest recorded barometric pressures in the world. The mean monthly temperature at Ulaanbaatar ranges from -27C (-17F) in January to 18C (64F) in July, with recorded extremes of -48C (-54F) and 39C (102F). Precipitation averages 25.4 centimeters (10 in.) annually at Ulaanbaatar.

Life in sparsely-populated Mongolia has become more urbanized and sedentary. The birth rate is estimated at 3.3% - about one-half of the more than 2 million people are under the age of 20, and three-fourths of the total population are under age 30. Forty-nine percent of all children are pre-school age. There are more than 50,000 families with five or more children. Approximately 25% of the people live in the capital; another 32% live in various provincial centers. In the countryside, nomadic life still predominates.

Mongolians account for about 90% of the population. The several Mongolian groups are distinguished primarily by their dialects. The major group consists of Khalkha Mongols (75%). Non-Khalkhas total about 8% of the population--Durbet Mongols and others in the north, and Dariganga Mongols in the east. Turkic speakers (Kazakhs, Turvins, and Khotans) constitute 7% of the population, and the rest are Tungusic-speakers, Chinese, and Russians. After the Mongolians declared independence from the former Soviet Union in 1989, many Russians left Mongolia.

Traditionally, Tibetan Buddhist Lamaism was the predominant religion. However, it was suppressed under the communist regime until 1990, with only one showcase monastery allowed to remain. In early 1990, as liberalization began, Buddhism enjoyed a resurgence in Mongolia.

About 4 million Mongols live outside Mongolia; approximately 3.4 million in China, mainly in the Inner Mongolia Autonomous Region, and about 500,000 in Russia, primarily in Buryat Mongolia and the Kalmyk Autonomous Republic.

In A.D. 1203, a single Mongolian state was formed based on nomadic tribal groupings under the leadership of Genghis Khan. He and his immediate successors conquered nearly all of Asia and European Russia and sent armies as far afield as Central Europe and Southeast Asia. Genghis Khan's grandson Kublai Khan, who conquered China and established the Yuan dynasty (1279-1368 A.D.), gained fame in Europe through the writings of Marco Polo. Although Mongol-led confederations sometimes exercised wide political power over their conquered territories, their strength declined rapidly after the Mongol dynasty in China was overthrown in 1368.

The Manchus, another tribal group, who conquered China in 1644 and formed the Qing dynasty, were able to bring Mongolia under Manchu suzerainty in 1691 as Outer Mongolia when the Khalkha Mongol nobles swore an oath of allegiance to the Manchu emperor. The Mongol rulers of Outer Mongolia enjoyed considerable autonomy under the Manchus, and all Chinese claims to Outer Mongolia following the establishment of the republic have rested on this oath. In 1727, Russia and Manchu China concluded the Treaty of Kiakhta, delimiting the border between China and Mongolia that exists in large part today.

Outer Mongolia was a Chinese province from 1691 to 1911, an autonomous state under Russian protection from 1912 to 1919, and again a Chinese province from 1919 to 1921. As Manchu authority in China waned, and as Russia and Japan confronted each other, Russia gave arms and diplomatic support to nationalists among the Mongol religious leaders and nobles. The Mongols accepted Russian aid and proclaimed their independence of Chinese rule in December 1911, shortly after a successful Chinese revolt against the Manchus in October. By agreements signed in 1913 and 1915, the Russian Government forced the new Chinese Republican Government to accept Mongolian autonomy under continued Chinese suzerainty, presumably to discourage other foreign powers from approaching a newly independent Mongolian state that would be looking for support from as many foreign sources as possible.

The Russian revolution and civil war afforded Chinese warlords an opportunity to reestablish their rule in Outer Mongolia, and Chinese troops were dispatched there in 1919. Following Soviet military victories over White Russian forces in the early 1920s, Moscow again became the major outside influence on Mongolia. Under the revolutionary leaders Sukhe Bator and Choybalsan, the Mongolian People's Republic was proclaimed on November 26, 1924.

The Mongolian Government was modeled on the Soviet system, and until May 1990, only the Mongolian communist party--the Mongolian's People's Revolutionary Party (MPRP)--was officially permitted to function. After some instability during the first two decades of communist rule in Mongolia, there was no significant popular unrest until December 1989. Collectivization of animal husbandry, introduction of agriculture, and the extension of fixed abodes were all carried out without perceptible popular opposition.

The birth of perestroika in the former Soviet Union and the democracy movement in Eastern Europe were mirrored in Mongolia. The first demonstrations were held in Ulaanbaatar in December 1989; the development of this democracy movement brought swift and peaceful changes in Mongolia. The government adopted a positive approach toward reform.

The dramatic shift toward reform actually started in 1990. At that time, the first organized opposition group, the Mongolian Democratic Union, appeared. In the face of popular demands for faster reform, the leadership of the MPRP resigned in March 1990. In May the Constitution was amended, deleting reference to the MPRP's role as the guiding force in the country, legalizing opposition parties, creating a standing legislative body (Baga Hural) and establishing the office of President. Mongolia's first multiparty elections were held on July 29, 1990.

A People's Great Hural was elected on July 29, 1990. Voters also cast ballots in a party preference poll indicating their support for one of the parties registered to compete in the election. The MPRP won 85% of the seats in the People's Great Hural and 60% of the seats in the Baga Hural.

The newly-elected People's Great Hural first met on September 3 and elected a President (MPRP), Vice President (SDP, also Chairman of the Baga Hural) and a Prime Minister (MPRP). It also elected 50 members to the Baga Hural (small Hural, standing congress) based on the results of the party preference poll. The State Baga Hural started work on adopting draft programs for the socio and economic development and the state budget for the future.

The MPRP formed a coalition with the Mongolian Democratic Party (MDP) and the Party of National Progress (PNP) to govern until the 1992 parliamentary elections. Another democratic party, the Social Democrats (SDP), declined to join the coalition. A "unity cabinet" approved by the Baga Hural contained 13 representatives from the MPRP, one each from the MDP and the PNP.

In November 1991 the Great Hural held a second session to begin discussion on a new constitution. The intense debate over the draft document resulted in the first formal split in the ranks of the MPRP.

The new constitution was approved January 13, 1992, and entered into force February 12. In addition to establishing Mongolia as an independent, sovereign republic and guaranteeing a number of rights and freedoms, the new constitution restructured the legislative branch of government, creating a unicameral body with 76 members. To accomplish this change, new election laws were passed, becoming effective on April 8, and the Baga Hural established a 13-member "central electoral commission" in April to organize the parliamentary election. Commission members were required to suspend political party membership while serving on the commission. Thirteen parties were registered to participate in the June 1992 election out of a total of sixteen announced parties.

The constitution also provided that the President would be elected by popular vote rather than appointed by the legislature as before. Elections for a new President are scheduled for June 1993. The new unicameral body, the State Great Hural (SGH) will continue to appoint the Prime Minister, and approve the Prime Minister's proposals, in consultation with the President, for members of the Government.

The SGH was first elected on June 28, 1992. The members are popularly elected by district for four year terms. As the supreme government organ, the SGH is empowered to: enact and amend laws; determine domestic and foreign policy; ratify or denounce international agreements; and, declare a state of emergency. The SGH meets semi-annually with each session lasting at least 75 working days. The chairman and vice chairman are elected by SGH members and serve four year terms.

The government, headed by the prime minister, has a four year term. The prime minister is nominated by the president and confirmed by the SGH. The prime minister chooses a cabinet, subject to SGH approval. Dissolution of the government occurs upon the prime minister's resignation, simultaneous resignation of half the cabinet, or after an SGH vote for dissolution.

The President is the head of state, commander-in-chief of the armed forces and head of the national security council. He and the Vice President are popularly elected by a national majority for a four year term and are limited to two terms. The constitution empowers the president to: propose a prime minister; call for the government's dissolution; initiate legislation; veto all or parts of legislation (the SGH can override the veto with a two-thirds majority); and, issue decrees, which become effective with the prime minister's signature. In the absence, incapacity, or resignation of the president, the SGH chairman exercises presidential power until inauguration of a newly-elected president.

Local hurals are elected by the 18 aimags (provinces) plus the capital, Ulaanbaatar and, on the next lower administrative level, by somon (in the provinces) and horoo (in Ulaanbaatar and the municipalities).

Political Parties

Registered for the June 1992 election:

Bourgeois Party (Bourgeois);
Green Party (Greens);
Mongolian Independence Party (Independence);
Mongolian People's Revolutionary Party (MPRP);
Mongolian Renaissance Party (MRP);
Social Democratic Party (SDP);
United Party of Farmers and Herdsmen (Herdsmen);
United Party of Private Property Owners (PPOP).

Coalitions

Mongolian Democratic Party (MDP);
Party of National Progress (PNP);
United Party (UP).

Mongolian People's Party (MPP);
Buddhist Democratic Party.

Other Parties:

Free Labor Party (FLP);
Republican Party (RP);
Mongolian Worker's Party (MWP);
Union of Mongolian Students.

PRINCIPAL GOVERNMENT OFFICIALS (May, 1992)

President--Punsalmaagiyn Ochirbat (MPRP)
Vice President and Chairman of the Baga Hural--Radnaasumbereliin Gonchigdorj (SDP)
Prime Minister--Dashiyn Byambasuren (MPRP)
First Deputy Prime Minister--Dabaadorjiin Ganbold (PNP)
Deputy Prime Ministers:
    Choijilsurengiin Purevdorj (MPRP)
    Dambyn Dorligjav (MDP)

Ministers

Minister of Agriculture--D. Radnaaragchaa (MPRP)
Minister of Defense--Sh. Jadambaa (MPRP)
Minister of Education--N. Urtnasan (MPRP)
Minister of Energy--B. Jigjid (MPRP)
Minister of Finance--A. Bazarhuu (MPRP)
Minister of External Relations--T. Gombosuren (MPRP)
Minister of Health-- P. Nyamdavaa (MPRP)
Minister of Justice--J. Amarsanaa (MPRP)
Minister of Labor--Ts. Tsolmon (MPRP)
Minister of National Development--J. Batsuur (MPRP)
Minister of Trade and Industry--S. Bayarbaatar (MPRP)

Chairman of the State Committee for Environmental Inspection and Minister of State--Z. Batjargal

State Security Department--J. Baatar

Before the new constitution entered into force February 12, 1992, justice was administered by the court system and the Office of the Procurator. The Supreme Court was elected by the People's Great Hural, with lower courts elected locally. The People's Great Hural appointed the Procurator, who in turn appointed lower level procurators. The Procurator and the Supreme Court were accountable to the Great People's Hural and its Presidium.

The new constitution empowered a General Council of Courts (GCC) to select all judges and protect their rights. The Supreme Court is the highest judicial body. Justices are nominated by the GCC and confirmed by the SGH and president. The Court is constitutionally empowered to examine all lower court decisions, excluding specialized court rulings, upon appeal and supervision and provide official interpretations on all laws except the constitution.

Specialized civil, criminal, and administrative courts exist at all administrative levels and are not subject to supreme court supervision. Local authorities, district and city governors, assure that these courts abide by presidential decrees and SGH decisions. At the apex of the judicial system is the Constitutional Court which consists of nine members, including a chairman, appointed for six year terms, whose jurisdiction extends solely over the interpretation of the constitution.

Historically, Mongolia's foreign relations have focused on its two neighbors, the Soviet Union and China. In the early 1960s, Mongolia attempted to maintain a neutral position amidst increasingly contentious Sino-Soviet polemics; this orientation changed in the middle of the decade. Mongolia and the Soviet Union signed a new agreement in 1966, which constituted the umbrella for the reintroduction of large-scale Soviet ground forces in the context of Moscow's general buildup along the Sino-Soviet frontier.

During the period of Sino-Soviet tensions, relations between Mongolia and China also deteriorated. In 1983, the MPR began systematically expelling some of the 7,000 ethnic Chinese in Mongolia back to China, despite the fact that many of them had lived in the MPR since the 1950s, when many Chinese were sent there to assist in construction projects.

Many factors may have motivated this shift: an historical Mongolian antipathy for the Chinese; continued tensions on the Sino-Mongolian border (despite a 1964 demarcation); statements attributed to Beijing suggesting a continued interest among some Chinese for reannexing Mongolia; Russia's historical counterbalancing of Chinese influence; and heavy Mongolian dependence on Soviet economic aid.

In the wake of the collapse of the international socialist economic system and the disintegration of the former Soviet Union, the Mongolians began to pursue an "open, independent and non-aligned foreign policy." The Prime Minister called for co-existence with all nations. Due to Mongolia's landlocked position between the newly independent republics and China, it was essential to continue and improve relations with these countries.

China

Mongolian relations with China began to improve in the mid-1980s when consular agreements were reached and cross-border trade contacts expanded. In 1989 China and Mongolia exchanged foreign minister visits. In May 1990 a Mongolian head of state visited China for the first time in 28 years. 1991 saw the further successful development of Mongolian-Chinese relations. Chinese President and Executive Vice Chairman of the Central Military Commission, Yang Shangkun, visited Mongolia that year, marking the first visit by a Chinese head of State. Several agreements were signed during the visit. Yang praised the establishment of direct ties between a number of Mongolian ministries, organizations, local areas and private firms and their Chinese counterparts. The Mongolian Premier visited Yang in Beijing in May, 1992. That month the Chinese and Mongolians signed an agreement establishing new border crossing points.

Russia

The disintegration of the former Soviet Union meant that Mongolia had to develop relations with the newly independent states. Links with Russia and other republics were essential to contribute to stabilization of the Mongolian economy. The primary difficulties in developing fruitful coordination occurred because the newly-independent states were going through the same political and economic restructuring as Mongolia. Despite these difficulties, the Mongolians and Russians successfully negotiated both a 1991 Joint Declaration of Cooperation and a bilateral trade agreement. The Prime Minister visited Russia in March, 1992, and that visit resulted in an Intergovernmental Commission on Trade and Cooperation, allowing faster transport of goods and exempting the Mongolian exports from Russian customs duties. Soviet troop withdrawals from Mongolia began in 1987. Under the terms of a 1990 Mongolian-Soviet accord, Soviet troop withdrawal should be completed by September, 1992.

In 1992, Russian Parliamentarians visited Mongolia at the invitation of the State Small Hural. In April, 1992, the Russian Ambassador presented his credentials to the Mongolian Prime Minister.

Asia

Mongolians believe it is important to establish a more balanced non-aligned foreign policy. In that vein, and in placing greater emphasis on relations with Asian Pacific countries, the Mongolians have worked to expand relations with Japan and Korea. Mongolia's Prime Minister visited Japan in March 1990. The Mongolians also established diplomatic relations with South Korea in March 1990. Mongolia's President attended Emperor Akihito's coronation, and Japan's Prime Minister visited Mongolia in August 1991. The Mongols expressed great appreciation for direct Japanese financial assistance as well as Japan's coordination of international assistance to Mongolia. During the Mongolian President's visit to Korea in 1991, seven agreements and treaties were signed, providing the legal basis for further expanding bilateral relations.

In April, 1992, a Mongolian delegation attended their first forum of Parliament leaders of countries of Asia and the Pacific in Hawaii.

United States

The U.S. Government recognized Mongolia in January 1987 and established its first Embassy in Ulaanbaatar in June 1988, which opened formally in September 1988 with the presentation of credentials by the U.S. Ambassador. After administrative preparations were completed, the Embassy opened on a year-round basis in June 1989. The first United States Ambassador to Mongolia, Richard L. Williams, was not resident there; Joseph E. Lake, the first resident Ambassador, arrived in July 1990. Secretary of State James A. Baker III visited Mongolia in August 1990 and again in July, 1991. The Mongolian People's Republic accredited its first Ambassador to the United States in March 1989.

The U.S. has sought to assist Mongolia's movement toward democracy and market-oriented reform and to expand relations with Mongolia primarily in the cultural and economic fields. The U.S. granted Mongolia Most Favored Nation status, and a special congressional resolution was passed expressing support for Mongolia's transition to political democracy and a market economy. The U.S. has contributed financial assistance to aid Mongolia's transition. In 1989 and 1990 a cultural accord, Peace Corps accord, consular convention and Overseas Private Investment Corporation (OPIC) agreement were signed. A trade agreement has also been signed.

EUROPE

During 1991, Mongolia signed investment promotion and protection agreements with Germany and France, and a cooperation agreement with the UK. Germany agreed to continue cooperative programs originally established by the former East Germany, and also provided DM 20 million in loans and aid. Mongolia has sought to develop closer relations with other countries in both eastern and western Europe, and hopes to receive Most Favored Nation status from the members of the EC. The Prime Minister toured in Germany, France, Belgium and EC Headquarters seeking economic cooperation.

GENERAL POLICY

The Mongolians, in pursuing a general policy of expanding relations to as many countries as possible, have made official visits (high level officials and/or parliamentarians) to a number of other countries, including Australia, Nepal, the Philippines, and Pakistan, and have established diplomatic relations with a number of nations, even those as far flung as Oman and Brunei, among others. The Israelis will accredit an ambassador to Mongolia from Tokyo.

ECONOMY

In the 1980s Mongolia's industrial sector became increasingly important. By 1989 it accounted for an estimated 34% of net material product compared to 18% from agriculture. However, minerals, animals and animal derived products still constituted a large proportion of Mongolia's exports. Principal imports included machinery, petroleum, cloth, and building materials. Almost all Mongolian foreign trade was conducted with the Soviet Union and East European countries. In the late 1980s the government began to improve links with noncommunist Asia and the West, and a growing tourist trade began to make the country better known to the outside world.

Since World War II Mongolians have begun coal, copper, and molybdenum mining, grain and fodder production, consumer goods and construction material production, fishing, and development of a food-processing industry. The railway linking Moscow, Ulaanbaatar, and Beijing, completed in 1955, provides a shorter route between the U.S.S.R. and China than that available through Manchuria. Mongolia also has internal and international airline service.

The rapid changes of 1990-91 marked the beginning of Mongolia's efforts to develop a market economy, but these efforts have been complicated and disrupted by the continuing deterioration of the economy of the former Soviet Union. Prior to 1991 eighty percent of Mongolia's trade was with the Soviet Union, and another fifteen percent with other CMEA countries.

As of January 1, 1991, Mongolia and the USSR agreed to conduct bilateral trade in hard currency at world prices. Neither Mongolia nor Russia has been able to keep this agreement, resulting in a sharp drop in trade and deterioration of Mongolia's economy, infrastructure, and standard of living. Mongolia was highly dependent upon the Soviet Union for fuel, medicine, and spare parts for its factories and power plants. The USSR also served as the primary market for Mongolian industry.

Despite its external trade difficulties Mongolia has continued to press ahead with reform. Privatization of small shops and enterprises has been largely completed, and most prices have been freed. Privatization of large state enterprises has been initiated. Tax reforms have been started, and the barter and official exchange rates were unified in early 1992.

Prospects for development away from reliance on nomadic, livestock-based agriculture are constrained by Mongolia's land-locked location and lack of basic infrastructure. Mongolia's best hope for accelerated growth is to attract more foreign investment by further liberalizing the economy and expanding trade with non-traditional partners.

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Foreign aid has been necessary, and in the past the Soviet Union was the principal source of aid and credit. Mongolia's estimated debt to the former Soviet Union in 1992 was over 10 billion transferable rubles. Considerable technical assistance also came from the Soviet Union and East European countries. Mongolia is now seeking foreign assistance and investment from the west and international financial institutions in order to replace declining Soviet aid and to promote development of a market economy.

In 1991 the U.S. Agency for International Development (AID) initiated a program of technical assistance and training in Mongolia. The United States also provided approximately 30,000 tons of wheat and flour in 1991 to help alleviate a severe food shortage. In addition, the U.S. has provided ESF funds to Mongolia in the sum of $10 million in 1991 and $12 million in 1992.

With strong support from the United States, Mongolia joined the International Monetary Fund, the World Bank, and the Asian Development Bank in early 1991. All three institutions are providing technical, financial, and project aid. The United States worked closely with Japan and the international organizations to organize three donor group meetings in late 1991 and early 1992. These meetings succeeded in raising and coordinating substantial financial and development assistance for Mongolia.

Chronology of Mongolian History
1920-present

March 13, 1921: Provisional People's Government declares independence of Mongolia.

May 31, 1924: USSR signs agreement with Peking government, referring to Outer Mongolia as an "integral part of the Republic of China," whose "sovereignty" therein the Soviet Union promises to respect.

May-September 16, 1939: Large-scale fighting takes place between Japanese and Soviet-Mongolian forces along Khalkhyn Gol on MPR-Manchuria border, ending in defeat of the Japanese expeditionary force. Truce negotiated between USSR and Japan.

October 6, 1949: Newly established People's Republic of China accepts recognition accorded MPR and agrees to establish diplomatic relations.

January 27, 1987: Diplomatic relations established with the United States.

December 1989: First popular reform demonstrations. Mongolian Democratic Association organized.

March 2, 1990: Soviets and Mongolians announce that all Soviet troops will be withdrawn from Mongolia by 1992.

May 1990: Constitution amended to provide for multiparty system and new elections.

July 29, 1990: First Democratic elections held.

September 3, 1990: First Democratically elected People's Great Hural takes office.

February 12, 1992: New constitution goes into effect.

April 8, 1992: New election law passed.

June 28, 1992: Election for the first unicameral legislature (State Great Hural).

The 1992 Mongolia Background Notes were produced by the Bureau of East Asian and Pacific Affairs, Office of Chinese and Mongolian Affairs, Department of State, Room 4318 NS (tel. 202-647-6300, fax 202-647-6820). We welcome your comments.

THE HOST COUNTRY

AREA, GEOGRAPHY, AND CLIMATE

Mongolia is a large, sparsely populated country located between China and Russia and having an area of just over 600,000 square miles. This makes it slightly smaller than the combined area of Texas, Arizona, New Mexico, and Louisiana combined. The elevation at the capital, Ulaanbaatar, is 4,500 feet above sea level. The elevation, and the distance from any ocean or sea, means that Mongolia enjoys a continental climate, typified by marked seasonal, even daily, changes in temperature, numerous high pressure systems, and severe cold during much of the year.

Mountain ranges divide the country into three basic zones: the Gobi, a vast, dry grassland in the east and south; the low Hangai mountains of the north, and the high Altai mountains of the west and northwest. Mongolia's largest lake is in Hovsgol Aimag, in the Altai, where elevations range up to 15,000 feet. There are three major river systems, the Tuul, which runs through Ulaanbaatar, the Orhon, into which the Tuul flows and which in turn flows into Lake Baikhal, and the Selenge, in the northeast.

POPULATION

A quarter or more of Mongolia's roughly two million people live in the capital city, many in the "ger villages" around the outskirts of Ulaanbaatar. Other cities are Erdenet, which is the site of a large copper mine, and Darhan. Both of these cities are north of Ulaanbaatar, and are served by the rail line that runs from Beijing to Moscow through Mongolia.

Just under half the population is under the age of 30. The literacy rate is quite high, but unemployment has become a problem, particularly for young men released from military service as Mongolia cuts back on its defense budget.

The majority of Mongolians living in Mongolia belong to the Khalka Mongol ethnic group. Approximately three million other Mongols, primarily of the Chahar ethnic group, reside in the Inner Mongolian Autonomous Region of China, and Buryat Mongols live in north Mongolia and in the Buryat Autonomous Region of Russia, east of Lake Baikhal. Another Mongol ethnic group resides in the Kalmyk Autonomous Republic. In the west are populations of Khazaks, with ties to neighboring Khazakstan. A number of smaller ethnic groups reside in scattered areas of Mongolia.

PUBLIC INSTITUTIONS

Mongolia has 18 aimags, or provinces, and three autonomous cities (Ulaanbaatar, Erdenet, and Darhan). A new constitution was signed in February 1992, which established the current government structure.

The primary, legislative body, the State Great Hural, is unicameral, with 76 members, each elected by secret ballot of the citizens for four-year terms. The Hural will enact, amend, and supervise the implementation of laws, determine fiscal policies, set dates for elections of the Hural and the President, appoint the Prime Minister and other officials, and engage in other activities.

The President is the head of State, subject to direct election for a maximum of two four-year terms. He has veto power over legislation; he can propose, in consultation with the majority party or parties, names for Prime Minister; he can propose dissolution of the government, or instruct the government and issue decrees, which must be signed by the Prime Minister; he represents Mongolia in foreign relations, may enter into treaties, subject to ratification by the Hural; propose legislation; and he serves as commander-in-chief and heads the National Security Council.

The Prime Minister heads the government and is appointed by the State Great Hural. His resignation dissolves the government.

Judges are independent, and are nominated by a General Council and confirmed by the President, and, in the case of Supreme Court judges, the State Great Hural. There are specialized courts for criminal, civil, and administrative matters, which are not subject to Supreme Court review. The Supreme Court does have power to act as court of first instance for certain criminal and other actions, examine lower court decisions by appeal, examine questions transferred to it by the Constitutional Court or Prosecutor General, provide official interpretations of all laws except the Constitution, and make judgments on other matters assigned by law. Trials are open, in the Mongolian language, and with right to counsel.

The Constitutional Court's members are appointed by the State Great Hural for six year terms. The nine members are nominated by the Hural (3), the President (3), and the Supreme Court (3). The Court interprets the Constitution, acting upon the request of the President, Prime Minister, Hural, Supreme court, Prosecutor General, or on its own motion. In addition to reviewing the conformity of treaties and legislative acts with the Constitution, the Court may invalidate any that are not in conformity with the Constitution. It may also examine breaches of law by the President, Prime Minister or other Minister, the Prosecutor General, and members of the State Great Hural or Supreme Court.

Aimags each have local legislative hurals in four-year terms. Each aimag will enjoy some rights of self-government. Governors for aimags and Ulaanbaatar City will be appointed by the Prime Minister, and will in turn appoint governors of the somons (sub-units of the aimags, roughly equivalent to counties), and various districts of Ulaanbaatar. Local hurals will legislate local issues.

This new constitution was the outgrowth of earlier events. In

the first half of 1990, Mongolian citizens held mass demonstrations in the capital, demanding an end to communist rule and the socialist system. The government acquiesced, and the first free elections were held in July 1990. While the communist Mongolian Peoples' Revolutionary Party (MPRP) won the majority of seats in the national legislature, the reform movement gathered strength. Together with the MPRP, it formed a unity government, which undertook political and economic reforms, which culminated in the new constitution described above. In addition, the star at the top of the Mongolian flag was removed, and the state seal was changed to a modernist flying horse design.

Mongolia now claims 16 political parties, including the Mongolian Democratic Party, the Social Democrats, the Party of National Progress, the Free Labor Party, and the Green Party, as well as the MPRP. New elections are planned for June 1992.

ARTS, SCIENCE, AND EDUCATION

Eight years of education are compulsory, although the drop out rates have increased in the recent past. Literacy rates generally top 90 per cent. In 1991, Mongolia boasted 878,000 graduates from all levels of education (elementary/high schools, trade and vocational schools, universities, and graduate institutes). These numbers are slightly lower than in prior years. In 1991, there were 4,682,000 students at all levels.

In addition to the schools operated by the state, private schools are now permitted. In 1991, seven graduate institutes, one trade school, and one technical school began holding classes.

COMMERCE AND INDUSTRY

In the past, most supplies for Mongolian industry were obtained from various republics of the Soviet Union and members of Comecon. Following the cataclysmic changes in the USSR as well as Mongolia, the amount of many supplies, particularly explosives, petroleum and petroleum products, wheat and other food stuffs, has been totally insufficient.

Mongolia's own industries include production of cashmere, skins and leathers, furs and animal hair, coal and minerals, and other raw materials. Coal is not exported at the present time, as the heating and power industries consume the entire production. Foreign exchange losses in 1991-1992 have led to a slowing of growth, and a drop in the GDP levels, which had reached $1.9 billion according to Mongolian government figures.

Natural resources in Mongolia include coal, copper, molybdenum, iron, phosphates, tin, nickel, zinc, wolfram, fluorspar, gold, and uranium. Joint ventures with western companies in oil exploration and gold mining are in the works. The growing season for this high, dry, northern country is quite short, but wheat, oats, barley, fodder, and some vegetables are grown.

The principal industry, however, is livestock production, in which roughly 45% of the population engages.

One major problem Mongolia faces in expanding trade ties with foreign countries is the shortage of bulk transport facilities. One railroad line traverses the country, having a broad gauge track, which necessitates the substitution of wheels at the Chinese border. This rail route allows for shipments to Tianjin, China, in one direction, and to Moscow or Vladivostock in the other. Both Russian and Chinese rail lines are subject to lengthy delays in shipment. International air routes are via Beijing and Moscow, but the amount of freight that may be forwarded by this method is limited by space and the high costs of shipment.

Mongolia is actively seeking trading partners in the west, and receives aid through a coalition of donor countries that includes the United States, Japan, Germany, and others. A stock exchange recently opened in Ulaanbaatar, and privatization of publicly-held companies in addition to the establishment of private businesses should improve Mongolia's prospects for earnings over the middle term.

Local

Ulaanbaatar and the surrounding area are served by buses and trolleys. The price is low, and the buses are generally very crowded. Look out for pick-pockets on the bus. There are no taxis in Ulaanbaatar at the present time, but it is quite common to flag down a private car for a lift. A small donation ($1.00-2.00) to the driver would be appreciated.

Regional

Transportation to other cities is by train for those communities that abut the tracks, and by air and long distance bus.

Road conditions in Mongolia vary greatly. While the major highways are predominantly paved, the roads are not very wide, and have no lane markings. Other roads are dirt. In most rural locations, there are no roads at all, but tracks across country. Rain makes many routes impassable.

COMMUNICATIONS

Telephone and Telegraph

Telephone service in Ulaanbaatar is fair. Busy lines and crossed lines are common, and phones may ring when no-one is calling for hours at a stretch. A call may be made to any location within Mongolia where there is a phone, at no charge.

Phones for international calls are available at the Central Post Office and at the Ulaanbaatar Hotel. International calls may also be made through the international operator (in Russian and in Mongolian) from the office or from home. Delays of 2 to 12 hours are common in completing international phone calls.

The Embassy possesses a satellite telephone, which may be used for official calls, or personal calls at cost ($10.00 per minute). After-hours use of this telephone is strongly discouraged, since it rings in the Ambassador's bedroom.

The Embassy has a telex. Telexes to the United States cost $5.00 per minute.

Radio and TV

Embassy personnel have received BBC, VOA, and Radio Moscow programming, although reception can be affected by weather and sunspot activity. Local programming is in Mongolian and Russian.

Mongolian television programming is PAL, so a multi-system set is needed. Most programming is in Mongolian and Russian, but some English-language programming is offered from time to time.

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The Embassy is on the Navy Movie Circuit, and will subscribe to BBC World Service and an entertainment channel through Star TV in Hong Kong.

Newspapers, Magazines, and Technical Journals

An English-language, two-page newsletter, the "Mongol Messenger", is published weekly. It gives news of ongoing events, cultural opportunities, and interviews with Mongolian officials. Employees should plan to subscribe to and forward by mail any other publications they wish to receive.

Community Health

No unusual health problems or hazards exist, although frequent colds do occur. Tap water may be rusty, and is boiled and filtered for drinking and cooking, but dishes may be washed without ill effect. Trash is removed from the apartment building and the Chancery on a regular basis. In warm months, flies and mosquitoes can be a nuisance. Avoid flea bites by wearing long pants and socks in the summer in the country (fleas may carry plague germs).

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The German Embassy maintains a list of blood donors in the international official community.

AMERICAN EMBASSY

ULAANBAATAR

Ulaanbaatar, the capital of Mongolia, is located in the north central part of Mongolia, approximately 420 miles (675 kilometers) from the Chinese border at Erlian (by train), and 180 miles (290 km) from the Russian border at Ulan Ude. Its 4500-foot altitude and continental location make Ulaanbaatar the coldest capital city in the world. Ulaanbaatar is a 25% differential post, with two R&Rs in a two-year tour, with Rome as the authorized R&R point.

Ulaanbaatar ("Red Hero") has been so named since the socialist revolution in 1921. It was formerly called Urga and Ikh Huroo ("Big Circle") when it was the center of the government of its last ruler, the Buddha Bogda Khan. Of the many monasteries extant in 1920, only one remained open until 1991 during the communist period.

The present city of some 600,000 inhabitants is typified by wide streets, large concrete government structures, movie theaters, cultural facilities, and apartment buildings. The focal point of Ulaanbaatar is Sukhbaatar Square, which is surrounded by Government House, art shops, the new stock exchange, the central post office, and two cultural halls, as well as Ulaanbaatar's main thoroughfare, Enkh Taivan Gudumj (Peace Avenue). The Hotel Ulaanbaatar and the Ministry of Foreign Relations are close by. Sukhbaatar Square is dominated by a statue of this Socialist Revolutionary hero, who is buried here in a tomb modeled on Lenin's Tomb in Moscow's Red Square. It is a popular place for wedding photos, and easily accommodates the 400-500,000 people who attend the annual parade at

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Naadam, the national festival (July 11-12).

To north and south lies the Bogda Khan mountain range, which is trisected in Ulaanbaatar by the Tuul and Selbe Rivers. Train travelers from Russia will pass through the valleys of the Selenge, which ends in Lake Baikhal, and Orhon Rivers, passing through rolling steppe country, covered by wild flowers in the early summer, and larch trees in the valleys and hollows. Those traveling on to China by train will soon enter the Gobi dessert, a predominantly flat steppe of scrubby grassland and roving sheep and camel herds.

An average of 236 days of the year are -- blue skies and sunshine make even the coldest temperatures seem pleasant.

Utilities and Equipment

Utilities (except for telephone) are paid by post.

Electric current is 220-240 volts 50 cycle. Current may be erratic and power outages frequently occur. Bring a surge protector for expensive electrical equipment. Invest in an uninterruptible power supply for computer equipment. Water shortages can occur, particularly in the spring. Each apartment is provided with two 5-gallon plastic jerry cans for water storage. It is strongly recommended that employees bring a battery recharger and rechargeable batteries for flashlights, toys, and other battery-operated equipment.

Bring at least two spare fuses for each TV, stereo, and other piece of electrical equipment brought to post. Antenna wires, connectors, and schematic diagrams may assist in repairs at post. Spare parts and repair items are not available at post.

Multi-system television sets and cassette recorders may be available locally, but will be quite expensive. Mongolian television broadcasts Russian and Mongolian programming, and limited English-language programming, on the PAL system. The Embassy is now in the process of obtaining a satellite system that will receive Star-TV programming from Hong Kong, to include the BBC World Service, and the entertainment channel (all NTSC). Short-wave radio brings in BBC, VOA, Radio Moscow, and other international broadcasts.

Food supplies, such as imported canned goods, eggs, and meat can be purchased in local dollar stores on an irregular basis. During the winter months of 1992, an egg seller and a vegetable seller have come to the embassy roughly once a week. Local supplies of other food stuffs, however, have become increasingly

CLOTHING

Because temperatures in Mongolia can range from summertime highs of 90 degrees F to wintertime lows of -30 to -40 degrees F, a wide range of clothing is necessary. Winter clothing needs are especially critical in order to avoid hypothermia. Every family member needs a warm coat, a warm hat, heavy gloves or mittens, scarf, and boots. Bring a down parka for informal occasions, such as winter picnics and sporting activities. Fur coats, leather hats, cashmere sweaters and gloves, camel hair sweaters, cashmere scarves, and sheepskin lined boots can be purchased quite reasonably in Ulaanbaatar. Summer rains warrant boots, umbrella, and a water-proof coat. Heavy snow is uncommon in the city, but for trips to the countryside, arctic boots, moon boots, or "pacs" are highly desirable. Thermal underwear, sweaters, a down vest, down booties, wool socks, silk underwear, even electric socks should be brought. If traveling to Ulaanbaatar in the late summer, some of these items should be included in your airfreight shipment.

Men:

A heavy wool topcoat or dress parka for winter and a lighter top coat for spring and fall are desirable. Warm gloves, boots, and sweaters are essential. Some buildings seem uncomfortably warm in winter, while others are barely warm enough. During unheated months, cold temperatures may still be a problem. Sweaters, vests, light-weight underwear that can be worn under daytime wear are all useful. Bring clothing for outdoor sports. Office wear is generally formal; dark suits are worn to official meetings and representational events. One officer wore his tuxedo to the Marine Ball in Beijing.

Women:

Plan on wearing the same clothing you would at the Department.

Good shoes and nylons under skirts, dresses and suits are the usual. Although Mongolians tend to be formal dressers, a certain relaxation in styles is occurring in Ulaanbaatar of late. However, you should bring dresses suitable for representational functions and formal occasions (the German Embassy now sponsors an annual dinner dance), as well as for receptions and the theater. Slacks are still uncommon; shorts are not worn in public. Wool clothing for the winter, and cotton clothing for the summer are common. A warm, fairly dressy overcoat (down or fur) and wool overcoat will be sufficient for non-summer seasons.

Dry cleaning is available locally but not recommended. Clothes can be dry cleaned on courier runs to Beijing. Washable woolens and silks are recommended.

Bring one or two formal dresses. Bring warm boots for outdoor activities, thermal socks, warm gloves or mittens, and thermal underwear. For summer, sportswear and even a bathing suit, for year-round, a large supply of hose and winter tights should be brought.

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The only foreign schools in Ulaanbaatar have been operated by the Soviet Union. With the reductions in assistance from Moscow following the dissolution of the Soviet Union and the switch in Mongolia away from communism, it is not clear that these schools will remain open. In 1990 and 1991, the young daughter of one FSO attended a Mongolian nursery school.

Away from Post

Request a list of overseas boarding schools with English instruction from the State Department's Office of Overseas Schools or the Allowances staff. An education allowance is available for grades K-12. You may also wish to consider home instruction.

Post Orientation Program

Upon arrival, new employees receive a packet of written material. A suggestion for consumables shipment is on file with the Overseas Briefing Center and may be requested from personnel at Post. With the present staff size, no formal orientation program is given at post.

RECREATION AND SOCIAL LIFE

Sports

No sports facilities are available for unlimited use by post personnel. There are three tennis courts operated by the Mongolian government, but they have not been used except by special invitation. Three pieces of exercise equipment are available for shared use -- a rowing machine, a stationary bicycle, and a stair machine. Members of the international community sometimes organize hikes, fishing trips, and picnics on an ad hoc basis. Several of the Ministries and other government bodies have access to resort hostels in the surrounding countryside, which can be rented out to members of the official community. Horseback riding is possible for members of the Mongol Horse Society (membership fee is approximately $10.00 per year). Some American students attending the university in Ulaanbaatar have joined a swimming club at an indoor pool.

Touring and Outdoor Activities

During the warmer months (May to October), tours may be taken to other parts of Mongolia. These trips are usually arranged through Zhuulchin, the Mongolian tourism bureau. A trip to the Gobi costs $200.00 round trip for transportation and $180.00 for a night's stay in a ger. Each ger will accommodate 1-3 people. A trip to the tourist camp outside Ulaanbaatar, Terelj, costs $100.00 for the hotel per person. By special request, Zhuulchin will attempt to make the 160 km round trip to Terelj and back in one day.

Ulaanbaatar offers a variety of museums and sites that may be

visited in one day. These include the Gandan monastery, Bogda Khan palace, the winter residence of Mongolia's last khan, the Central Museum with its dusty but outstanding collections of dinosaur bones and native costumes, and the Fine Arts Museum, in which exquisite panel embroideries are on display.

Weekends are nice for trips to the country, where you can walk, climb rocks, birdwatch, fish (a license is necessary), picnic, engage in cross-country skiing, and enjoy the fresh air. With proper clothing, outdoor activities can be enjoyed all year. The country has nearly limitless areas for camping. In summer months, it is wise to wear long pants to avoid flea bites. Fleas that infest the Mongolian marmot are known to carry bubonic plague.

Cross country skiing and sledding are possible about 40 km from Ulaanbaatar. Because of the dryness and extreme cold, there is not much snowfall in the vicinity of the capital. Fishing, kayaking, and boating (small rubber boats only) may be done on the Tuul River near Ulaanbaatar. A rubber raft could be fun.

Big game hunting is available in Mongolia, but it must be arranged through Zhuulchin Tours.

Photographers find the extraordinary light and exquisite scenery make Mongolia an excellent place to enjoy their hobby. Color film is available locally, but is quite expensive. Two shops now offer developing services under an arrangement with Fuji; the quality and price may still drive you to send your film away for developing, however.

Courier Trips

Non-pro courier trips are made between the Embassy in Beijing and the Embassy in Ulaanbaatar on a biweekly basis. These trips provide not only pouch mail service but also the routine fruit and vegetable shipments from Beijing. Personnel traveling from Ulaanbaatar for the courier run will have a stay in Beijing of two to three days, during which they may shop at the Beijing Embassy commissary or at the western supermarkets located in the China Trade Center and the Lido Hotel. Flat mail is also forwarded by air from Beijing on a weekly schedule.

Rest and Recuperation (R&R)

Foreign Service employees serving tours of at least 24 months in Ulaanbaatar, unbroken by home leave, are authorized two R&R trips to Rome, Italy, or the nearest port of entry in the U.S. (west coast). R&R travel to and from Rome is at U.S. government expense. Travel must be taken at excursion or reduced fares when available, and arrangements are generally made through the travel office at Embassy Beijing.

Entertainment

Excellent ballet, opera, and symphonic programs are presented in Ulaanbaatar, both by local companies and by visiting performers. The folk song and dance troupe performs three times a week. The Mongolian Circus also has a permanent venue, where visiting circuses may be seen. Tickets are inexpensive and easy to come by. One of the local restaurants offers cultural programs on a monthly schedule.

Movie theaters show films dubbed in Mongolian. Television programming has been in Mongolian and Russian; some English programming may also be available, as USIA has installed a WorldNet link at the TV station. The Embassy also is seeking to install a satellite to receive the BBC World Service and entertainment programming from Hong Kong, which will be available in the Chancery.

STANDARDS OF SOCIAL CONDUCT

Business cards are widely used in Mongolia, not only for protocol, but also for functional purposes. Cards may be printed locally, although this will be expensive.

SPECIAL INFORMATION

Money

While tugriks are used for many transactions, hard currency may be used in most shops and in the Sunday market as well. Hard currency may be hard to come by, however, so personnel should bring cash or American Express or Barclays' Travelers Checks, which can be cashed at the Central Bank. Although banks, restaurants, and the hotels will accept travelers checks, Diners Club, and Amex cards, you will not be able to obtain a cash advance against a credit card. Currency exchange is accomplished by cashing travelers checks at the bank or at the dollar shops, using the "parallel exchange rate". U.S. dollars may be transferred to a personal account at the Central Bank of Mongolia through its associated bank, American Express Bank, or through Chase Manhattan Bank in New York. The Embassy performs limited accommodation exchange, but at the much lower "official exchange rate".

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GETTING TO POST

Most Americans assigned to Ulaanbaatar travel through China and on to Ulaanbaatar by train or airplane. It is possible, but not recommended, to travel via Moscow. A short stay in Beijing is recommended, to allow for last minute shopping, and to set up an account at the Commissary at Embassy Beijing. This also allows for a break, especially important for train travelers, who face another 40 or more hours in transit before arriving in Ulaanbaatar. Winter train travelers should carry warm clothes, a cup and spoon for instant soup mixes, and one or more good books to enjoy on the train. A "mini booklight" is also a good idea. There are three to four flights offered between Beijing and Ulaanbaatar each week by Mongolian Airlines (MIAT) and Air China (CAAC). Flight time is roughly two hours.

If you arrive anytime other than June, July, or August, bring warm clothing with you. Snowflakes have been seen in the air even in July. Airfreight from the U.S. can take up to four months to arrive, due to limited space on flights from Beijing. Post recommends that airfreight be consigned to the Embassy in Beijing, where the travel office will be able to determine whether onward shipment by train or by air would be most expeditious. Beijing should receive an information copy of cables concerning air or surface shipment of effects.

Surface shipments are routed from the United States to Tianjin, consigned to China Bonded Warehouse in Tianjin, China, for onward shipment. Since train wheels must be changed at the border to allow for different gauges of track, and since Mongolia has a shortage of rolling stock for freight shipments, delays in shipment at the border can last several weeks. Shipments made after the end of September have been known to freeze (an important consideration when shipping consumables, particularly liquids). Check with OPR/STP for the latest information on maximum dimensions of containers.

Passage

All visitors, other than accredited diplomats, must pay an airport departure tax at the airport in Beijing.

CURRENCY, BANKING, AND WEIGHTS AND MEASURES

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The local currency is the Mongolian tugrik. There are two exchange rates, the "official" rate, used by diplomatic missions and foreign businesses, and the "parallel" rate, used by individuals. The parallel rate is much more favorable for foreigners. Dollars and other hard currency may be used in most shops in lieu of local currency, and some places refuse to accept tugriks at all.

Banking services are available at the State Central Bank and at the Trade and Development Bank. Individuals may open foreign currency or tugrik accounts. Exchanges from tugriks to dollars may be limited by frequent shortages of hard currency.

Mongolia uses the metric system.

TAXES, CHANGE, AND SALE OF PROPERTY

To date, taxes are not collected from foreigners residing in Mongolia.

Tipping is not common, although waiters in the main hotels and restaurants usually appreciate tips.

Limited accommodation exchange for permanent and TDY USG employees is available from the U.S. Embassy at the official exchange rate. Sufficient travelers checks for personal use and exit transportation are necessary for TDY personnel. Sale of property upon departure is subject to normal USG restrictions.

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LOCAL HOLIDAYS

New Year's Day	January 1
Lunar New Year	2-3 days, usually in February
National Day (Naadam)	July 11-13
National Day	November 26

Mongolia may establish an additional holiday in February to mark the anniversary of the passage of the Constitution.

ANNEX IX

MILK AND MEAT PROCESSING AND MARKETING — NEEDS ASSESSMENT MISSION

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DANAGRO ADVISER A/S

United Nations Development Programme

Mongolian People's Republic

Milk and Meat Production, Processing and Marketing

Needs Assessment Mission

Report

June 1991

DANAGRO

AGRICULTURAL KNOW-HOW FROM DENMARK

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United Nations Development Programme

Mongolian People's Republic

Milk and Meat Production, Processing and Marketing

Needs Assessment Mission

Report

June 1991

DANAGRO

AGRICULTURAL KNOW-HOW FROM DENMARK

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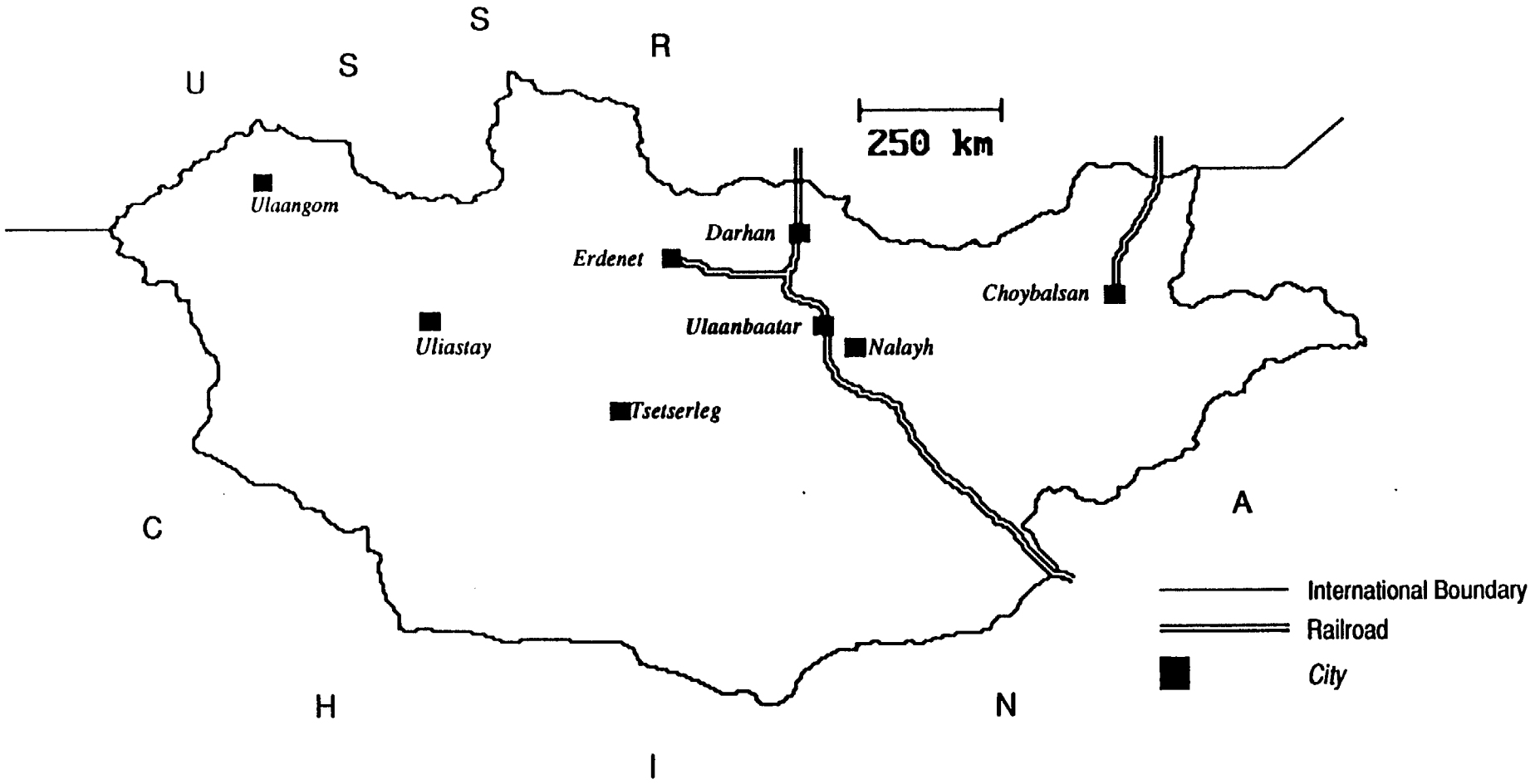
MONGOLIA: Needs Assessment Mission

Map of Mongolia with major cities



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EXECUTIVE SUMMARY

The Mongolian People's Republic (MPR) covers an area three times the size of France but has a population of only 2.1 mill. The continental climate offers very rigid conditions with only six weeks without sub-zero temperatures, average temperatures in July of 16°C and in January of minus 15-25°C and temperature drops to minus 40°C.

From 1924 to 1990 MPR had a centrally planned economy. In connection with free elections in 1990 the new coalition government declared its intention to introduce a free market economy. Several actions have been taken including initial steps towards privatization, but in principle the system of a centrally planned economy is still in force. Up to 1990 MPR had developed strong political and commercial relations with the Soviet Union and other COMECON countries. The break-up of COMECON and the requirement of payment in hard currency for import from these countries has left MPR in a very severe economical transitional vacuum. That situation has entailed a drastically reduced foreign trade and inability to import even basic spare parts, fuel and other essentials. Internally, the expectations to a market economy have contributed to reduced local food supplies i.a. of meat, which has been rationed.

MPR has a century old tradition for nomadic pastoral economy which is gradually changing into an agricultural-industrial economy. Agriculture accounts for some 30 % of the employment and a 20 % share of the net material product. Livestock production accounts for some 70 % of the total agricultural production, based mainly on extensive production methods. Total animal population amounts to 24 mill. of which cattle, sheep and goats account for 11 %, 50 % and 20 %, respectively. Privately owned animals account for some 28 % of all animals and the balance is raised by 41 state farms and 255 cooperatives.

Milk and meat processing in general is hampered by inflexible government determined prices, leaving inadequate possibility of encouragement to meet market demand. Lack of foreign exchange results in inadequate supplies of imported spare parts, veterinary medicine, agricultural chemicals, packaging materials, etc.

The vastness of the country and consequent logistical problems as well as the pronounced seasonality for slaughtering and milk production, entail requirements to high production and storing capacity of the plants. Consequently, costs of operation and investments are high.

The present pricing policy and subsidized prices for milk and meat indicate that the sales revenue covers only some 50 % and 60 %, respectively, of the purchase costs of the raw materials. Total losses from the operation of those processing industries, therefore, account for a considerable part of the national budget.

Total supply of meat amounts to 540,000 tons (live weight) of which 80,000 tons are exported. In average per capita consumption per year is 88 kg in the big cities and 120 kg in the rural areas, which is high by any standard. The rural population is self-sufficient whereas the coverage is inadequate in the big cities at the present price level. The growth rate of the animal population is expected to continue. Local consumption is expected to increase only slightly due to gradually freed prices, change of diet and increased spending on other commodities. Therefore, larger quantities of meat are expected to be available for export but new markets must be identified and approached. A general pre-

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condition for export to new markets will be upgraded buildings, equipment and hygienic standards. Also the techniques of international marketing will have to be acquired and applied.

The total milk production in MPR amounted to 213 mill. litres (1990) equalling a national average of 149 litres/capita/year but with large disparities from region to region. Government estimates an average demand per capita of 270 kg/year. Average consumption in Denmark, UK and the U.S. is 125 kg, 124 kg and 97 kg respectively. Only some 15 % of the total milk supply is collected for the major cities where more than half of the population lives. The four largest processing units located there receive excess milk in the summer but are unable to meet demand in the winter. Major shortages are, therefore, experienced in the urban areas. 85 % of the total milk production is produced by the migrating herds. Collection and effective utilization of this quantity is not feasible.

80 to 90 mill. litres of milk is converted into butter but the skimmed milk from this process is not recovered.

The 15 % of the total milk production consumed in the major cities is produced in an intensive husbandry system, comprising state farms and cooperatives equipped with mechanized and simple dairies. Milk yield per cow is low for a number of reasons (quantity/quality of fodder and poor milking equipment).

In the short term it will not be possible to collect milk from the nomadic herds during the short summer production period. There is, however, a potential in recovering the skimmed milk from the butter making system and process it into casein and sodium caseinate for export. Government considers to dry some of the excess milk quantities during the summer season to milk powder for recombination during the winter season but feasibility may be doubtful.

There is a good potential in the short term to increase by some 10 % the production from the mechanized dairies through improved milking systems, including cooling, improved milk collection systems and better quality control through improved sanitary systems. A better coverage of the demand in the major cities is given high priority by the Government and any export of dairy products apart from sodium casein is not foreseen in the short and medium term.

For the meat as well as the milk processing industry the most urgent needs can be grouped as follows:

- refurbishment of out-dated and worn-out equipment.
- establishment of new plants to improve national coverage (and for meat also to increase export potential and value added).
- training and technical assistance (technology transfer).

The assessed needs are summarized in table 24 which is also reproduced below for easy reference. These needs and their priority were discussed and agreed upon with the Mongolian Food Industry Corporation and the UNDP Resident Representative, MPR before the Mission left MPR.

The proposed projects in the milk industry emphasize technical assistance support in order to increase national coverage. The projects in the meat industry are more specific on refurbishment and equipment components. The differences as

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regards proposed future development can mainly be ascribed to the export potential of the meat industry.

The Mongolian staff in the industry seems to make a considerable effort in achieving optimal results with the restrained means available. Therefore, the development of local resources is insufficient to bridge the transitional gap between the former economic system and a new operational system and alternative export markets. An obvious and may be only option for MPR is to obtain temporary bi- and multilateral assistance from abroad.

Project	Location	Objective	Estimated costs (US$)
Technical Assistance (TA)	Ulaanbaatar area	Planning of dairy industry development, training in milking technique/milk collection, bid preparation, re-equipment and up-grading of dairy factories. Analysis of need for spray drying plants.	2.8 million
Milking parlours with storage and cooling - 58 units at US $ 120,000	Nationwide	Increase availability and quality of fresh milk	1 unit 120,000; 58 units: 7 million
Refrigeration equipment for milk collecting centres	Nationwide	Increase availability and quality of fresh milk	6 units 210,000, exclusive vehicles
Re-equipment of dairy plant incl. procurement and installation	Ulaanbaatar	Increase production and quality of dairy products	0.5 million
Refrigeration equipment for dairy plant	Ulaanbaatar	Replacement of worn-out plant	0.5 million
Air compressors (3 units)	Ulaanbaatar	Replacement of worn-out plant	15,000
Milk clarifier	Ulaanbaatar	Replacement of worn-out and outdated clarifier	175,000
Milk packing machines	Ulaanbaatar	Replacement of old, worn-out equipment	600,000 to 2,500,000
Re-equipment of dairy plant incl. procurement and installation	Darkhan	Increase production and quality of dairy products	2 million
alternatively			
a new 100 ton dairy plant	Darkhan		8 - 10 million
Re-equipment of dairy plant incl. procurement and installation	Choibalsan	Increase production and quality of dairy products	1.5 million
Spray drying plants	Choibalsan	Drying of excess milk	300,000 - 1,300,000/plant
Spray drying plants	Darkhan	Drying of excess milk	300,000 - 1,300,000/plant

Table 24: Summary of assessed needs / projects

MEAT SECTOR:

Project	Location	Objective	Estimated costs (US$)
Technical Assistance (TA)	Ulaanbaatar	Reduction of abortion rate (1st stage)	15,000
Training abroad - meat processing	Ulaanbaatar	Introduction of up-dated techniques - technology	100,000
Ulaangom Plant	Ulaangom	Equipment/machinery for new abattoir	5 - 7 million
New meat processing plants in the provinces - successive implementation	Nationwide	Improvement of meat supply and coverage	1 plant 4 - 6 million 10 plants 40 - 60 million
Refurbishment of Darkhan meat combinate (can be undertaken successively)	Darkhan	Modernization, increase of efficiency and adaptation to export quality	8 - 11 million for total project
Refurbishment of Choibalsan meat combinate (can be undertaken successively)	Choibalsan	Modernization, increase of efficiency and adaptation to export quality	8 - 11 million for total project
4 new gelatine plants	4 provinces	Local production for replacement of import	5 - 10 million per plant; 4 plants: 20 - 40 million
2 dried meat plants	2 provinces	Improved quality and increased production	1 - 2 million
Refurbishment of Ulaanbaatar meat combinate (can be undertaken successively)	Ulaanbaatar	Modernization, increase of efficiency and adaptation to export quality	12 - 15 million
TA-Export promotion Meat processing	Ulaanbaatar	Identification of new markets, establishing export contacts, training of local staff in international marketing	
		Training in meat cutting	
		Processing adaption to EEC standards	450,000

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0. INTRODUCTION

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0. INTRODUCTION

DANAGRO ADVISER A/S was selected by UNDP/OPS to prepare a needs assessment of the meat and milk processing in Mongolia (full text of the Terms of Reference is reproduced as Annex 1).

A Mission comprising Messrs. Ib Blechingberg, Economist and Marketing Specialist (team leader), Michael Bosworth, Milk Processing and Milk Products Specialist and Ejnar Steffensen, Meat Production and Processing Specialist, visited the Mongolian Peoples' Republic (MPR) from May 20 until June 4, 1991. During that period discussions were held with the Mongolian Food Industry Corporation, the Resident Representative of UNDP, Ulaanbaatar and with concerned officials in the sector. Processing plants were visited in Ulaanbaatar and Dakhran as well as State Farms and milk collecting centres outside Ulaanbaatar. Because of the limited time available in Mongolia, the vastness of the country and restrictions on transport, several of the findings and recommendations are to some extent based on information received during interviews with officials concerned. A list of institutions and persons met during the Mission is enclosed as Annex 2 and the literature used is listed in Annex 3. On his way to MPR the team leader visited i.a. the Danish Embassy for MPR located in Moscow for collection of relevant data.

At the end of the Mission's stay in MPR an Aide Memoire was prepared and signed at a tripartite meeting with the Mongolian Food Industry Corporation and the Resident Representative in MPR. The Aide Memoire is enclosed as Annex 4 and lists the assessed needs and projects according to priority as discussed and agreed upon in MPR.

0. ACKNOWLEDGEMENTS

The Mission wishes to acknowledge gratefully and with thanks for the kind support, cooperation and valuable information it received during its stay in MPR from all officials and individuals, and especially the following:

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- Mr. D. Okhinoo, Deputy General Director, Mongolian Food Industry Corporation.
- Mrs. Radnaagijn Dolchinsuren, Mongolian Food Industry Corporation.
- Mr. Janchivyn Badral, Mongolian Food Industry Corporation,
- Mr. Eric De Mul, Resident Representative UNDP, MPR,
- Mr. Vagn Egebjerg, Ambassador of Denmark, Royal Danish Embassy, USSR/MPR, Moscow,

and Mrs J. Khulan, Foreign Relations Department, Ministry of Agriculture for the very capable translation assistance.

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1. BACKGROUND INFORMATION ON MONGOLIAN PEOPLE'S REPUBLIC

1. BACKGROUND INFORMATION ON MONGOLIAN PEOPLE'S REPUBLIC

1.1 PHYSICAL FEATURES

Mongolian People's Republic (MPR) covers an area of 1,565,000 km^2. It is a landlocked country between the USSR in the north and west China in the south and east. The average altitude is 1,585 meters above sea level with the highest point reaching 4,360 meters. The east of Mongolia is a vast hilly plain, the north a mountainous area of which some is capped with eternal snow and ice. Forest clad slopes alternate with valleys and lakes. To the south is the Gobi desert covering a third of the country.

1.2 CLIMATE

MPR has a continental climate with six months of mean temperatures below freezing and only six weeks without sub-zero temperatures. Average July temperatures range from 10° C in the north to 20°C in the Gobi desert. In January average temperatures range from minus 15° C to minus 25°C, but extreme drops to minus 40° C are not uncommon. The rainy season is from mid-May to mid-September. Annual rainfall ranges from 100 mm in the Gobi desert to 500 mm in the north with an annual average of about 300 mm in agricultural crop production areas.

Approximately 80 % of the land is suitable for extensive livestock production. Intensive crop cultivation is limited by the short growing season and sharp temperature fluctuations, which can vary by as much as 30° C in one day.

1.3 POPULATION

The population of MPR is 2.1 mill. (1990) with an annual growth rate of 2.8 %. Some 51 % of the population lives in urban areas, with major concentrations in Ulaanbaatar (560,000, (1989)), Darkhan (76,100) and Erdenet (44,400). 45 % of the population is below 16 years of age. The present population density is 1.3 persons per square kilometre (0.7 excluding the above three urban centres).

Employment amounts to 633,000 and unemployment is estimated to amount to 40,000 which is expected to increase to 100,000 at the end of the school year 1990/91.

1.4 ADMINISTRATIVE SET-UP

MPR is administratively divided into 18 provinces (aimaks) and the three cities Ulanbaatar, Darkhan and Erdenet. Each province is divided into several districts (somons) with a total of 310 districts in the country.

1.5 ECONOMY

For centuries MPR has had a traditional nomadic pastoral economy, which the Government aims to transform into an agricultural-industrial economy. From contributing 61 % to the net material product (NMP) in 1940, agriculture contributed some 20 % in 1989. However, agriculture still accounts for some

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30 % of the employment with industry accounting for 20 %. Industrial share in NMP from 1940 to 1989 increased from less than 10 % to some 34 %. Heavy industry accounts for about half of the gross industrial output. The structure of the NMP in per centage is shown in Table 1 below:

TABLE 1: STRUCTURE OF NATIONAL NET MATERIAL PRODUCTION AT CURRENT PRICES

SECTOR	1980	1985	1988	1989
Industry	29.3	32.6	33.5	33.8
Agriculture	15.0	16.2	19.1	19.9
Construction	6.1	5.0	7.1	7.1
Transport	10.1	1.4	1.5	1.5
Communication	1.1	1.4	1.5	1.5
Trade + Supply	36.3	33.0	27.0	26.9
Other	2.1	1.7	1.8	1.8
TOTAL	**100.0**	**100.0**	**100.0**	100.0

Source: "Mongolian Social and Economic Development 1989", Central Statistical Board 1990.

Information about GDP per capita varies considerably. It is generally recognized that previous figures of US $ 900 - 1,000 were inflated. The IMF has estimated a GDP per capita of US $ 522 but similar estimates by the World Bank amount to only US $ 322.

Total agriculture production amounted to 2.65 billion Tughrik (1989) of which livestock accounted for 1.85 billion Tughrih (70 %) and crop production for 0.8 billion Tughrik. 13.7 % of national vested capital in the productive sector was devoted to agriculture and forestry (1989).

Import into the MPR in 1989 amounted to 2.87 billion Tughrik and export to 2.15 billion. A continuous trade deficit has entailed increasing national debt, mainly to the Soviet Union. By the end of 1989, MPR's debt to the Soviet Union amounted to 9.5 billion Roubles most of which is expected to be written off and the balance to be paid on lenient terms.

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1.6 RATE OF EXCHANGE

The rate of exchange of the Tughrik vis-à-vis the US $ was three Tughrihs per $ early 1990. May 1991 the rate of exchange is 7.10 Tughrik per $ (official rate) which is the rate of exchange applied in this report. The rate of exchange in the parallel market is 60-100 Tughrik.

2. THE AGRICULTURAL SECTOR OF THE MPR

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2. THE AGRICULTURAL SECTOR OF THE MPR

2.1 POLICY AND AGRICULTURAL PRODUCTION

2.1.1 Government and Government Policy

The Mongolian People's Republic was founded in 1924. Prior to that, Mongolia had a feudal system of government and was based on a simple agrarian economy. A centrally planned state was developed, but until the 1950's the population in the countryside worked as livestock holders or worked for large livestock owners.

In the 1950's government introduced a policy forcing a change in ownership of livestock and land from private to state. Most livestock holders were transformed into government employees and lost the ownership of most of their livestock and all their land. Each family was allowed to have a maximum of 50 animals (75 in the Gobi) as their own property.

Crop production was introduced, and new arable land was opened up to agriculture.

Internationally, the MPR aligned itself politically, economically and militarily with the Soviet Union and to a certain extent with the COMECON members, but was isolated from all other countries, including the People's Republic of China.

In March 1990, a new reformist government was established, and in July 1990 multi-party elections under international supervision were contested by six parties. The ruling Mongolian People's Revolutionary Party (MPRP) retained the majority of the votes, but a coalition government was established comprising the three biggest political parties.

From being a country with centrally planned (command) economy for some 60 years, the present government has declared the transition to a market economy as one of its main tasks. A transition period of two to three years has been mentioned, but no final time schedule has been established.

Apart from guidelines outlining the main principles, no action plan for the implementation has been established. However, several steps have been taken to orient the system towards a market economy, e.g. a new and very liberal law for foreign investment has been introduced, a new law for privatization has been passed by the Parliament (May 1991) and now only awaits ratification by the President and a draft for a new constitution, inter alia legalizing private ownership of land, is about to be out for discussion for planned approval in November 1991.

Within the agricultural sector, the most significant changes have been the split-up of some of the state farms into smaller units and some examples of initial transfer of ownership of livestock to private herdsmen. There is also no more restrictions as to the number of privately owned animals. However, in principle the central planning is still in force with government fixed prices to suppliers and consumers and contractual supplies to the big cities. The expected decentralization has resulted in unfulfilled supplies to urban areas and shortages and rationing of several consumer goods, including meat (beef and mutton 90 g/person/day).

Internationally, MPR has diversified its ties and has established relations with China and a number of other Asian and Western countries. The break-up of the COMECON and the request of those member countries, including the Soviet

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Union, of payment in convertible exchange for export to MPR as from January 1991 has left MPR in a serious transitional vacuum.

Establishing of new export markets to obtain foreign exchange for import will take time, and shortages of imported items, including food items and spare parts, are severely felt and further rationing is foreseen.

To avoid further deterioration of supplies and processing, advisory assistance in replacing the centrally planned economy by a market economy is urgently required, as well as financial assistance during the transition period.

2.1.2 Organisational Structure of the Agricultural Sector

The organisational structure of the agricultural sector has undergone several changes. The present structure is depicted in the organization chart below. Ministry of Agriculture sets out the policy of the sector, comprising livestock and agriculture (crop production). Under that Ministry are also the State Veterinarian Services, the Association of Flour Mills and the Agricultural Supply Service. The latter coordinates the requirement of the sector as to farm machinery and equipment as well as other input material.

The organisation "Mongolian Food Industry Corporation is working parallel to the Ministry of Agriculture as an umbrella organisation for various food processing industries (for milk, meat, bread, beverages, starch and soap) and for a food research department, a repair and maintenance section and a construction office. The Mongolian Food Industry Corporation is responsible for the establishment of the policy for and development of food processing industries, coordination of the food processing industries and supply of processing equipment. Education and training of staff for the processing industry is also the responsibility of the corporation.

The 225 agricultural cooperatives are organized independently, but they supply on contract to the food processing plants. The cooperatives also have their own sales organisation for the products and for supply of input for their production.

The Ministry of Trade and Industry is responsible for the distribution of the products manufactured by the plants under the Mongolian Food Industry Corporation.

The organisation chart shown is the most recent one, but the changes of government policy towards a market economy have changed the actual procedures to some effect. e.g. procurement of equipment for the processing industries may now be undertaken direct by the companies without involving the Ministry of Trade and Industry and individuals may export direct to purchasers abroad.

However, the organization of the agricultural sector is inappropriate for establishing and implementing policies coherent for the primary and secondary sector. Another constraint is the lack of knowledge of and experience in management and marketing procedures required for the operation of commercially viable enterprises.

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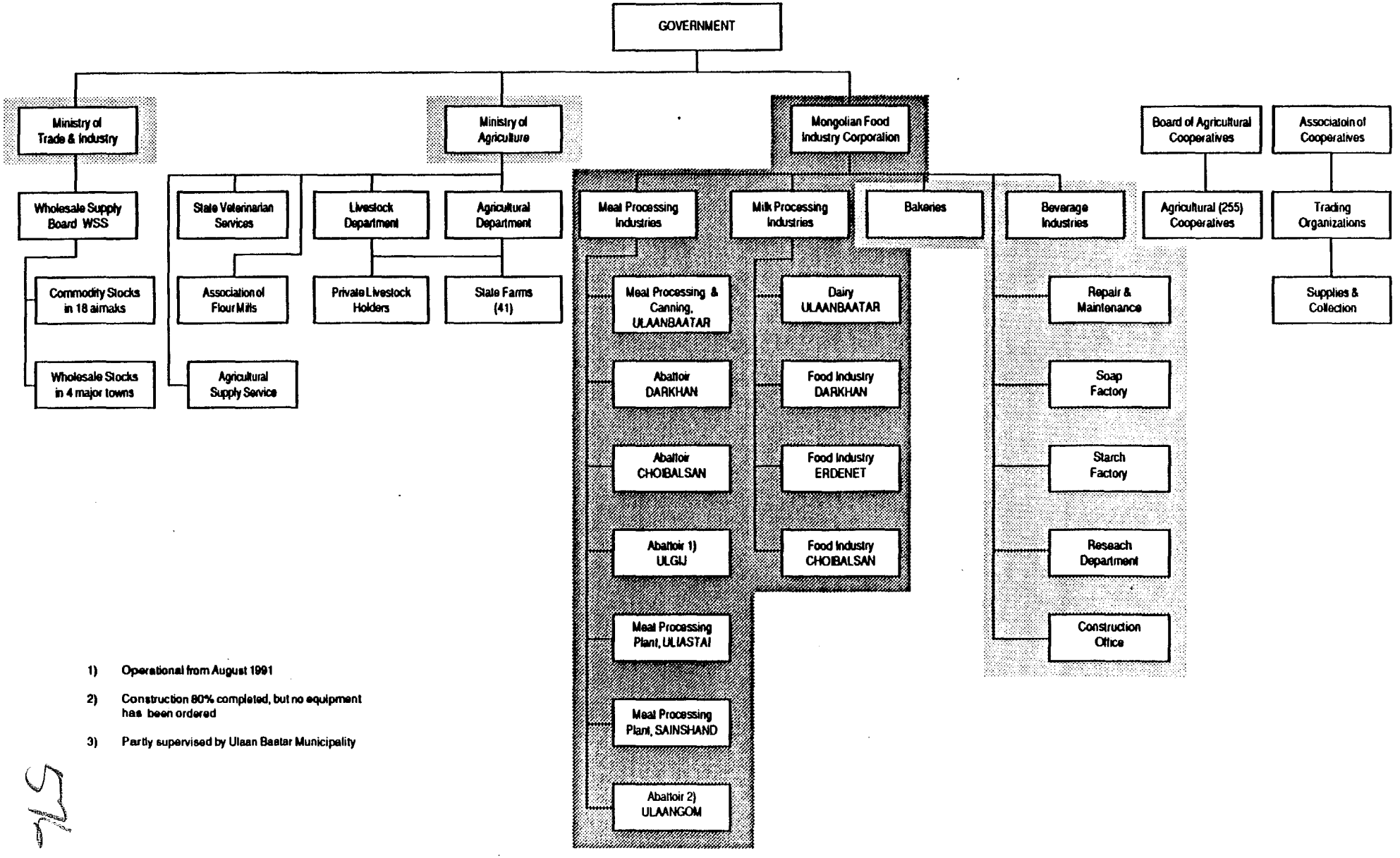
MONGOLIA: Needs Assessment Mission

Organizational Structure of the Agricultural Sector



1) Operational from August 1991

2) Construction 80% completed, but no equipment has been ordered

3) Partly supervised by Ulaan Baatar Municipality

2.1.3 Agricultural Production in General

Contribution of agriculture to the net material product (NMP) amounted to some 20 per cent in 1989, or 2.65 billion Tughrik. Of that amount, crop production accounted for 0.8 billion Tughrik, and livestock accounted for 1.85 billion Tughrik. The development of the agricultural production in thousand tons (1980-1989) is shown in Table 2.

Table 2: Agricultural Production in MPR (in thousand tons)

	1980	1985	1988	1989
Meat, slaughtered weight	226.8	225.9	225.3	239.6
of which Beef	70.6	68.1	73.3	72.8
of which Sheep, goat (mutton)	115.7	116.2	112.4	121.9
of which Pork	1.0	2.2	4.0	5.5
Wool (sheep)	20.1	18.9	18.7	19.4
Milk	225.7	269.4	300.3	319.3
Butter	3.8	4.4	4.6	4.8
Eggs (mill. pcs.)	21.1	25.9	31.1	35.8
Cereals, of which	286.8	886.0	814.3	839.1
Wheat	229.8	688.5	672.2	686.9
Potato	37.9	113.9	103.2	155.5
Vegetables	26.3	41.2	56.3	59.5

Source: Social and Economic Development of the Mongolian People's Republic, 1989, Statistics Book, the State Statistical Bureau of the Council of Ministries, 1990. Ulaanbaator.

Crop production comprises wheat, barley, potatoes and vegetables. Fruit is almost non-existent. Due to the short season, part of the wheat production can only be used for fodder.

2.1.4 General Market Characteristics and Constraints

So far the economy of MPR has been centrally planned and production has been planned more according to Government plans than on actual market demand. Prices do not reflect neither actual production costs nor the actual situation of supply and demand and are subject to government subsidies.

Meat as well as milk products are in short supply and no marketing efforts are required to sell the products. This is in particular the case in the major cities and in the aimak centres as the rural population is usually self-sufficient in those products.

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The present system of central planning and prices determined by the Government entails inflexibility, inefficient operation of processing plants and marketing and leaves inadequate possibility of encouragement to meet market demand.

The technical and quality standards within the meat and milk sector do not meet the requirements of highly developed markets in the Far East, Europe, etc. For plants intended for export of meat and meat products to those markets, the Consultant has taken those requirements into consideration. As to dairy products MPR will not in the medium term be in a position to export and, therefore, the technical recommendations are based on the attainment of achievable standards for safe and economical production of dairy products for the home market.

Lack of foreign exchange results in inadequate supplies of spare parts, veterinary medicine, fertilizer, agricultural chemicals, packaging materials, etc. which hampers efficient agricultural production and processing industries.

Deficiency in breeding and veterinarian services results in a high animal mortality rate (up to 10 % annually is reported) and an abortion rate of 3.6 - 4 %.

The climatic conditions with long and severe winters entail a short fattening season, lack of natural fodder during the winter season, short slaughter season (August - December) which require abattoirs and meat processing plants with high daily capacity but a short annual operation time and cold stores with high capacity. This results in high costs of investment and high costs of operation.

Mongolia is a vast country and as roads in general are in a bad condition, especially during winter, inter provincial transport is difficult. This problem is aggravated by vehicles in bad condition and lack of spare parts and fuel. Also communication is complicated due to an undeveloped communication system.

2.2 THE LIVESTOCK SUBSECTOR

2.2.1 Livestock Production

Livestock is based mainly on the extensive production methods where herdsmen are driving their herds through the vast and sparsely populated territories for grazing.

Grazing management is reported to be, on the whole, sound. The basic herding unit, approx 200 cattle or 600-1000 sheep, is managed by a suur which is an informal cooperative of herdsmen comprising several families. Each suur is assigned, on a more or less permanent basis, an area of pasture which is rotationally grazed. Pastures are grazed by both large and small animals.

More than 90 % of the feed is derived from natural pastures, which covers more than 140 mill. hectares of land in Mongolia, usually through year round grazing. In addition to the natural grazing, grass hay is cut from around 2 mill hectares in climatically favorable regions, cereal straw from about 0.5 mill hectares and grass silage in a small amount.

During the grazing period the herds will stay in the "summer area". This area may be up to 150 km away from the winter location.

In the "winter area", which will be close to the more populated areas, there will be shelter (f. inst. a woodden shack) where the animals can survive during the severe climatic winter conditions.

As there are limited natural feeding possibilities during the winter, the animals will be fed crop products as a supplement during the stay in the winter location.

The animals which are about to have reached the slaughter age and weight are separated from the main herd and the grazing route for these animals will be planned in such a way that they will reach the slaughterhouse at the correct time. The distance from the grazing area to the slaughterhouse may be up to several hundred kilometers.

The animals will be grazing on the way and as an encouragement the herdsmen get a bonus according to the increase in liveweight of the animals at the arrival to the slaughterhouse.

The herdsmen are living a simple life under hard conditions surviving mainly on milk and milk products, fresh or dried meat and wheat flour.

The herds may be covering more than 200 km during the year and the herdsmen are moving their yurts (the special round Mongolian tent) up to 20 times during the grazing period.

2.2.2 Animal Population

Table 3 shows the population as per 1989 of the various animal species in each of the provinces. At the same time the table shows the inhabitants as well as the population of the livestock farmers. The figures in the table are illustrated in Annex 5.

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Table 3: Population and Number of Animals in the Provinces

PROVINCE NO./ NAME	POPULATION X 1000 Inhabitants	Farmers	Cattle	Camels	Horses	Sheep	Goats
1. Arhangay	87.1	10.3	272.8	2.3	186.2	746.2	174.6
2. Bayan-Olgiy	93.6	8.8	111.6	10.4	83.4	770.3	308.3
3. Bayanhongor	76.7	10.1	118.9	46.2	99.6	706.5	507.3
4. Bulgan	53.3	5.0	165.0	4.3	120.2	554.2	99.3
5. Govi-Altay	64.5	7.5	81.4	53.3	82.1	923.7	495.6
6. Dornogovi	58.6	3.7	80.0	67.5	85.8	525.9	203.1
7. Dornod	81.8	3.8	121.3	14.1	90.9	652.9	44.2
8. Dundgovi	87.1	6.2	87.1	56.0	144.8	744.7	374.1
9. Dzavhan	90.9	10.5	179.6	15.4	149.2	1303.9	339.2
10. Ovorhangay	99.4	12.3	187.0	31.7	185.7	1135.7	397.5
11. Omnogovi	43.5	5.0	25.3	133.7	67.8	294.7	431.6
12. Suhbaatar	52.3	5.5	129.2	16.8	123.7	592.0	135.1
13. Selenge	89.5	2.5	92.9	0.3	28.2	332.3	24.1
14. Tow	102.9	7.4	191.9	9.7	195.7	1025.8	166.2
15. Uvs	86.5	8.5	156.4	41.8	133.4	978.8	303.8
16. Hovd	78.8	8.0	133.9	37.6	101.5	889.3	475.3
17. Hovsgol	104.6	13.0	300.9	7.0	158.6	1061.7	274.6
18. Hentiy	75.8	8.4	184.9	9.8	141.6	901.8	185.2
19. Ulaanbaatar	560.6	0.5					
20. Darkhan	87.4	0.3					
21. Erdenet	57.1	0.2					
TOTAL	2095.6	137.5	2620.1	558.2	2178.4	14137.4	4939.1

As can be seen from the table all five animal species totalling 24.4 mill. are represented in all provinces and there is a reasonably coherent correlation between the animal and the human population i.e. the animals are in the areas where they are to be utilized.

During the last 3 years the animal population has developed as shown in Table 4.

Table 4: Development of the Animal Population in MPR 1987 - 1989

SPECIES	INCREASE (%)
Cattle	4.1
Camels	4.1
Horses	3.4
Sheep	4.4
Goats	5.4

The total present number of livestock is reported to be the highest in 30 years. The reasons for the increases are considered to be the result of several factors, such as:

- The start of the leasing agreements with private livestock holders
- Removal of the limits on privately owned livestock
- Reduction in numbers slaughtered for export
- Good efforts by the herdsmen
- Mild climatic conditions during last two winters

2.2.3 Livestock Production

The animals are bred on:

	No. of Heads	
-	State farms	2,096,000
-	Cooporative farms	15,732,300
-	Private farms	6,846,600
	Total population	24,674,900

There are 41 state farms each with a population of up to 30,000 animals. The farms are, however, measured according to their land area, which is in average for these farms 1,768 hectares.

The state farms are owned, financed and administered by the state. The state farms have livestock raising as well as a small crop production. Furthermore they will produce vegetables and animal fodder such as grass, maize, wheat, barley, etc.

There are 255 cooperative farms of the following sizes (animal population):

- 1 unit with 20,000 or below
- 23 units with 20 - 40,000 animals
- 116 units with 40 - 60,000 animals
- 70 units with 60 - 80,000 animals
- 35 units with 80 - 100,000 animals
- 7 units with 100 - 120,000 animals
- 1 unit with 120 - 140,000 animals
- 2 units with 140,000 or above

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The cooporative farms are based mainly on livestock production and will hardly have any crop production. This type of farms are created by a cooporation of a number of private people. The land belongs to them and they are self financing. They sign annual contracts with the state for livestock supplies to the slaughterhouses.

Information about size and number of private farms is not available but they are generally small and have a small number of animals.

2.2.4 Animal Characteristics

The four main cattle breeds in MPR are:

- Selenge
- Halch - Gol
- Tumen Zogt
- White headed Kasach
  including their crosses

The Yak is considered as part of the cattle breed and numbers.

The cattle livestock is bred mainly for meat production.

The horses are of the mongolian breed.

The sheep breeds are:

- Pure mongolian
- Orchon (fine wool)
- Imported Merino (fine wool)
- Persian (are kept for slaughter of the lambs)
- 7 different land races

The average liveweight of the animals at the time of slaughter is:

	Liveweight (kg)	Average age of slaughter (year)
- cattle:	255-400	3 - 4
- sheep:	38	2
- goat:	31	2
- horses:	250	n.a.
- pigs:	100	n.a.

The utilization of the animals at the time of slaughter (carcass weight compared to liveweight) are informed to be:

- cattle: 47%
- sheep: 40%
- goat: 40%

This low utilization is considered to be due to inefficient slaughter and chilling methods. Based upon efficient processes with utilization of all the edible by-products (heart, liver, tongue etc.) the figure will normally be slightly above 50%.

2.2.5 Veterinary Services

The organization of the Veterinarian Services is shown in Annex 6.

The responsibilities of the services are to make diagnostic work, to vaccinate and to do other treatments necessary to maintain a healthy animal stock.

The organization carry out its services to the animals in the winter area, in the summer area as well as during the travel to the slaughterhouse.

In the meat processing plants the duties of the veterinarians are to inspect the slaughtered animals as well as to control the quality of the various meat products.

Since 1989 the organization has been a member of the International Office of Epizoctis.

The organization comprises a medicine production unit and a pharmacy as well as a control laboratory with the purpose of controlling these two units.

The animal diseases are grouped into three categories and the supply of medicine for each of the categories is as follows:

- Infectious diseases: Locally manufactured medicine (70 items)
- Parasitic diseases: Imported medicine
- Original diseases: Imported medicine

Due to price increases and to lack of foreign exchange there is, however, a shortage of imported medicine resulting in inadequate treatment of the diseases.

The organization also comprises veterinary service units in each of the big cities, Ulaanbaatar, Darkhan and Erdenet, and in the 18 provinces equipped with diagnostic as well as control laboratories.

In a few of the districts there are already established veterinarian units, comprising diagnostic as well as sanitary laboratory. According to the plans there are to be units in all the districts.

There are approximately 3,000 veterinarians and technicians in the organization and it appears to be well organized, except for the limited number of district units which have yet to be established.

The organization is, however, suffering from the lack of imported medicine, spares, laboratory equipment, etc.

Experienced diseases are:

- Cattle plague
- Brucellosis
- Cysticercosis (Measles/tinter)
- Limping
- Leukosis
- "Water pockets on the liver"
- Ring worm
- Diarrè
- Parasitic diseases

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Foot and mouth disease was eradicated by vaccination 13 years ago and has not been experienced since.

A high aimal abortion rate (3.6 - 4.0 %) is a serious problem. The reason for the high rate is believed to be an infectious disease.

3. THE MEAT INDUSTRY

3. THE MEAT INDUSTRY

3.1 INTRODUCTION

During winter the animals are loosing weight, due to the limited feeding possibilities coupled with high energy consumption because of low temperatures. Furthermore, it is not possible to bring the animals to the slaughterhouse during winter due to the climatic conditions.

The animals are therefore slaughtered during the period end of July to end of December only. This applies especially to the animals supplied for consumption in the major cities.

In order to secure the supply of meat beyond the slaughter period (the winter period) the carcasses as well as the edible by-products are frozen immediately after slaughter and kept in cold stores for distribution to the shops during the winter.

Also in the winter season in the rural areas there will be slaughtered animals for local consumption.

3.2 MEAT SUPPLY

The meat is supplied from the livestock raisers to the consumers through a system comprising partly an urban delivery system serving the big cities Ulaanbaatar, Darkhan, Choibalsan and Erdenet and partly through a rural delivery system. The systems are shown in Figure 6 below.

The break-down of the animal species supplied is as follows:

TABLE 5: Break-down of Animal Species Supplied for Consumption

SPECIES	%	LIVEWEIGHT (tons)	NO. OF ANIMALS
Cattle	29	156,000	614,000
Sheep	55	297,000	7,815,800
Goats	12	64,800	2,090,300
Camels	2	10,800	27,000
Horses	0.5	2,700	10,800
Pigs	1.5	8,100	81,000
TOTAL	100.0	540,000	10,638,900

In Figure 7 below is shown which areas are delivering animals to each of the big cities. In the Annex is also shown from which areas the live animals for export are supplied.

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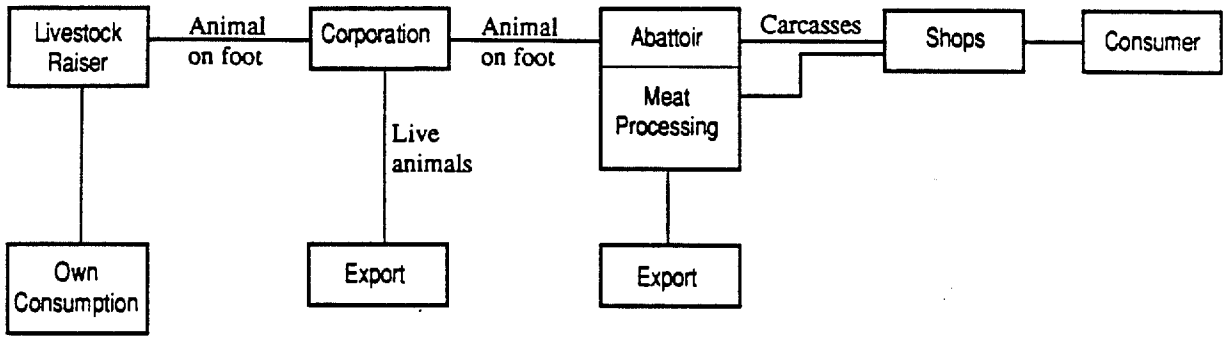
Figure 6: Urban and Rural Meat Supply Systems

Urban Meat Supply System:



Rural Meat Supply System:

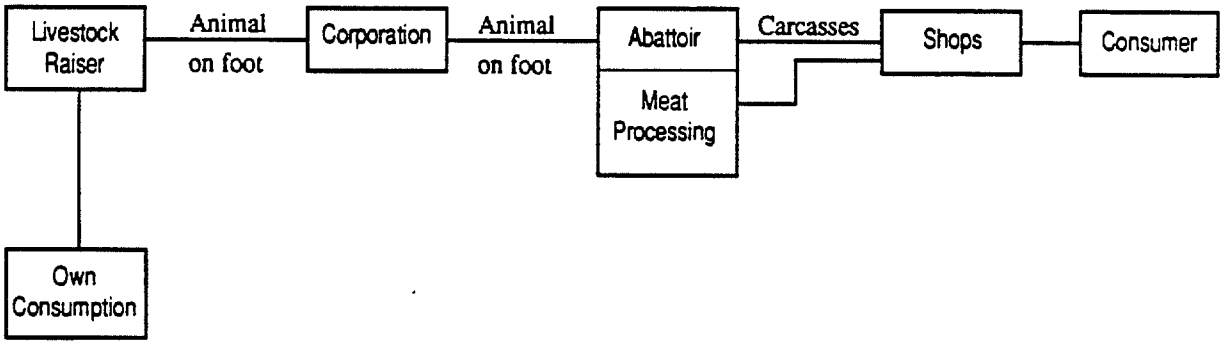


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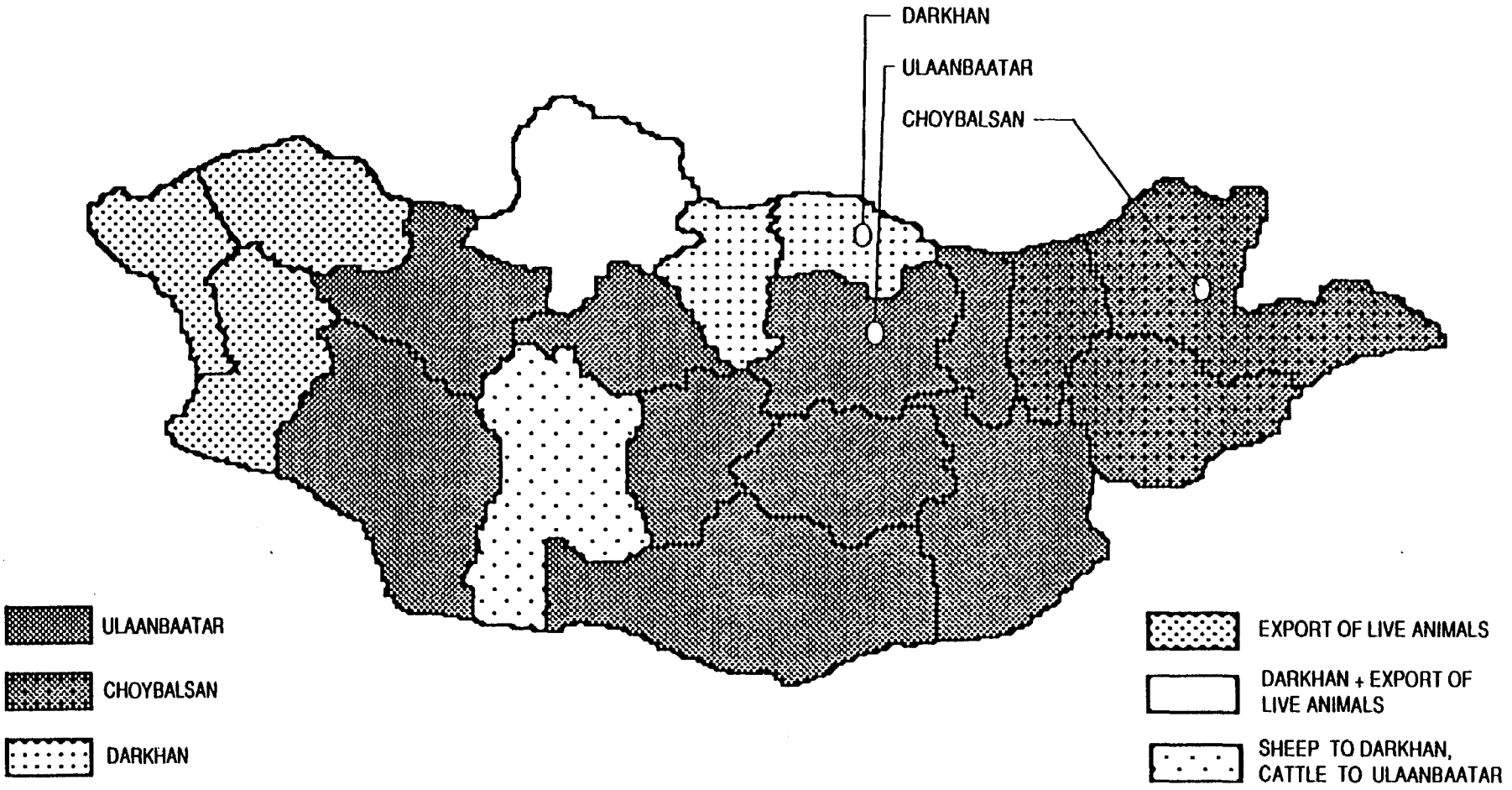
Figure 7: Areas for animal supplies to the big cities and for export



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The livestock holders have contracts witht he state concerning supplies to the slaughterhouses at government determined prices.

Animals for direct export live as well as animals for processing into export meat products are also delivered through that system. The animals exported live are delivered mainly from five districts with no abattoir/meat processing plant.

Pigs, which are bred in a small scale compared to the other species, are kept indoor and fed at state farms and other bigger farms. The pigs are slaughtered all the year round.

In general, the abattoirs do not debone and classify the meat but deliver it to the trade organizations as whole carcasses. The meat shops cut the meat themselves and generally sell it at three different prices according to quality. Consumers seem to prefer deboned and classified meat. There are however problems with availability of packing machinery and materials.

3.3 MEAT CONSUMPTION AND DEVELOPMENT TRENDS

The meat consumption planned by the Mongolian government is 88 kg/capita/year. This consumption is determined mainly in order to secure the supply of meat to the urban areas.

In Figure 8 the total national supply is depicted as 540,000 t/year. Deducted the amount of exported live animals (60,000 t) and processed products (20,000 t) the national average consumption is 460,000 t liveweight (equal to 230,000 t meat products). Consequently the local consumption is 230,000 t or 110 kg/capita/year.

As the deliveries to the cities are based on a consumption of 88 kg/capita/year, the consumption in the rural areas is correspondingly higher, close to 120 kg/capita/year. The corresponding consumption rate for Europe as a whole is 80 kg. The consumption in Denmark and in the United States is 95 kg and 115 kg respectively.

Therefore, it can be concluded that with respect to the meat supply, Mongolia is self-sufficient and potentially in a position to export meat.

Table 9 depicts the growth rate of the human as well as the animal population during the period 1985 - 1990.

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MONGOLIA: Needs Assessment Mission

Figure 7: Areas for animal supplies to the big cities and for export

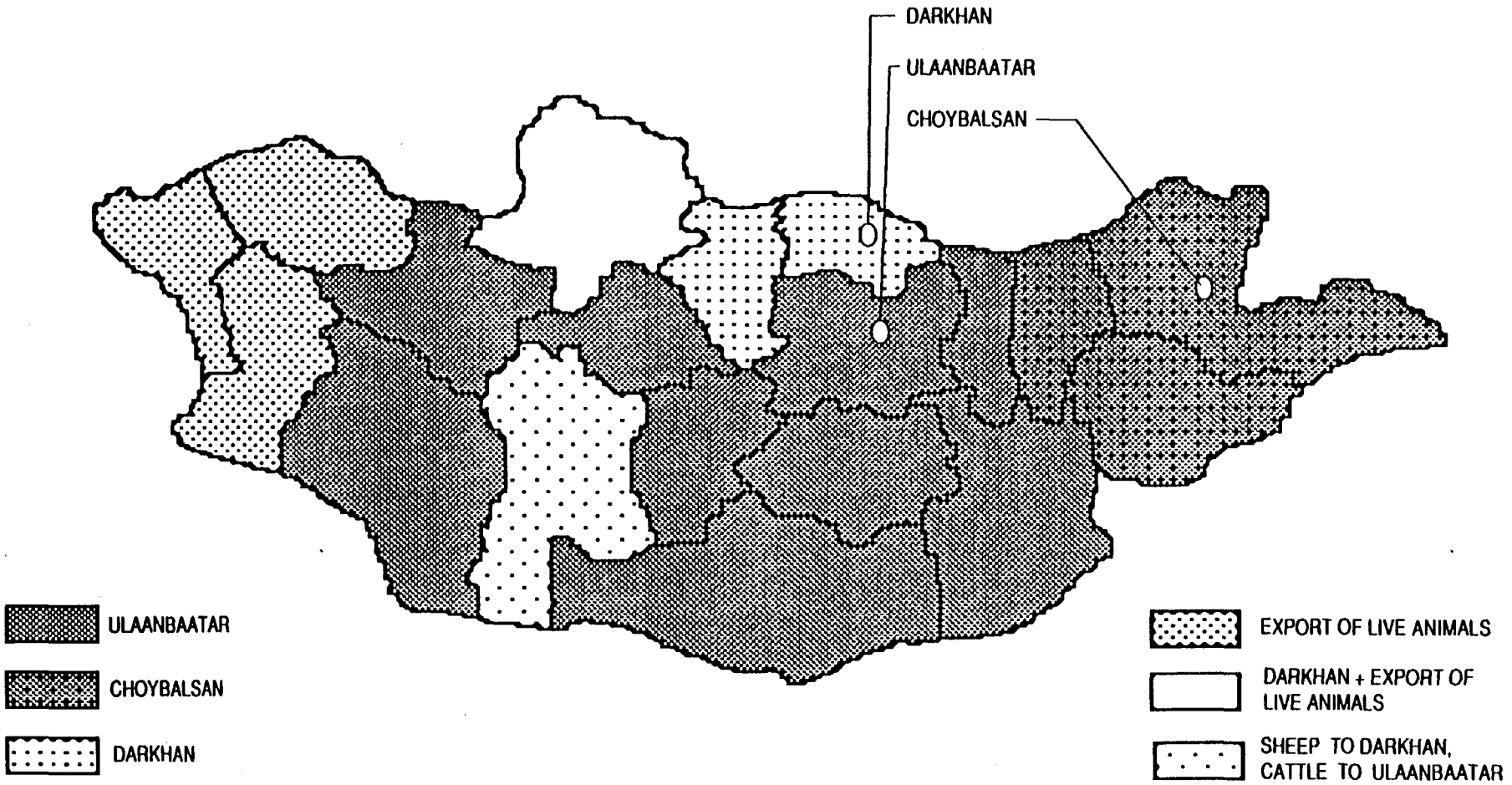

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Figure 8: National Supply of Meat (live weight in tons)

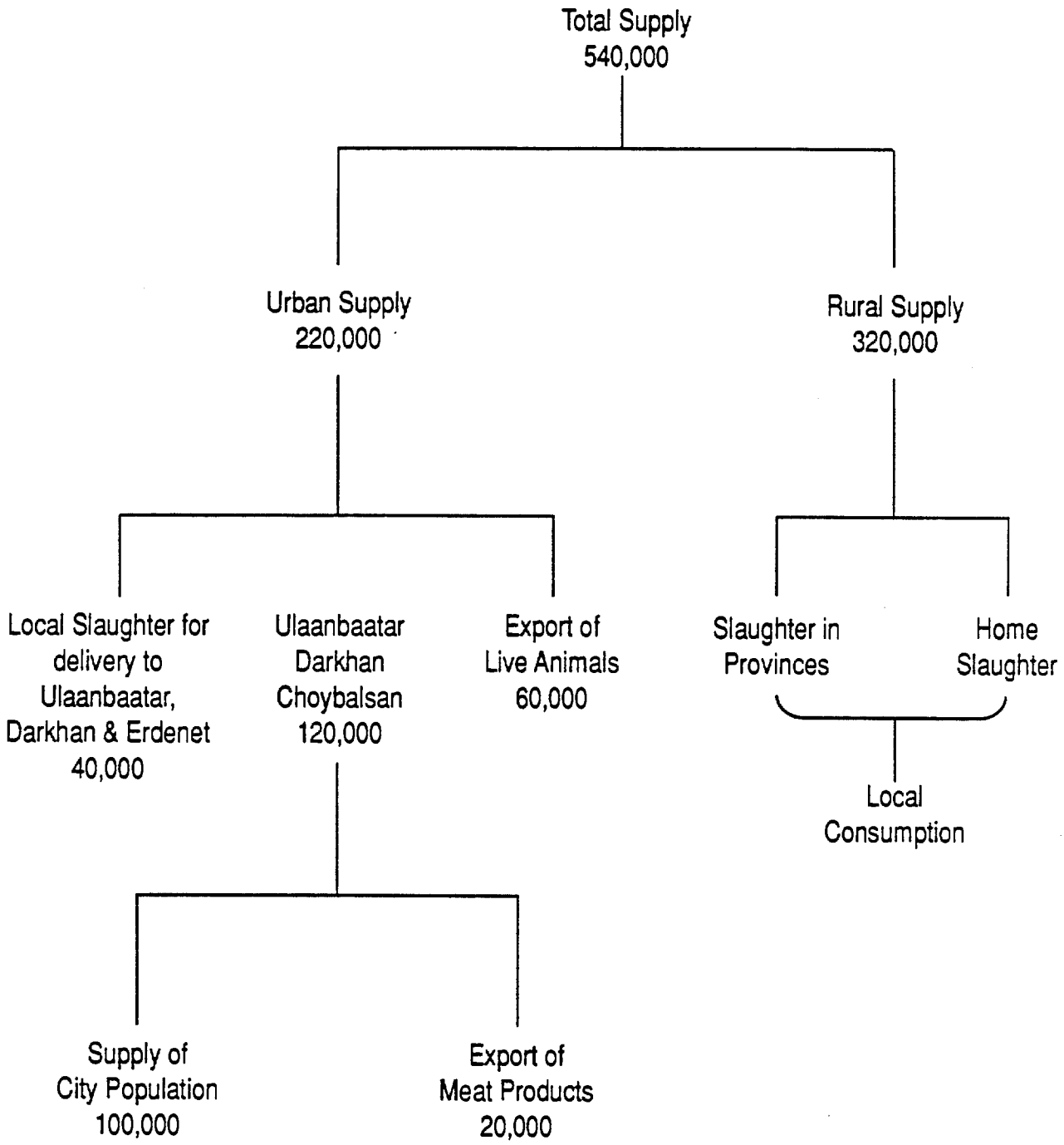

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TABLE 9: Development of Human and Animal Population 1985-1990 ('000)

	1985	1986	86/85	1987	87/86	1988	88/87	1989	89/88	1990	90/89
HUMANS	1920	1972	2.7%	2023	2.6%	2087	3.2%	2155	3.3%	2230	3.5%
CATTLE	2408	2480	3.0%	2526	1.9%	2541	0.6%	2693	6.0%	2849	5.8%
CAMELS	599	551	-1.4%	547	-0.7%	553	1.1%	558	0.9%	538	-3.6%
HORSES	1971	2018	2.4%	2047	1.4%	2103	2.7%	2200	4.6%	2262	2.8%
SHEEP	13249	13194	-0.4%	13234	0.3%	13401	1.3%	14265	6.4%	15083	5.7%
GOATS	4299	4401	2.4%	4388	-0.3%	4474	2.0%	4959	10.8%	5125	3.3%
TOTAL ANIMALS	22486	22644	0.7%	22742	0.4%	23072	1.5%	24675	6.9%	25857	4.8%
RATIO ANIMALS/HUMANS	11.71	11.48		11.24		11.06		11.45		11.60	

Source: Central Statistical Board.

The human population has increased by 2.6 to 3.5 % per annum and is expected to stabilize at a level of 2.8 % in the coming years. The animal population has experienced fluctuating growth rates from 0.7 % to 6.9 %. Especially during the last two years the growth rate of the animal population has increased compared to the human population and the animal/human ratio has increased from 11.06 in 1988 to 11.6 in 1990. If or when the proposed measures to increase production are implemented the potential supply of meat will further increase.

Based on experience from other markets the local per capita consumption is not expected to increase much further. This assumption is also supported by the fact that the subsidized meat prices will have to increase when government determined prices are successively abolished. Development of a more pen society will tend to change the traditional diet and this as well as consumer spending on other and gradually more easily available goods will both entail lower per capita meat consumption.

The above trends as to the meat supply are likely to result in increasing quantities available for export which could contribute to increased foreign exchange earnings and the development in general of the country.

3.4 PRICES

Purchase prices as well as wholesale and retail prices for meat are standard prices determined by the Government. Wholesale and retail prices comprise two-three qualities whereas only one price is applicable for the animals brought to the slaughterhouse by the livestock holder.

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TABLE 10: Meat Prices (Tughrik/kg)

PRODUCT	QUALITY	PRICE TO SUPPLIER AT SLAUGHTERHOUSE	WHOLESALE PRICE	RETAIL PRICE
BEEF	I II III	4.953	10.800 9.180 7.560	12.000 10.200 8.400
SHEEP	I II III	3.749	13.500 11.340 9.720	15.000 12.600 10.800
GOAT	II III	3.156	7.560 6.300	8.400 7.000
HORSE	II III	1.463/pc	7.020 5.040	7.800 5.600
CAMEL	I II III		8.280 7.740 5.220	9.200 8.600 5.800
PORK	I II III	12.310	14.400 11.880 10.440	16.000 13.200 11.600

Source: Mongolian Food Industry Corporation.

A gross profit margin of 10 % of the retail price is allowed for the retail shop. The wholesale price includes costs of freight from the slaughterhouse to the retail outlet. A calculation based on quantities purchased and sold and on the prices applied indicates that the sales revenue only covers 60 - 65 % of the cost of the animals purchased entailing a cash loss of some 450 mio. Tughrik annually on a country wide basis. To this should be added wages, costs of power/water, transport to retailers, depreciation, etc. The total loss is estimated to amount to some 1.2 billion Tughrik per year. To ensure viability in a free market economy considerable price adjustments will be required as well as streamlining of production costs. To this end new management systems must be introduced and training of staff in management and marketing will be required.

3.5 EXPORT

The main items for export of animals and meat products comprise in general:

- Live animals, cattle, sheep, goats and horses from Bayan Ölgiy, Uvs, Hovd as well as from Hövsgöl. The animals are exported on hoof to the USSR.

- Carcasses from cattle, sheep, goat to the USSR and Bulgaria.

- Casings to the USSR, Germany, France, Netherlands, Yugoslavia and Bulgaria.

- Hides are exported to the COMECON countries. Finished leather products are being exported to European countries with an increasing trend, it appears.

Due to the changes of the former trade structure with the COMECON countries - ref. Section 2.1.1 - MPR has to look for new markets. The possibilities have to be explored but the most likely markets seem to be South East Asian countries, the Middle East and North Africa (ref. Section 3.7.10).

3.6 ABATTOIRS AND MEAT PROCESSING PLANTS

The present situation regarding the abattoirs and meat processing plants in Mongolia is described below, first the existing plants, then the plants under construction and finally planned projects.

Existing Plants:

City	Province
Ulaanbaatar	Capital City
Choibalsan	Dornod
Darkhan	Selenge
Saynshsaud	Dornogovi

Plants under Construction:

City	Province
Ulaangom	Uvs
Ölgiy	Bayan Ölgiy
Hutag	Bulgan

Planned Plants in Provinces:

City	Province
Buruun Urt	Sühbaatar
Öndöhaan	Hentiy
Bulgan	Bulgan
Mandalgovi	Dundgovi
Altay	Govi Altai
Mörön	Hövsgöl
Tseterleg	Arhangay
Bayanhongor	Bayanhongor
Arvayheer	Övörhangay
Erdenet	Bulgan

Figure 10 A below shows a map of Mongolia with the location of the above plants and below is a description of the various plants and projects.

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Figure 10: Location of existing and planned abattoirs and meat processing plants.

3.6.1 Existing Meat Combinates

3.6.1.1 Ulaanbaatar

The plant in Ulaanbaatar is a meat combinate complex situated in Ulaanbaatar city. (A meat combinate in MPR is an abattoir with processing lines e.g. manufacture of sausages, meat canning, etc.). The capacity of the complex, all per 8 hour shift is 1,000 cattle, 8,000 sheep, 2,000 goat and 300 pigs.

The complex was built in 1968 with assistance from the German Democratic Republic. Recently, a few new machines of West German manufacture have been installed in the sausage and canning processing departments.

Also recently a joint venture has been established with a German company for export of casings. Modern casing cleaning equipment has already been imported and is ready for installation.

The majority of the original equipment is of painted black steel. It is obvious that due to the age and material of construction of the equipment a great effort has to be put into the repair and maintenance of the plant in order to keep it operational. The complete plant (the equipment as well as the building) needs badly a renewal.

Cattle, sheep and goats are slaughtered from end of July to end of December (and only during this period) in two shifts per day. Pigs are slaughtered all year round.

The complex includes in general the following slaughter and meat processing facilities:

- Administration
- Veterinarian facilities
- Lairage for one days production
- Slaughter halls for cattle, sheep and pigs, arranged in a 3 story building
- Freezers and cold stores for carcasses and edible by-products
- Gut and casing cleaning department
- Deboning department
- Sausage processing department
- Canned products processing department
- Inedible by-product processing plant

The processed products comprise on a yearly basis:

- Frozen carcasses and by-products
- 4000 t sausages
- 1200 t dumplings
- 15 mill nos 170 g and 430 g canned products
- Meat and bone meal

The areas which require refurbishment are:

- Slaughterlines for cattle, sheep/goats and pigs
- New blood collection and plasma production plants
- Edible by-product (heart, liver, tongue etc) treatment plants
- Freezers and cold stores for carcasses as well as edible by-products

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- Carcasse meat cutting, deboning and packaging
- Meat processing (sausages and canned products)
- Fat rendering
- Inedible by-product rendering

3.6.1.2 Darkhan

The plant is a meat combinate complex located in Darkhan and built in 1974 with technical and financial aid from Hungary.

The production and the capacity is as follows, all per 8 hour shift:

- Slaughter of 2000 sheep and goats
- Slaughter of 200 cattle and horses
- Slaughter of 25-30 pigs
- Production of 50 t meat products
- Production of 3 t sausages
- 0.2 t dried blood
- 0.5 t meat and bone meal
- Cold stores with a capacity of 3200 t

More than 50 % of the production of the plant is exported.

The situation regarding the equipment is similar to that of Ulaanbaatar. The complete plant (the equipment as well as the buildings) needs badly a renewal.

The refurbishments required are:

- Complete renewal of the slaughter equipment and machinery
- Increase of the slaughter capacity for pigs to 150 pigs per 8 hour shift
- New equipment for cutting, deboning and sorting according to quality and packaging
- New equipment for sausage manufacture, including increase of capacity to 5 t per 8 hour shift
- Renewal of the refrigeration plant
- Renewal of the inedible by-product plant, capacity 5-7 t of raw material.

3.6.1.3 Choibalsan

The plant comprises a meat combinate located in Choibalsan and built in 1970 with technical and financial aid from Bulgaria.

The capacity and production is as follows, all per 8 hour shift:

- Slaughter of 1500 sheep and goats
- Slaughter of 200 Cattle and horses
- Slaughter of 25 pigs
- Production of 50 t meat products
- Production of 2-3 t sausages
- Production of 1 t soap
- Production of casings
- Cold stores with a capacity of 3000 t

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More than 50 % of the production of the plant is exported.

The situation regarding the equipment is similar to that of Ulaanbaatar. The plant (the equipment as well as the buildings) needs badly a renewal.

The refurbishments required are:

- Complete renewal of the slaughter equipment and machinery
- Complete renewal of the refrigeration plant
- Increase of the slaughter capacity of pigs to 150 pigs per 8 hour shift
- New equipment for meat cutting, deboning and sorting according to quality and packaging

3.6.1.4 Saynshaud

The Saynshaud plant comprises an abattoir for local meat consumption in the province. The plant has a slaughter capacity of 5 t per 8 hour shift and carcass cold store capacity of 700-800 t.

3.6.1.5 Uhastray

The plant in Uhastray comprises an abattoir for local meat consumption in the province. The plant has a slaughter capacity of 5 t per 8 hour shift and carcass cold store capacity of 300-400 t.

3.6.2 Meat Combinates Under Construction

3.6.2.1 Ulaangom

Abattoir and meat processing plant for a capacity of 35 t per 8 hour shift.

The purpose of this project is to improve the meat supply situation in the province as well as to allow for slaughter and processing of the animals presently being exported live (value added export products). It is planned that 60 % of the meat products from this plant is to be exported.

The buildings are 80% completed but due to lack of financing the equipment has not yet been purchased. (List of equipment is included below).

The following equipment is required in order to make the plant operational:

- Slaughterline for 270 cattle and horses per 8 hour shift
- Slaughterline for 2,200 sheep and goat per 8 hour shift
- Slaughterline for 50 pigs per 8 hour shift
- Equipment for treatment of edible by-products, capacity 10,4 t per 8 hour shift
- Casing cleaning equipment, capacity 2,200 bundles per 8 hour shift
- Refrigeration equipment for freezing of carcasses and edible by-products, capacity 45 t per 8 hour shift
- Refrigeration equipment for cold store capacity of 5,000 t
- Cutting and deboning equipment for cattle and pigs, capacity 35 t per shift
- Equipment for production of sausages, capacity 1 t per 8 hour shift

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- Fat melting plant, capacity 2 t per shift
- Necessary laboratory equipment for the plant

3.6.2.2 Hutag

A small abattoir is under construction, for district supply, including carcass cold store with a capacity of 1-2 t per 8 hour shift.

The project is being built with assistance from the USSR and is expected finished in August this year.

3.6.2.3 Ölgiy

Abattoir, incl. cold store, and meat processing plant with a capacity of 5 tons per 8 hour shift.

The project is being built with assistance from the USSR and it is planned completed in 1991.

3.6.3 Abattoir and Meat Processing Plants, Planned

3.6.3.1 Hovd

A meat combinate similar to that in Ulaangom is planned to be built during the period of 1991-1995. The project has already been worked out by the USSR. Financing has, however, not yet been established.

3.6.3.2 Bagachangai

Abattoir and meat processing plant for 20,000 horses during 3 months.

The project is being negotiated built in a joint-venture with a Finnish company which is interested in exporting the horse meat. Final settlement is expected during this summer.

3.6.3.3 Erdenet

An abattoir and meat processing plant is planned for meat supply to the province. The plant is intended to have a capacity of 5 t per 8 hour shift and a carcass cold store capacity of 400-500 t.

The project is planned built during 1991-1995. The financing has not yet been established.

3.6.3.4 Tamsagbulag

A small abattoir is planned, for district supply, including carcass cold store with a capacity of 1-2 t per 8 hour shift and cold store capacity of 150 t.

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The project is planned built during 1991-1995. Financing has not yet established.

3.6.3.5 Province Meat Processing Plants, (a total of ten units)

10 abattoirs and meat processing plants are planned for the supply of meat products to the provinces.

During the slaughter season the plants will operate in 2 shifts/day and each of the plants shall have the following capacities:

- Slaughter of 40 big animals/8 hour shift
- Slaughter of 300 small animals/8 hour shift
- Slaughter of 50 pigs/8 hour shift
- Facilities for treatment of edible by-products, casings, fat etc.
- Cold store facilities for 700-800 t.
- Cutting and deboning facilities for carcasses
- Sausage production, 0.6 - 1.0 t/8 hour shift

Financing of the projects has not yet been settled.

3.6.3.6 District abattoirs, (a total of 38 units)

Small district abattoirs with a slaughter capacity of 1-2 per 8 hour shift and included carcass cold store for 100-150 t.

The location of each of the projects have been decided and they are planned built before year 2000. The projects are planned to be financed on a private basis.

3.6.3.7 Bone extraction plant, 4 units

Plant for extracting the gelatine from animal bones. Each plant should have a capacity of 1500-2000 t of bones per year.

The purpose of the plants is local production of gelatine as a replacement of imported gelatine.

The products from the plant will be:

- 200 t technical fat
- 750 t bone scrap which may be exported
- Gelatine.

The locations of the plants are:

- Choibalsan, Dornod
- Ulaangom, Uvs
- Uliastai, Dzavhan
- Hovd.

Financing of the projects has not yet been settled.

3.6.3.8 Dry meat processing plant, 2 units

The purpose of these plants is to prepare shredded dried beef meat packed in plast bags. The product is meant for local consumption as well as for export.

The capacity of each of the plants should be 10 t/8 hours.

Shredded, dried beef meat has as long shelf life and is consumed by e.g. the herdsmen as it is easy and practical to carry along. At present dried meat is being prepared manually.

3.7 ASSESSED NEEDS - PROJECTS

Below the projects proposed implemented are listed with the main aim of bringing the Mongolian livestock as well as meat processing facilities up to an improved standard as to quality and quantity.

The aim is that the projects should provide increased national coverage of meat products and provide means of an increased export of high quality, value added, products. The latter in order to replace the present export of live animals by export of processed meat products.

The projects intended for export production should be worked out to meet the relevant standards as a basis for export to developed markets. In general, it is considered important that any meat export oriented investment project includes, as a part of the feasibility study, in-depth market analysis to verify the export potential and to ensure an appropriate matching of quality of supply (from Mongolia) with the quality required (in importing countries).

Disparity in concepts of quality between consumers in industrialized countries and producers in developing countries has on numerous occasions in the past become stumbling blocks for estblishment of sound agro-industries in the third world.

The projects are listed according to a priority which has been discussed and agreed with the Mongolian Food Industry Corporation and UNDP, MPR.

In the cost estimates given for the projects it is foreseen that all building work will be financed by local currency and the amount is not included in the estimates.

3.7.1 Measures to Reduce the Animal Abortion Rate.

Present abortion rate is 3.6-4.0 %. Reduction of the rate from 4 to 2 % corresponds to a meat supply potential of up to 10,000 t/year of animal liveweight.

It is proposed that a foreign expert visits Mongolia for a period of 2 weeks, as a first step and in coorporation with Mongolian Veterinarian Services Organization diagnoses the problem and advise on treatment measures.

Estimated budget cost: US$ 15.000

3.7.2 Training Abroad

Mongolia has been isolated position for a long period and, therefore, information about the development within the livestock raising as well as the slaughter and meat processing has not been received by the staff working in those fields.

It is therefore proposed that senior staff members (10 - 20 people) selected amongst those responsible for slaughtering, by-products handling, chilling, cutting/deboning/packaging, classification, meat processing, meat inspection, hygiene, sanitation etc. are sent for education and training abroad.

The purpose is to introduce the latest developments in the above subjects to the staff. (Technology transfer to Mongolia).

The staff should attend relevant courses on training schools for slaughter and meat processing, in subjects as mentioned above. Furthermore the staff should visit modern abattoirs and meat processing plants in order to acquaint themselves with working procedures and processes in modern plants.

The estimated budget cost for 1 month's training of a group of 10 people, including air tickets, training school fee, board and lodging is:
US$ 100.000

3.7.3 Ulaangom Plant

Supply of equipment (described in paragraph 3.6.2.1). To improve the meat supply situation in the province as well as to allow for slaughter and processing of the animals at present being exported live (value added to the export).

The estimated budget cost for the supply and erection of the equipment mentioned in para 3.6.2.1, excluded the building work required, is:
US$ 5 - 7 mill.

3.7.4 New Plants in the Provinces

To improve the meat supply situation (quantity as well as quality) in the big cities as well as in the provinces.

The implementation may be phased over a span of years.

The estimated budget cost for the supply and erection of the equipment mentioned in para 3.6.3.5, excluding the building work required, is for one plant: US$ 4 - 6 mill.

For 10 plants the total cost will be: US$ 40 - 60 mill.

3.7.5 Darkhan, Refurbishment

To increase quality, utilization and efficiency as well as make the plant ready for export of processed meat.

The estimated budget cost for the supply and erection of the equipment mentioned in para 3.6.1.2, excluded the building work required for the refurbishment, is: US$ 8 - 11 mill.

3.7.6 Choibalsan, Refurbishment

To increase quality, utilization and efficiency as well as make the plant ready for export of processed meat.

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The estimated budget cost for the supply and erection of the equipment mentioned in para 3.6.1.3, excluded the building work required for the refurbishment, is: US$ 8 - 11 mill.

3.7.7 Gelatine

4 new plants to compensate for imported gelatine - ref. para. 3.6.3.7.

The estimated budget cost for the supply and erection of the equipment, excluded the building work required, is for one plant: US$ 5 - 10 mill. dependent on the quality of gelatine to be produced.

Total for the 4 plants: US$ 20 - 40 mill.

The total cost will be lower if the production can be split in forinstance 4 local plants for the initial grinding and degreasing of the bones and a common plant for the final extraction of the gelatine.

3.7.8 Dried Meat

2 sets of equipment for producing dried meat for local consumption and for export - ref. para. 3.6.3.8.

It is foreseen that the major part of the project can be manufactured locally with import of some key equipment and technical know how.

The estimated budget cost is: US$ 1 - 2 mill.

3.7.9 Ulaanbaatar, Refurbishment

To increase quality, utilization and efficiency as well as make the plant ready for export of processed meat.

The estimated budget cost for the supply and erection of the equipment mentioned in para. 3.6.1.1, excluded building work required for the refurbishment, is: US$ 12 -15 mill.

3.7.10 Export Promotion

Diversification of the meat export is urgently required. New markets in the short term are, however, most likely markets outside the EEC and the US - ref. section 3.5. Establishment of new markets require experience in international export marketing of products in question.

Technical Assistance is therefore proposed for:

1. - identification of potential markets
   - establishing export contacts and implementing export
   - establishing an export section at Ministry of Agriculture/Mongolian Food Industries
   - training Mongolian staff in export activities

   1 TA in International Marketing of Meat Products. Proposed assignment duration: 2 years.

2. - establishing standards for export quality meeting EEC standards and implementing required processing procedures.

   1 TA - Technical Meat Cutting.

   1 TA - Veterinary experienced in EEC standards/requirements. Proposed assignment duration for 1) and 2): 3 months each.

Total estimated budget cost for 1. and 2.: US$ 450,000.

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4. THE DAIRY INDUSTRY

4 THE DAIRY INDUSTRY

4.1 INTRODUCTION

Mongolia is geophysically divided into five regions: the western high mountains, "Altai"; the northern high steppe, "Khenti"; the southern semi-arid desert "Gobi"; the eastern plains steppe and the south western forest/plains steppe. Cattle are grazed with significant milk production in all regions, however in the Gobi their significance as a source of milk is second to camels. The relative importance of all species as milk producers is further described in Annex 7 and represented on the Map (Annex 8). Cow's milk is by far the greatest volume of the national milk supply.

With a total production of 312 million litres of milk (1990) and a population of 2.1 million, Mongolia has an average production of 149 litres per capita which could be considered as theoretically adequate for self-sufficiency if compared to consumption in western countries and former eastern block countries as given in table 4.1 below:

TABLE 11: Consumption of Dairy Products in Selected Countries, Kg. per Capita

COUNTRY	POPU-LATION (Mill. pers.)	MILK	BUTTER	QUARK	CHEESE	TOTAL
Mongolia (Production)	2	N/A	N/A	N/A	N/A	149.0
Finland	5	186.03	8.2	1.9	9.9	253.8
Denmark	5	124.7	7.4	1.0	11.6	173.3
Netherlands	15	91.2	4.1	1.2	13.7	168.3
USSR	285	129.9	6.0	3.2	3.0	157.6
Poland	38	127.8	9.2	11.2	3.6	157.3
New Zealand	3	106.3	11.8	0.0	8.3	152.5
SSR	16	111.7	8.4	4.9	6.9	147.2
United Kingdom	57	123.4	4.5	0.7	6.8	144.6
USA	243	97.1	2.1	1.8	10.9	135.2
Hungary	11	101.4	3.1	4.9	4.1	131.5
Germany	61	70.1	8.1	7.3	9.5	130.3

Source: International Dairy Federation, Doc. No. 241, Bruxelles 1990 and (Mongolia), Mongolian Food Industry Corporation.

The Government estimates however, that present production only meets 48% of the demand of the population.[1] In this context it must be understood that milk is not drunk as such in Mongolia (except by small children), but is traditionally prepared in various forms as a major food source, particularly in the summer when meat is in short supply, and taken as a drink flavoured with tea and salt.

The demand for milk is therefore high, and estimated by Government as a national average of 270 kg per capita, varying from under 200 kg per capita in inner urban areas to 320 kg per capita in the mountainous regions.

Based on Government calculations of demand, the requirement for Ulaanbaatar alone is about 90 million litres per year, however supply to all major cities is at present limited to approximately 50 million litres. Only 15% of the total milk supply is collected for the major cities due to the nomadic migration of the greatest proportion of the national herd. Dairy products are therefore in major shortage in the urban areas in which about one half of the population live.[2]

Collection and effective utilization of approximately 260 million litres of milk produced during the summer months by the nomadic herds is a major concern of the Government. Approximately two thirds of this milk is at present consumed by the rural population in various forms, the cream from the balance is separated in units which follow the herds and the fat is recovered in the form of butter in Somon (district) centres. Butter production from between 80 and 90 million litres of milk converted by this system amounted to 4,829.3 tons in 1989 and 4,405.2 tons in 1990.

There is a substantial loss of protein and other milk solids in the skimmed milk from this process which is not at present recovered, although in former times the skimmed milk was converted to casein for export to the USSR. The Government is seeking new export markets for this protein in the form of sodium caseinate, which can be dried in the existing spray dryer in Ulaanbaatar during the winter when milk for drying is not available.

The milk production systems have a significant influence on the supply to the four largest processing units, which receive excess milk in the summer but are unable to meet consumption demands in the winter due to insufficiency of the milk supply.

Industrial milk processing is therefore constrained by a shortage of total supply in relation to traditional demand, the vastness of the country which gives inherent difficulties in collection, and the extreme seasonality of production which causes lack of adequate volume of supply of milk in the winter.

It was consequently found necessary to investigate the status of milk production in greater detail in order to gain perspective of the processing industry in the present study.

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1 Source: Mongolian Food Industry Corporation

2 Approximately one half of the population lives in urban areas. Statistics obtained during the mission indicate a total population of 2.1 to 2.2 million, with 705,100 living in the three cities of Ulaanbaatar, Darkhan and Erdenet alone and 361,000 living in the Aimak (provincial) centres. About one million live nomadically in the rural areas.

With the exception of a small quantity of sheep and goat milk, only cow's milk is processed industrially. This report is therefore primarily concerned with cow's milk and its products.

4.2 MILK PRODUCTION

4.2.1 Production Systems

Extensive grazing in the rural areas produces 85% of the national milk supply but this milk cannot feasibly be collected. This milk is therefore either consumed by the rural population or made into butter.

Production from the nomadic herds is seasonal, with the maximum volume occurring in the short summer period from June to September; the grass steppes which provide the grazing for the animals being snow covered from October to early May.

An intensive husbandry system with higher production yields on both "simple" dairies and "mechanized"[3] dairies is operated on State farms and cooperatives near to urban areas. Milk production from the intensive system is also seasonal, with a ratio of approximately 3:1 between the summer peak and the winter trough.

Approximately 20,000 cows are currently kept in the 41 mechanized dairies, 24 of which, together with 36 simple dairies supply milk to the factory in Ulaanbaatar. Other mechanized dairies and simple dairies supply the Combinates in Darkhan, Erdenet and Choibalsan which supply the populations those cities.

4.2.2 Milk Yield

The yield of the cows in the nomadic herds is thought to be very low, however no statistics could be obtained. One source gave a figure of 112 litres of milk per season (of about 120 days), however this could not be confirmed. The cows would normally have calves at foot.

The yield of the cows kept in simple and mechanized dairies is higher, however, on average is low by world standards. The average yield of cows in the simple dairies is given as 1,200 litres/year, and some cows in a mechanized dairy visited were stated to yield 4,000 litres during a 300 day lactation.[4] It is reported that some individual animals yield 6,000 litres under intensive conditions, however, in general a yield of 2,000 to 2,500

litres is the norm. Details of average yields in the mechanized dairies are given in Table 12 below:

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3 The terms are understood in Mongolia to describe "simple" dairies in which cows are housed in semi-covered stalls and milked by hand, and "mechanized" large-scale dairies where cows are kept in heated stalls with mechanized silage feeding and machine milking.

4 Source: Field visit to Gachuurt State farm 27.05.91

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TABLE 12: Milk Yield on Mechanized Dairy Farms. 1988 - 1990. Litres per Cow per Year

	ULAAN-BAATAR	CHOI-BALSAN	DARKHAN	ERDENET	OTHER	TOTAL
No. of mechanized dairies	24	2	6	1	8	41
1988	2256	2269	1923	2569	N/A	2236
1989	2190	2883	1939	2477	N/A	2210
1990	2211	2005	1577	2188	N/A	2101

Source: Agricultural Sector Review.

The causes of the low yield in the mechanized dairies are plural, however the greatest single factor is the quantity and quality of the feed. The cows are tied in heated units of 200 cows during the winter nine months of the year and fed on cereal silage, sometimes with the addition of peas, sunflower or maize, hay and low quality concentrates.[5] During the short summer period from early June to mid September the cows are moved to grazing areas where in addition to unlimited access to indigenous unimproved pasture they are supplemented with cereal silage.

Doubts were expressed to the mission concerning the adequacy of the crude protein content of the silage, and it was suggested that benefit to milk yield could be achieved by the planting of a legume together with the fodder crops.[6]

Other reasons for low yield are:

- An inadequate system for selection of cows for breeding arising from lack of facilities for effective production testing;

- Lack of pasture improvement;

- Poor condition of the milking equipment which could give possibility of incomplete milking due to variation in vacuum. Thus can lead not only to losses of milk, but also to reduction in the milking potential of the cows. Time did not allow any detailed study of the milking routine and technique, however seriously irregular milking machine pulsations were noted during visits.

5 Source: Ministry of Agriculture. Agricultural Sector Review. "Milk and Dairy Supply to the Urban Population", N.Guyer. 1991.

6 Source: N. Guyer, UNV attached Ministry of Agriculture. The legume selected for trial would need to mature in a growing period of about 75 days at an altitude above 1,200 metres, with a typical summer daylight period between longitudes 45 and 50°N, and be sustainable through seed collection.

4.2.3 The Milk Supply

All milk is initially purchased by the State Purchasing Authority, which issues supply contracts to both the nomadic herdsmen and the dairy farms on behalf of rural district buttermaking centres, the industrial processing factory and the Aimak units respectively.

Total milk produced is given in Table 13 below.

TABLE 13: Total Milk Produced 1979 - 1990. Million Litres

	1979-81	1987	1988	1989	1990
Supply to major cities	N/A	N/A	48.2	51.5	48.1
Used for butter	N/A	N/A	N/A	88.9	81.4
Rural consumption	N/A	N/A	N/A	178.9	182.7
TOTAL PRODUCTION[7]	236.0	284.0	299.0	319.3	312.2

Sources: 1979-88 FAO Production Yearbook 1989
1989-90 Mongolian Food Industry Corporation

Urban milk supply statistics shown in Table 14 below indicate that up to 78% of the urban milk supply is produced by the mechanized dairies. These dairies are thus of vital importance in the supply of milk for 70% of the total population of the country:

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7 Total production statistics for 1979-88 do not include milk fro Horse or Camel. These figures are included to give indication of the development of milk production over the past decade. Comparative figures for 1989 from the two sources are: FAO, 309,000 tons (not including horse and camel), and MFIC; 319,000 tons (all milk).

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TABLE 14: Milk Supplied by Farms for Urban Consumption. 1988 - 1990. Thousand Litres

	ULAAN-BAATAR	CHOIBAL-SAN	DARKHAN	ERDENET	TOTAL
1988					
Milk from mechanized dairies	27690	1824	3728	2618	35860
Milk from simple dairies	9659	829	1709	117	12314
TOTAL MILK SUPPLY	37349	2653	5437	2735	48174
1989					
Milk from mechanized dairies	29323	2341	4166	2764	38594
Milk from simple dairies	10334	604	1651	268	12857
TOTAL MILK SUPPLY	39657	2945	5817	3032	51451
1990					
Milk from mechanized dairies	29341	1724	4394	2210	37669
Milk from simple dairies	8916	299	1191	N/A	10406
TOTAL MILK SUPPLY	38257	2023	5585	2210	48075

Source: Agricultural Sector Review

4.2.4 Potential of Milk Production

It is not possible in the short term to consider collection of milk from the nomadic herds during the short production season in the summer months for inclusion in the city supply. This is due to the difficulties inherent in ensuring clean milk production and chilling in the outlying areas of this vast country; the lack of good roads and communications in the outlying areas and the distances involved for transport to a permanent pasteurizing plant.

There is however, a potential to improve the efficiency of conversion of summer milk surpluses by recovery of the skimmed milk from the fat separation process in the buttermaking system. Government has formerly produced and exported casein made from this skimmed milk to the USSR, however exports have now ceased. Since 1989 spray drying capacity exists which would allow this casein (converted to sodium caseinate) to be dried and exported on the world market.

In a medium term horizon the Government proposes to strategically locate other drying plants, which will make it possible to recover some of the rurally produced milk and excess summer production from the intensive systems and process it to whole milk powder, which can be recombined in the winter when shortages are most severe.

Government plans for the location of drying plants are discussed in section 4.4.1 of this report.

There is a good potential in a short term horizon to substantially increase the availability of useable milk from the mechanized dairies through ensuring better conditions for milking, quicker cooling of the milk, improved collection systems and tighter application of quality control systems. It is estimated that the present production level of 38 million litres from these dairies could be raised by a minimum of 5% through provision of Technical Assistance at all levels of milk production and handling from intensive husbandry to reception at the factory, and another 5% through installing new milking and chilling equipment and by repair to the buildings to improve the sanitary standards.

Improvements to the mechanized dairies and the milk collection system are proposed in the following sections.

4.3 THE MECHANIZED DAIRIES

The lay-out of a mechanized dairy is standardized in the form of an H, with 50 or 100 cow standings in each of the four arms. The connecting building contains cleaning and storage areas for the bucket milking machines, vacuum and hot water services, offices and feed concentrate stores.

4.3.1 Technical Standards

Buildings seen were adequately constructed from brick and concrete but in a poor state of repair, particularly floors. The dairy visited at Gachuurt State farm near Ulaanbaatar was stated to be typical of the others, and this opinion was confirmed by a subsequent visit to Chhaljilsureh State Farm near Darkhan.

Equipment is of USSR origin but was poorly maintained. At the Gachuurt farm dairy visited many items were not operating such as the hot water generator, can cleaning equipment and the milking bucket sterilizer. Milking equipment was being cleaned on the floor with cold water. The Consultant was assured that the dairy seen was "average"; some others were stated to be slightly better and some in an even worse condition. The Consultant was not shown similar facilities at the second dairy visited.

Spare parts were stated to be unavailable from the USSR. It was informed told that sets of new equipment purchased in 1989 for five new mechanized dairies (which are still under construction) are being cannibalized for spare parts in order to maintain operations.

The standard of husbandry and clean milk production at the mechanized dairies is constrained by inefficient use of the labour available[8] and the poor maintenance of the milking equipment. The use of bucket milkers for large numbers of cows under both the housed (winter) conditions and in the (summer) portable milking bails is labour intensive, and the farm manager at Gachuurt stated that he could not obtain enough labour to properly address all husbandry and milking tasks under the present conditions.

4.3.2 Proposed new Mechanized Dairies

Five new dairies have been under construction for the past two years, however, construction work has been halted due to lack of funding.

The lay-out plans for the new dairies were stated to be exactly the same as those existing and the equipment in store is of the same pattern and from the same source. One such new dairy was observed at Gachuurt. The farm director expressed a desire to modernise the building project before completion by installation of a pipeline milking parlour, both for reasons of milk quality improvement and to save labour.

The locations and cow capacities of the new dairies are given in Table 15 below:

TABLE 15: Locations and Cow Capacities of Mechanized Dairies under Construction

PROVINCE	LOCATION	COW CAPACITY
Ulaanbaatar	Gacheert Patisan	400 1200
Selenge	Baruukhara Djuunkharan	400 400
Khenti	Kherlinbayan	400
TOTAL COW CAPACITY		2800

Source: Mongolian Food Industry Corporation

4.3.3 Recommendations Concerning the Mechanized Dairies

1. That Technical Assistance experts be made available as soon as possible to help the management and staff of the dairies to address the problems they have at the present time, and to undertake the studies enumerated as 2 to 4 below.

8 The Consultant was advised that the labour intensity for cow husbandry at the mechanized dairies is one worker to eight cows. This is a low ratio by international standards, and it may therefore be assumed that the labour problem at these dairies is not necessarily one of lack of labour but could be resolved by improving the effectiveness of labour utilization.

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2. That study be made of the efficiency of the mechanized dairies, with a view to redesign of the uncompleted five new dairies to allow incorporation of pipeline milking systems, with heat exchangers and refrigerated holding tanks for milk cooling.

3. That the cost and benefit of conversion of the existing 41 mechanized dairies to pipeline milking be studied.

4. That a study be made of the needs and cost of renovation of existing buildings.

5. That portable milk chilling and storage equipment be provided for use in the summer three months when the herds are milked on pasture away from the permanent dairies.

4.4 MILK COLLECTION FOR INDUSTRIAL PROCESSING

Because of the nomadic nature of the steppe-grazed herds, the lack of paved roads and the distances involved, no milk is collected from the rural areas. The milk produced is separated at about 1,000 sites and the cream is transported to butter making units located in Somon centres. Neither the separation nor the buttermaking processes were seen by the mission, as these seasonal operations had not commenced at the time of the visit to Mongolia.

The Government is concerned that a substantial loss of protein is caused by the milk separation and buttermaking process in the rural areas, and proposes to address this problem by providing a number of spray drying plants and two milk concentration plants in areas with substantial summer milk production. The objects of this project are to:

- Collect milk for concentration in Bulgan and Selenge provinces, which can be transported economically as concentrate to Darkhan and Erdenet for processing into milk products.

- Collect milk in nine provinces for drying. It is proposed to store the milk powder for recombining in the winter.

- Recover skimmed milk from the separation processes in the rural areas and convert it to casein. The casein would subsequently be converted to sodium caseinate in the winter and dried for export.

4.4.1 Proposed New Spray Drying Plants

The locations of the proposed drying and/or concentration plants are shown in Annex 9, and detailed in Table 16 below:

TABLE 16: Proposed Locations of Milk Drying and Concentration Plants

PROVINCE[9]	PRODUCTION CAPACITY PER Hr.		
	45 Kg Powder	150 Kg Powder	330 Kg Concentrate
1 Arhangay		3	
3 Bayanhengor		1	
4 Bulgan	1		1
7 Dornod		1	
9 Dzavhan		1	
10 Overhangay	2	1	
13 Selenge		1	1
14 Tov	1		
18 Khenti	1	1	
TOTAL NUMBER OF PROPOSED PLANTS	5	9	2

Source: Mongolian Food Industry Corporation

4.4.2 Bulk Collection

Milk for the major cities is collected in bulk from mechanized dairies and from Milk Collection Centres (MCC) by the dairy factory or Combinate. In the case of Ulaanbaatar factory which has its own fleet of 164 insulated road tankers of 3,500 litres or 4,500 litres capacity, milk is collected within a radius of 300 kilometres of the plant from 24 mechanized dairies and nine MCC. Details of the locations of the pick-up points and radial distances are given in Annex 10.

Milk collection from both the mechanized dairies and simple dairies is typically twice per day. Unpaved roads, in particular the internal roads on the farms, are however, in a poor state of repair and there are consequently delays in transportation. Inwards transport from the furthermost farms to the Ulaanbaatar dairy can take up to six or seven hours. At Gachuurt State farm no milk storage tank was seen, the milk being kept in 50 litre milk cans until arrival of the tanker, and discharged directly into the opened top man hole by hand. It was informed, however, that all milk from the mechanized dairies was mechanically cooled before collection during the winter. At Chaaljitilsureh State farm near Darkhan a 1250 litre refrigerated milk tank was seen, located to serve 200 cows.

9 The reference numbers given are those used as a standard in all MFIC documents. It was understood that they have no other official or political significance.

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During the three summer months when the cows are milked in the pastures in portable in-line bails, the only cooling available was by standing the milk cans in a natural stream. At the time of the visit to Gachuurt, the cans were only immersed to a depth of about ten centimetres, and only after all milking was completed. The farm director was aware of the shortcomings and expressed his dissatisfaction over the lack of cooling facilities.

4.4.3 Milk Collecting Centres

The mission had opportunity to inspect an MCC at Bayanchandam, 63 km from Ulaanbaatar, and noted that it was equipped with a weigh bowl for milk reception, had plate heat exchangers cooled by well water which enabled cooling to 10°C and insulated storage tanks. It was equipped with simple testing equipment for acidity and butterfat. The storage capacity was 14,000 litres, however, the maximum throughput was given as 26,000 litres per day, which required that a tank vehicle from Ulaanbaatar dairy be on site during reception to provide extra capacity.

The MCC was situated near to the main road and received milk from three State farms at a maximum distance of 144 km. The condition of the MCC and its equipment when inspected was poor, with lacking attention to housekeeping and cleanliness. The laboratory and its equipment did not appear to have been used that day.

The farms supplying to the MCCs are responsible for providing transport from the farm.

4.4.4 Recommendations Concerning Milk Collecting System

1. Training in operation of MCCs should be included in the TOR of the TA team proposed to be attached to the mechanized dairies.

2. Provision of mechanical refrigeration equipment at the MCCs to allow cooling of the milk to 4°C.

3. Provision of additional insulated milk storage tanks at the MCCs will allow more economical use of the tank vehicles from the factory.

4. Tank vehicles of larger capacity than 3,500 litres can be used to pick up from MCCs sited near to the main roads.

4.5 QUALITY CONTROL

4.5.1 National Quality Standards

Quality standards for raw milk were laid down by the State Committee for Standards in 1985 and are given in Annex 11 together with the milk classification system on which payment is determined. The system is very simple and only provides a minimum of quality control and minor price differentials for low hygienic quality and for high butterfat.

4.5.2 Application

The mission was advised that the national quality control system is only applied in practise to the milk produced for the urban supply, which is about 15% of the total supply. It is understood that the rural milk centres at which milk is separated to cream before transportation to the butter making plants have testing equipment, but it is not regularly used.

For milk entering the urban supply system, each State farm and MCC is required to test the milk and provide a written statement of quality with every consignment. The raw milk is again tested on receipt at the factory.

From observations made, and after discussion with concerned officials, the mission is of the opinion that the efforts made to ensure a satisfactory quality of the raw milk are not giving satisfactory results in practise, and that improved control of testing at all levels could result in a beneficial improvement in the quantity of milk received in useable condition. Both factory directors complained of receiving milk with high acidity (souring) and high wastage due to this cause.

4.5.3 Recommendations Concerning Quality Control

1. That the Technical Assistance team detailed in section 4.11 of this report as the major need of the industry conduct re-training courses for operators and middle level managers with a view to strengthening the control of the application of the existing National quality control regulations.

2. That the Technical Assistance team, in cooperation with the Ministry of Agriculture, prepare a programme for improving the scope and coverage of the National quality control regulations, and propose a revised system of payment based upon quality parameters.

4.6 DEMAND FOR DAIRY PRODUCTS

4.6.1 Basis of Calculations

As no market based experience exists, the Government has statistically calculated demand for milk and dairy products, based on assumed demand rates for the populations of the different geophysical regions of the country.[10] When calculating projections however, the figures given in Table 17 below are reduced in accordance with a formula in the case of the populations living in the inner metropolitan areas of the major cities, as demand is assumed to be less than in outer urban areas.

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10 The geophysical regions of Mongolia are shown in Annex 8.

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TABLE 17: Demand Rates and Present Demand for Dairy Products in Different Geophysical Regions. Kg per capita

	POPULATION	DEMAND RATE	ESTIMATED 1991 TOTAL DEMAND (Mill. Kg.)
Ulaanbaatar, Darkhan and Erdenet	705,100	200	136.1
Gobi Desert	152,800	290	44.3
Steppe pastures	310,200	300	91.3
Altai mountains	324,400	310	100.6
Khenti highlands	604,100	320	193.6
TOTAL	2,096,600	270	567.4

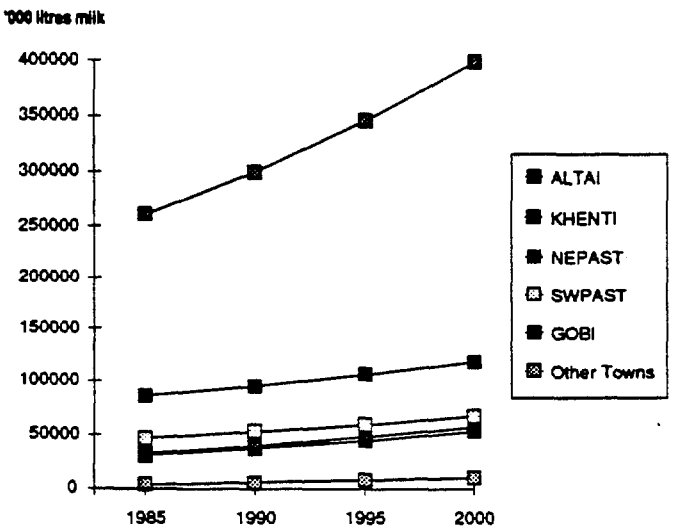
Source: Mongolian Food Industries Corporation 1991

4.6.2 Forward Demand Projections

Based on population growth trends, the Government has projected demand for milk up to year 2000. The projection is made by provinces, and is based on the assumed demand rates per geophysical region given in section 4.6.1 above. A table of detailed projected demand per provinces is given in Annex 18.

The projected demand curve is shown in Figure 18 below and shows that demand is expected to grow at an annual rate of increase of about 15 %.

Figure 18.: Projected Demand for Dairy Products, 1985 - 2000



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If the assumptions made are correct, it will be seen that the present production of 312 million litres will have to be almost doubled by 1995. This target is achievable given the numbers of animals in the National herd, however, it is evident that yields, particularly of cattle, must be improved, which will require that the problems discussed in section 4.2.2 are addressed immediately.

4.7 PRICES

4.7.1 Purchase and Selling Prices of Milk

Prices for raw milk are standard over the entire country with only minor variations in respect of quality parameters.[11] The basic prices are as follows:

Winter (1.10 to 30.5)	Tughrik 5.00 per litre
Summer (1.6 to 30.9)	Tughrik 1.80 per litre

Selling prices are assumed to be those that the consumer pays, which, for pasteurized milk, are also season determined as follows:

Winter (1.10 to 15.7)	Tughrik 4.00 per litre
Summer (16.7 to 30.9)	Tughrik 3.00 per litre

The dairy factory or Aimak unit gives an officially prescribed "discount" to the retailing shops which appears to be 9 % of the consumer price, however the mission was variously told of "discounts" from 9 to 11 %. The dairy considers this "discount" to be an operating cost, and there appears to be no concept of a "net" selling price to the shops.

In recognition of the loss inherent in the winter pricing structure, the Government provides a support payment to Ulaanbaatar dairy (only) to cover the cash loss generated by the difference between the winter purchase and (consumer) selling price. The amount of the subsidy is Tughrik 1.00 per litre for the total quantity of milk budgeted to be received during the winter period. Government subsidy is not available to the Aimak units, as it is assumed that other forms of foodstuff production in these Combinates are profitable.

Official Government prices for all products are given in Table 18 below:

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11 Price variations for quality deviations are given in Annex BB

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TABLE 19: Officially Controlled Prices for Dairy Products

PRODUCT		UNIT	PRICE IN TUGHRIK CONSUMER	RETAILER
Pasteurized milk in bulk 3.2% butterfat	Winter	Litre	3.00	2.73
	Summer	Litre	4.00	3.64
Pasteurized milk in cartons/sachets	Winter	Litre	3.40	3.09
	Summer	Litre	4.40	4.00
Sterilized milk		Litre	5.20	4.73
Yoghurt		Litre	4.00	3.64
Sour cream 30% butterfat		Kg	10.40	9.46
Sour cream 40% butterfat		Kg	15.20	13.83
Butter High quality		Kg	27.00	24.57
Butter Grade 1		Kg	24.00	21.84
Powdered milk 25% butterfat		Kg	32.00	29.12
Infant formula milk powder 15% fat		Kg	28.80	26.21
Infant weaning food		Kg	17.40	17.40
Infant diet product		Litre	4.00	4.00
Infant vegetable food		Kg	5.60	5.60
Infant protein supplement		Kg	7.00	7.00

Source: Mongolian Food Industry Corporation

4.7.2 Pricing Policy

The present pricing system does not appear to be based on commercial principles and is apparently social in concept.

A comparison of the purchase price of milk and sales revenues based on 1990 actual milk receipts and product volumes indicates that the factory incurred a cash loss equivalent to about 50% of its total milk purchase cost. This loss would have been reduced by about 30% by the amount of the subsidy received from Government, however, total operating losses would have been much greater when all costs are considered, such as wages, packing materials, milk transport inwards and outwards, factory and general overheads, energy and depreciation.

The price being paid at the farm gate for milk is reasonable when compared with international norms at the official rate of exchange for the Tughrik, however, the consumer prices are very low. As Mongolia moves to a market driven economy, the concept of profit and loss accounting for individual enterprises will have to be introduced which could lead to substantially increased consumer prices and/or reduced prices to the farms due to the need

to ensure viability of operations both in the dairy industry and in the retail sector. In this event alternative decisions may have to be taken concerning social subsidies for those sectors of the population who may not be able to afford milk or dairy products.

4.8 THE ULAANBAATAR DAIRY FACTORY

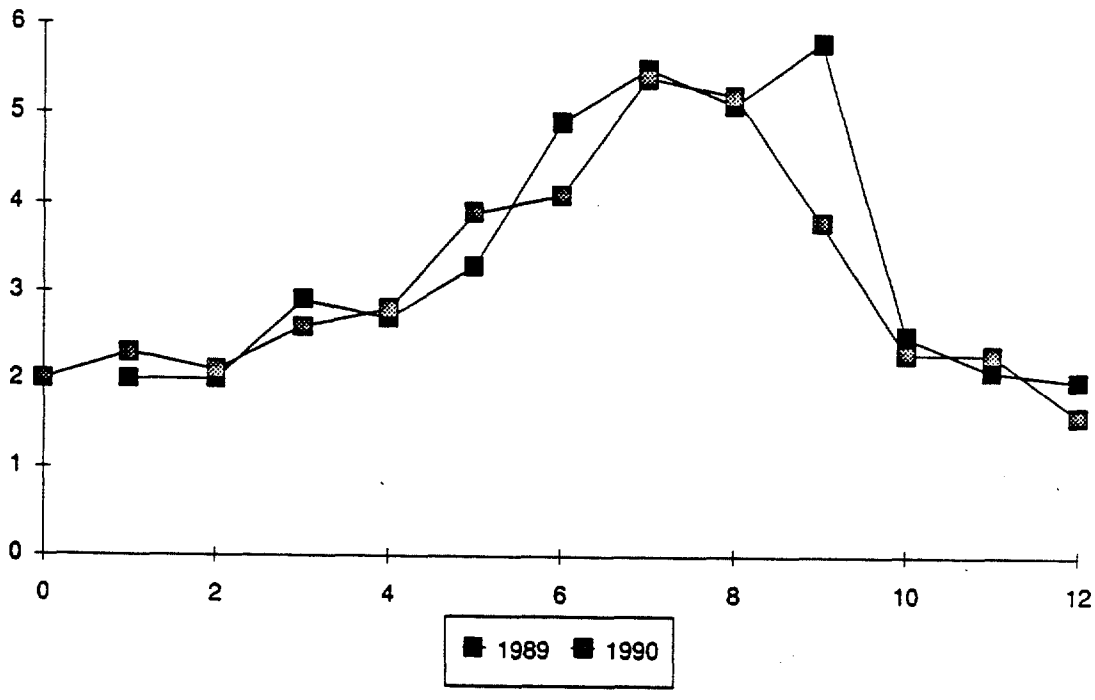
4.8.1 Production Capacity

This is the only dairy processing factory in Mongolia. The factory was constructed with assistance from the USSR and has been in operation from 1985. A Danish spray drying plant of 150 kg/hr powder capacity was installed in 1989. The processing capacity of the factory was stated as 200,000 litres per day on a two shift basis, however it could not be confirmed whether this figure included the capacity increase afforded by the installation of the spray dryer.

With reference to the Government's demand calculations given in section 4.6.2, the factory appears of adequate capacity until well after year 2000, however, it must be clarified that these demand figures are theoretical calculations and may not therefore reflect the market realities that could arise.

Daily throughput rises to 200,000 litres at peak during the summer, however in the winter the volume of milk received falls to 55,000 litres per day. The milk reception pattern is illustrated in Figure 20 below:

Figure 20: Monthly Milk Reception at Ulaanbaatar Dairy Factory 1989 and 1990. Million Litres



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4.8.2 Product Range and Volumes

The product range is rather limited with, for example, standardized pasteurized milk being offered with only one fat content.[12] No cheese is produced, it being stated that this product is not acceptable to the Mongolian consumer. A number of traditional products are prepared from soured and fermented milk, in particular a dried curd granulate used in cooking and "Aarul", a dried curd food pellet which can be sucked or chewed once sufficiently soft.

The products stated to be made are detailed in Table 21 below.

TABLE 21: Product Range and Volume of Production at Ulaanbaatar Dairy Factory 1989 - 1990

PRODUCT	UNIT	1989	1990
Pasteurized milk 3.2%	'000 l	30346	29354
Sterilized milk		N/A	N/A
Yoghurt	'000 l	1510	1637
Ice cream	tons	1165	1386
Sour cream	tons	634	689
Butter	tons	126	104
Cooking curd	tons	773	666
"Bayarlac"	tons	51	103
"Aarul" dried curd food	tons	27	39
"Tamir" dietary product	tons	14	15
Spray dried milk powder	tons	192	147
Sodium caseinate	tons	24	20
TOTAL PRODUCTION AS MILK EQUIVALENT	'000 l	44027	42342

Source: Mongolian Food Industry Corporation

The total capacity of the factory on two shifts was given as 60 million litres per year, thus the present utilization is approximately 70%.

12 A recent report by the World Food Programme Exploratory Mission (6 to 30 October 1990) indicates in Annex III.2 thereto that milk with 2.6% and 1.0% fat content is produced in bottles. This information could not be confirmed, it being stated that Mongolians would not accept low fat products, and that bottles were only used for Yoghurt. This anomaly is mentioned not as criticism of the accuracy of the WPF report, but to demonstrate the difficulties of obtaining substantive information.

4.8.3 Packaging

With the exception of plastic bags/sachets and glass bottles, all packaging material is imported through the State Supply Commission. This is giving the factory problems at the present time due to the shortage of foreign exchange. The types of packaging used are as follows:

Milk is packed in "TetraPak Classic"[13] tetrahedrons of 500 ml and 1 litre capacity for the city supply through shops, and in 50 litre cans for institutional supply. In some instances milk is also delivered to shops and institutions in road tankers, with consumers own containers being filled directly from the tanker.

Production of sterilized milk from the Finnish "Elecster" system is packed in locally made plastic pouches.

Yoghurt is packed in 500 ml glass bottles. The locally made bottles have a green tint.

Sour Cream is packed in plastic rectangular dishes and (formerly) deep square cups, both with aluminium foil heat sealed lids. Both containers are 200 ml, however the deep cup filler is out of order at the present time.

Cooking Curd (granules) is delivered to institutions and shops in bulk, packed in reusable wooden boxes with paper linings.

"Aarul" Dried Curd Food is manually filled into 300 gm wax coated paper bags which have an outer printed carton.

Butter is parchment wrapped in 250 gm prints.

Spray Dried Milk Powder is bulk packed in 20 kg polythene lined paper sacs. No consumer packaging is available.

Ice Cream is available in biscuit cups and sandwiches. These are packed in paper lined wooden cases before hardening and storage. The biscuit products are produced at the dairy factory.

4.8.4 Technical Standard

The management at Ulaanbaatar factory has obviously attempted to maintain as high a technical standard as possible under the circumstances, and was well aware of the shortcomings. In particular the management was very critical of the quality of the raw milk received, of the high waste caused by many of the packaging machines and the product storage difficulties caused by refrigeration problems. Although the factory is relatively new, buildings require renovation and much of the equipment is both outdated technologically and in poor condition due to the non-availability of spare parts.

The management in particular drew attention to the following machines and systems which require replacement:

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13 "TetraPak Classic" is a tradename of TetraPak A/B of Sweden, however the packing machines and packaging used at Ulaanbaatar are of USSR origin.

Refrigeration: There are two systems for low temperature operation and ice water cooling respectively. Both systems give problems almost daily, and none of the 12 compressors are reliable, in particular the four double stage units in the low temperature system. No spare parts are available as the equipment is outdated, although only 6 years old. In the opinion of technical staff at the factory complete new refrigeration systems are required, inclusive of condensers and evaporators.

The demand requirements were stated as 300,000 kcal/hr at -30°C to -40°C for the low temperature system operating an ice cream freezer, hardening tunnel and freezing stores, and 240,000 kcal/hr at +10°C to -5°C for ice water cooling and cool stores.

Air Compressors: Of the three compressors installed, one is not repairable, again due to non-availability of spares.

The system demand requirement was stated as 6.6 m^3/hr at 10 bar pressure.

Milk Clarifier: Two manual de-sludging clarifiers are installed, each with a capacity of 5,000 l/hr. The capacities do not match the pasteurizing system which has a capacity of 15,000 l/hr. and it is found from experience that the quality of the milk is such that not more than two hours continuous running can be achieved before manual cleaning has to be undertaken.

Technical staff suggested that these machines be replaced with an automatic de-sludging clarifier of 15,000 l/hr capacity.

Milk packing machines: Decision has been taken in principle to discard the tetrahedron carton packing machines when existing supplies of packaging material are exhausted. There are five 500 ml machines of USSR origin and one 1,000 ml machine of GDR origin. Management decision as to the desired future type of packaging was not made known, however, various alternatives are available, such as glass bottles (locally available), gable top carton packs, rectangular cartons and plastic blow moulded bottles. With the present restrictions on foreign exchange, glass bottles could be a rational alternative, however it was pointed out that there is no effective bottle return system in place, and high bottle losses could be expected.

4.8.5 Distribution System

The factory delivers directly to 109 shops and 21 restaurants and public kitchens in Ulaanbaatar, every day of the year. No delivery charge is levied. Other customers are the six hotels, eight hospitals and a total of 92 State enterprises, schools, kindergartens and military units, which pick up product from the factory.

All deliveries are made against a contract, which stipulates the quantity and nature of the products, the time of delivery and the duration of the contract.

The factory has only a limited availability of chilled trucks and no freezing trucks. Delivery therefore takes place at night for most products, which practise also has reference to the general lack of refrigeration facilities in the shops. During the summer when a substantial proportion of the population of Ulaanbaatar moves to summer camps, milk is delivered to the camps in bulk tankers.

Due to the unavailability of freezing trucks, ice cream is delivered in chilled trucks, and it is understood that the product is sold from the shops immediately when it is available, either for immediate consumption or home storage.

4.8.6 Recommendations Concerning Ulaanbaatar Factory

1. That a TA expert in dairy processing to be provided for the Mongolian Food Industry Corporation and the Ulaanbaatar factory to give guidance in management in a market driven economy, assistance in formulating bid documents and assistance in coordination of refurbishing of the Ulaanbaatar dairy.

2. That new refrigeration machinery be provided, with installation and commissioning.

3. That new milk packaging machinery be provided. Alternatives are available:
   - bottles - locally produced, return control essential
   - pouches - cheap but generally unsatisfactory
   - cartons - expensive in capital and imported material

   Advantages and disadvantages should be considered locally in cooperation with the TA team and quotations obtained before submitting project.

4. That a new self-desludging clarifier be provided.

5. That new air compressors be provided.

6. That the dairy buildings and electrical services be brought up to modern standards. Detailed needs list to be worked out by the TA expert detailed under Project 1 above.

4.9 THE AIMAK DAIRY UNITS

In most provinces, the multi-product food processing complex or "Combinate" has a dairy department. There are 14 such units, and three are planned to be constructed, which will leave only one province, Suhbaatar (Population 53,200) without a dairy unit. Three of the existing units at Darkhan, Choibalsan and Erdenet, are larger that the majority, with annual capacities of 5.0, 3.0, and 1.5 million litres. Details of the locations of existing and planned dairy units are shown in Appendix 13.

4.9.1 Darkhan Combinate

The Combinate at Darkhan in Selenge province (Population 89,500) was visited. The Combinate was set up in 1971 with assistance from the USSR, and consists of units for production of confectionery, bread, cakes and biscuits, soft drinks and dairy products.

The dairy unit has a capacity of 20 tons per day, and was designed to supply the population of Darkhan city, which was quoted as 80,000.

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Similar milk supply problems to those at Ulaanbaatar were stated, with up to 38,000 litres being received in the summer, and only 6,000 in the winter at the lowest point. Milk supply is from six mechanized dairies (each with standings for 800 cows) and a number of simple dairies.

Demand was stated to be inverse to supply, with the winter demand at 12,000 litres/day and the summer demand falling to between 6,000 and 7,000 litres/day. The winter demand has in the past been met by recombining with imported milk powder, however this is no longer available. The Director saw an urgent priority as the establishment of a spray drying plant in the complex in order to be able to produce powder from summer excess milk for winter recombining.

4.9.2 Product Range and Quantities

The product range at the Aimak Combinate dairy units is similar to that at the Ulaanbaatar factory. Details of production for Darkhan and Choibalsan (two of the largest) are given in Table 22 below:

TABLE 22: Production Volumes at Darkhan and Choibalsan. 1989 - 1990

PRODUCT	UNIT	DARKHAN		CHOIBALSAN	
		1989	1990	1989	1990
Pasturized milk	'000,l	2289	2394	1568	N/A
Yoghurt	tons	279	286	1568	
Sour cream	tons	132	132	78	
Cooking curd	tons	207	211	64	
Ice cream	tons	150	142	208	
Other products	tons	2	2	6	
TOTAL AS MILK EQUIVALENT	'ooo,l	N/A	N/A	2992	N/A

Source: Mongolian Food Industry Corporation

4.9.3 Technical Standard

The mission was only able to visit Darkhan Combinate due to lack of time, restriction on petrol for vehicles and the distances involved to other centres.

The technical standard in the dairy unit was considerably lower than at Ulaanbaatar factory, possible influenced by the building which was unsuitable and very crowded with machinery. Floors, walls and ceilings were in need of repair, and the machinery was in poor condition.

In the opinion of the mission, this dairy unit would be uneconomical to bring up to standard and is unsuitable for extension. It is recommended that it should be replaced with a new dairy factory.

4.9.4 Products and Packaging

Milk (3.2% standardized fat content) was packed in 500 ml bottles, however we were advised that this packing was not popular and was only produced against order. Therefore the majority of the production is delivered in 40 litre cans or in bulk tankers, which are discharged into customers containers at point of delivery.

It was informed that an alternative 1.0% fat content pasteurized milk in bottles was produced against order from hospitals and schools, however that this was not popular due to the low fat content.

Sour cream was produced in 200 gram bottles in different fat percentages; 20%; 25%; and 30%. A 9% product had been produced but was discontinued due to lack of popularity.

Yoghurt with alternative fat contents (3.2% and 1.0% sweetened) was produced in 500 ml bottles, and also sold in bulk to institutions.

Ice cream was produced in biscuit cones manufactured at the dairy unit.

Cooking curd was packed in reusable wooden boxes with paper lining.

4.9.5 Major Problems

The Director identified the major problems of the Darkhan unit as follows:

- The excess milk received in the summer is made into cooking curd which requires refrigeration for storage until it can be consumed in the winter, when it has a ready sale. It would be of advantage to be able to dry this excess milk for later recombining.

- Over 10% of the raw milk from the simple dairies is already spoiled on arrival at the factory in the summer, and annual milk losses due to low quality at reception are between 400,000 and 600,000 litres in total, (approximately 12.5% of all milk received).

- The Combinate has unprofitable operations from the dairy unit, particularly because of the winter pricing policy laid down by the Government. Formerly Darkhan received a subsidy to cover the price difference, however this has been withdrawn. Another reason for financial losses is that the Combinate pays for transport from the farm for all the bad milk and in addition is required to pay Tughrik 0.52 per litre for the quantity received.

The Director intended to address these problems by developing new products for which he would need new equipment. Such products could be developed from the serum from sour milk, which is already being used in limited quantities for confectionery. Evaporation to a higher concentration was stated to be required.

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4.9.6 Conclusions

The Darkhan dairy unit is 20 years old. It is neither equipped to process the maximum volume of milk received in the summer months, nor is it located in buildings suitable for expansion. The Government has plans to install a spray dryer at this location to address the summer milk excess problem, and the Combinate director has plans to commence other processes for new products, as yet not defined.

The total demand in Dharkan (as given in the table in Annex 12) is expected to grow to 16.5 million litres per year or 45 tons per day by year 1995, an increase of 25 tons over the present daily capacity, and to 20.7 million litres per year or 57 tons per day by year 2000.

In consideration of the above, the mission is of the opinion that the dairy unit in the Combinate should be replaced with a new multiproduct factory with a capacity of 100 tons per day on a two-shift basis.

4.9.7 Recommendations Concerning Aimak Units

1. That further study of the technical and market status of the Aimak units be undertaken by the TA team proposed as the major recommendation of the mission. (Refer section 4.11). The mission does not feel that one visit to Darkhan is sufficient experience on which to base detailed recommendations for 17 such dairy units in provincial towns. Location and types of proposed milk processing facilities are shown in Annex 13.

   The study should identify detailed needs for replacement and/or improvement of buildings and equipment.

4.10 THE INFANT FOOD FACTORY IN ULAANBAATAR

The mission visited the infant food factory which was built in 1971 by the USSR. It is the only factory of its kind in Mongolia. The original capacity was 5 tons/day, however output has increased to 18 tons per day. A milk drying plant was provided by UNDP in 1985 for this project, with equipment from GDR. (The drying plant was not seen by the mission, as it is on a different site to the processing factory).

A new factory is at present being constructed, again with assistance from the USSR, and has a planned capacity of 10 tons per 8 hours, but has no milk dryer. It is expected to be commissioned in September 1991 at a cost of Tughrik 16.6 million. (The new factory was not seen by the mission, but is understood to be on the same site as the milk drying plant).

4.10.1 Infant Food Products

The products are only available to the public against prescription through kindergartens, hospitals, orphanages and special clinics, of which there are 18 in Ulaanbaatar alone. Distribution is undertaken by the factory under arrangements made by the Ministry of Trade and Industry.

The factory produces a range of 11 products in accordance with formulae especially designed for Mongolian infants, based on modified cow's milk with added vitamins and mineral supplements.

The liquid products are packaged in sterilized glass jars of 50, 100 and 200 gram capacity. Dry products are packaged in cartons with a special paper liner, imported from the GDR.

Full details of the products were not available, however the descriptions provided to the mission are given in table 23 below:

TABLE 23: Production of the Infant Food Factory in Ulaanbaatar (Tons)

PRODUCT	1989	1990
Pasteurized milk 3.2% fat	3042	3356
Pasteurized milk with rice water	55	53
Vitamin enriched milk with rice water	0	4
Yoghurt	790	789
Boiled milk with added yoghurt	26	26
Boiled milk with added yoghurt and carrot	4	5
Rice flour porridge with milk, sugar, butter	11	11
Wheat flour porridge	8	8
Vitamin enriched milk powder with pork fat	0	150
Potato purce	5	5
Carrot purce	77	70

Source: Mongolian Food Industries Corporation

4.10.2 Current Problems

During inspection it was noted that the condition of floors and walls was generally poor, although excellent efforts are being made to ensure cleanliness.

The factory director complained about the age and condition of all the equipment and expressed a desire for complete re-equipping of the factory. The mission attempted to obtain definition of needs, however this information was not provided.

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The factory also stated that the existing drying capacity was not sufficient for demands, and requested an additional dryer of 120 tons per year capacity. Due to lack of time, the mission was not able to study the demand in detail and was furthermore aware that milk powder production has been stopped for the past three months due to lack of raw material. As the mission could not identify whether this problem referred to lack of milk, or to lack of vitamins, the need for additional drying facilities could not be justified.

Packaging for the dry products which are distributed to the rural areas is a problem as there is no communication with the former supplier in GDR.

4.10.3 Recommendations Concerning the Infant Food Factory

1. From other sources, in particular the World Food Programme report,[14] the mission is aware that there is both a substantial need for infant feeding in Mongolia, and considerable international discussion concerning the dietary needs of the infants.

   The mission therefore recommends that a separate mission be fielded to study the requirements and facilities available, and make expert recommendations.

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14 Report of the World Food Programme (WFP) Exploratory Mission to Mongolia, Rome, November 1990.

4.11 ASSESSED NEEDS - PROJECTS. Primary Recommendations

The assessed needs identified during the visit of the mission are listed below according to the priority agreed with the Mongolian Food Industry and the UNDP office, Ulaanbaatar. The projects aim at an improvement of the present situation as to quantity and quality and an improved coverage throughout the year.

4.11.1 Long Term Technical Assistance (TA)

It is recommended that a team of TA experts be provided to the Mongolian Government over a period of three years, with review after two years to evaluate progress in project execution and to re-assess needs in the light of possible market demand changes which may be caused by the move to a market economy. A provisional mobilization chart for the experts suggested below is given in Annex 14. Mobilization is proposed to be phased, which will allow flexibility in the numbers of experts and the timing of their fielding in accordance with the availability of financing.

A total period of three years TA is recommended for the following reasons:

- It is anticipated that difficulties of communication and transportation in a country the size of Europe will cause delays in reconfirmation of base-line data upon which the work plan of the team will be based. This preliminary work could thus take up to six months, and would include the selection of counterparts.

- After definition of projects and the approval of financing, it is anticipated that up to 18 months could elapse before building works and provision of new equipment could be completed.

- Operational training with recommended new facilities can thus be expected to be initialized two years after commencement of the TA, and should have a duration of one full year.

- During the proceeding years, changes from a centrally planned economy to a market economy can be expected to create a number of problems which may require replanning of priorities of the TA team.

The team should give assistance in the following general areas, which are further defined below in sections 4.11.2 and 4.11.3.

- planning of dairy industry development at National level

- project definition, bid preparation and monitoring

- training in milking technique and clean milk production

- re-equipment and upgrading of existing mechanized dairies and completion of the five new mechanized dairies under construction

- operational training in milk collecting systems

- re-equipment and upgrading of Ulaanbaatar dairy factory

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- re-equipment and upgrading of the dairy unit at Darkhan and other Aimak centres.

- analysis of needs for spray drying installations.

It is anticipated that the TA team should consist of 13 members in the disciplines and durations proposed below, to be deployed in accordance with the provisional time plan shown in (Annex 14):

At National and Project Coordination Office level:

Team leader (Institutional Planner/Economist)	1	36 man-months
Agricultural Economist	1	24 man-months
At Implementation level (Intensive husbandry)		
Husbandry team leader	1	36 man-months
Farm dairy management experts	6	36 man-months
At Implementation level (Dairy processing)		
Dairy processing expert - Ulaanbaatar (processing team leader)	1	24 man-months
Dairy processing experts - Aimaks	3	30 man-months
TOTAL ANTICIPATED NEEDS		186 MAN-MONTHS

Estimated cost: Foreign: US$ 2,800,000.
Local: Counterpart staff costs.

4.11.2 Structural Planning

1. Planning of dairy industry development at national level, particularly with regard to the intended change from central planning to a market economy

2. Coordination of production and processing of milk through the creation of a single body for the dairy industry

3. Monitoring of all projects with reference to milk production, dairy products processing, marketing and distribution.

4.11.3 Assistance to the Primary Sector

1. That a team of two TA experts in dairy farm management be attached to the mechanized dairies in the Ulaanbaatar area for six months as soon as possible in order to improve milking technique and milk handling on the farms. Based on their experience, these two experts would later be replaced by one expert in the Ulaanbaatar collection area, one in Darkhan and two roving at the other dairies.

Main activities would be training in milking technique and clean milk production, and arranging re-equipment and upgrading of existing mechanized dairies including provision of milk cooling and storage, in order to increase the availability and quality of fresh milk supplied to the urban areas.

Estimated cost of polygon milking parlours suitable for 400 cows with pipeline milking systems for 4 x 6 cows, inclusive of milk cooling and storage arrangements, hot water services, all electrical equipment and supervision of installation:

Estimated cost: Foreign: US$ 120,000 per unit
Local: Buildings, electricity and water supply to the site - costs not known.

Total foreign cost for 58 units: US$ 7,000,000.

2. Determine status of the uncompleted five mechanized dairies and implement completion of these projects, inclusive of redesign to incorporate pipeline milking parlours with refrigerated milk cooling and storage.

   Estimated cost of milking parlours as above:

   Total foreign cost for 7 units: US$ 840,000.

4.11.4 Assistance to the Industrial Processing Sector

1. Provision of an expert in dairy processing to the Mongolian Food Industry Corporation who will give guidance in management in a market driven economy, assistance in formulating bid documents and assistance in coordination of refurbishing of the Aimak dairy units and the Ulaanbaatar factory.

2. Re-equipment and upgrading of Choibalsan dairy unit excluding the projected provision of milk drying facilities.

   Estimated cost: US$ 1,500,000.

   Spray dryers and concentration plants:

45 kg/hr powder	Foreign:	US$ 310,000 per unit
	Local:	minor
150 kg/hr powder	Foreign:	US$ 1,300,000 per unit
	Local:	Erection and building
330 kg/hr conc.	Foreign:	US$ 300,000 per unit
	Local:	Erection and building

3. Improvement of milk collecting systems, including:

   Training in operation of MCCs should be included in the TOR of the TA team proposed to be attached to the mechanized dairies.

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Provision of mechanical refrigeration equipment at the MCCs to allow cooling of the milk to 4°C.

Provision of additional insulated milk storage tanks at the MCCs which would more economical use of the tank vehicles from the factory.
Provision of tank vehicles of larger capacity than 3,500 litres which can be used to pick up from MCCs sited near to the main roads. The need for these vehicles should be further evaluated by the TA team before procurement is initiated.

Estimated cost: for 6 10,000 litres insulated tanks exclusive vehicles: US$ 210,000.

4. Re-equipment of Ulaanbaatar factory, including arranging procurement and installation of the following new equipment:

Refrigeration: Two replacement systems for low temperature freezing and chilling. The demand requirements were stated as 300,000 kcal/hr at -30°C to -40°C for the low temperature system operating an ice cream freezer, hardening tunnel and freezing stores, and 240,000 kcal/hr at +10°C to -5°C for ice water cooling and cool stores.

Estimated cost: US$ 500,000.

Air Compressors: Replacement compressors. The system demand requirement was stated as 6.6 m^3/hr at 10 bar pressure, which is taken as compressed volume.

Estimated cost: Foreign: US$ 15,000 (for three units)
Local: minor

Milk Clarifier: New automatic de-sludging clarifier of 15,000 l/hr capacity.

Estimated cost: Foreign: US$ 175,000
Local: minor

Milk packing machines: Decision as to the desired future type of packaging from the various alternatives are available, such as plastic pouches glass bottles (locally available), gable top carton packs, rectangular cartons and plastic blow moulded bottles.

Estimated cost: US$ 600,000 to 2,500,000.

5. Upgrading of the Ulaanbaatar factory, to ensure that the dairy buildings and electrical services are brought up to an acceptable standard.

Estimated cost: Not estimated

4.12 ASSESSED NEEDS - PROJECTS. Secondary Recommendations

4.12.1 The Infant Food Factory

1. From other sources, in particular the World Food Programme report, the mission is aware that there is both a substantial need for infant feeding in Mongolia, and considerable international discussion concerning the dietary needs of the infants.

   The mission therefore recommends that a separate mission be fielded to study the requirements and facilities available, and make expert recommendations.

4.12.2 Fodder Crop Improvement

1. Doubts were expressed to the mission concerning the adequacy of the crude protein content of the silage fed to the cows in the mechanized dairies, and it was suggested that benefit to milk yield could be achieved by the planting of a legume together with the fodder crops.

   The mission recommends that a separate mission be fielded to study the requirements and make expert recommendations.

5. FINANCING OPTIONS

5. FINANCING OPTIONS

As identified in section 3 and 4 the meat and milk processing industry in MPR is hampered by worn-out and out-dated processing equipment and technology.

The assessed needs and the projects proposed and agreed upon and prioritized with the Mongolian Food Industry Corporation and UNDP, MPR are summarized in Table 24. The next step in implementing those projects is to identify and achieve funding of the projects.

The projects listed represent outlines at an early stage of the project cycle and in most cases more detailed studies and feasibility analyses will be required before the final stage of implementation.

It will be noted that the proposed projects in the milk industry emphasize technical assistance support in order to increase the national coverage in terms of supply of milk products. The projects in the meat industry are more specific on refurbishment and equipment components. These differences between the industries as regards proposed future development and can mainly ascribed to the export potential of the meat industry.

The plants visited leave a general impression of a dedicated staff making a considerable effort in achieving the optimal results with the restrained means available. Therefore, it is very limited what can be achieved by developing local resources. The former dependence on countries with centrally planned economy and the sudden and almost disrupted trade relations with those countries has left MPR in a transitional vacuum.

MPR lacks own funds and foreign currency to bridge the gap between the former economic system and a new operational system and alternative export markets. Therefore, the only option left for the country to get through the transitional period and to up-date processing equipment and technology is to obtain temporary assistance from new partners abroad.

5.1 FOREIGN FUNDING

The financing options available to MPR at the present transitional stage can be grouped into two categories:

1) Private sector funding, and
2) Development assistance.

5.1.1 Private Funding

Joint-ventures with companies abroad. Arrangements of this kind have already been made or are being negotiated and should be pursued whenever possible. The new investment law should also contribute favourably in that respect. As a short term solution, however, joint-ventures are not likely to meet to any significant extent the demand for foreign capital injection.

5.1.2 Development Assistance

Development assistance which is available as multilateral as well as bilateral aid.

5.1.2.1 Multilateral Aid Programmes

MPR is a member of 10 UN organizations and has also become a member of the International Monetary Fund (IMF) and the World Bank, which will pay their second visit to MPR in June 1991. MPR is also a member of the Asian Development Bank (since September 1990).

UNDP has been a major contributor to the socio-economic development in Mongolia, although with a limited budget (some 2 mill. US$ per year). The same amount is foreseen for the coming five years.

MPR is not a member of the General Agreement on Tariffs and Trade (GATT), Geneva. It is recommended that this be considered in view of the necessity of finding new trade partners. GATT could also assists in training in international trade and in providing international expertise, e.g. in establishing an export section/office.

The UN agency International Fund for Agricultural Development (IFAD) concentrates on development support to small scale rural farming enterprises and may be an interesting potential partner, e.g. for improvement of milk collecting centres. MPR is not a member of IFAD but it is recommended that membership is applied for.

United Nations Industrial Development Organization (UNIDO) should be especially adapted to assist the meat and milk processing industries in MPR.

5.1.2.2 Bilateral Aid Programmes

For several agencies MPR has only recently developed into a politically acceptable partner in development, and, therefore, more donor countries may successively become interested in supporting the country.

The existing aid programme of the United States includes very little for the agricultural sector. 30,000 tons of wheat at a value of 9 mill. US$ has been granted as food aid and some 2 mill. US$ for American lecturers in economics and management to go to MPR and for Mongolian post-graduates to go to the US. A peace corps of 25 within education will come to MPR in 1991. Japan will contribute with 10 mill. US$, and also North Korea, Germany and India have aid programmes for MPR but with no components for the meat and milk sectors.

Bilateral aid from Denmark, other Nordic countries, the Netherlands and Ireland ought to be a possibility for development of the agricultural sector.

At present no donors have been identified for the projects listed in Table 24. The Government plans a donor meeting in September 1991, on which occasion these projects could ideally be presented.

Table 24: Summary of assessed needs / projects

DAIRY SECTOR:

Project	Location	Objective	Estimated costs (US$)
Technical Assistance (TA)	Ulaanbaatar area	Planning of dairy industry development, training in milking technique/milk collection, bid preparation, re-equipment and up-grading of dairy factories. Analysis of need for spray drying plants.	2.8 million
Milking parlours with storage and cooling - 58 units at US $ 120,000	Nationwide	Increase availability and quality of fresh milk	1 unit 120,000; 58 units: 7 million
Refrigeration equipment for milk collecting centres	Nationwide	Increase availability and quality of fresh milk	6 units 210,000, exclusive vehicles
Re-equipment of dairy plant incl. procurement and installation	Ulaanbaatar	Increase production and quality of dairy products	0.5 million
Refrigeration equipment for dairy plant	Ulaanbaatar	Replacement of worn-out plant	0.5 million
Air compressors (3 units)	Ulaanbaatar	Replacement of worn-out plant	15,000
Milk clarifier	Ulaanbaatar	Replacement of worn-out and outdated clarifier	175,000
Milk packing machines	Ulaanbaatar	Replacement of old, worn-out equipment	600,000 to 2,500,000
Re-equipment of dairy plant incl. procurement and installation	Darkhan	Increase production and quality of dairy products	2 million
alternatively			
a new 100 ton dairy plant	Darkhan		8 - 10 million
Re-equipment of dairy plant incl. procurement and installation	Choibalsan	Increase production and quality of dairy products	1.5 million
Spray drying plants	Choibalsan	Drying of excess milk	300,000 - 1,300,000/plant
Spray drying plants	Darkhan	Drying of excess milk	300,000 - 1,300,000/plant

Table 24: Summary of assessed needs / projects

MEAT SECTOR:

Project	Location	Objective	Estimated costs (US$)
Technical Assistance (TA)	Ulaanbaatar	Reduction of abortion rate (1st stage)	15,000
Training abroad - meat processing	Ulaanbaatar	Introduction of up-dated techniques - technology	100,000
Ulaangom Plant	Ulaangom	Equipment/machinery for new abattoir	5 - 7 million
New meat processing plants in the provinces - successive implementation	Nationwide	Improvement of meat supply and coverage	1 plant 4 - 6 million 10 plants 40 - 60 million
Refurbishment of Darkhan meat combinate (can be undertaken successively)	Darkhan	Modernization, increase of efficiency and adaptation to export quality	8 - 11 million for total project
Refurbishment of Choibalsan meat combinate (can be undertaken successively)	Choibalsan	Modernization, increase of efficiency and adaptation to export quality	8 - 11 million for total project
4 new gelatine plants	4 provinces	Local production for replacement of import	5 - 10 million per plant; 4 plants: 20 - 40 million
2 dried meat plants	2 provinces	Improved quality and increased production	1 - 2 million
Refurbishment of Ulaanbaatar meat combinate (can be undertaken successively)	Ulaanbaatar	Modernization, increase of efficiency and adaptation to export quality	12 - 15 million
TA-Export promotion Meat processing	Ulaanbaatar	Identification of new markets, establishing export contacts, training of local staff in international marketing	
		Training in meat cutting	
		Processing adaption to EEC standards	450,000

ANNEXES

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ANNEXES

Annex 1: Terms of Reference (UNDP)

Annex 2: List of Persons and Institutions Met

Annex 3: Literature Consulted

Annex 4: Aide Memoire

Annex 5: Animal Population per Province

Annex 6: Organization Chart of Veterinary Services

Annex 7: Distribution of Milk Production and Traditional Processing

Annex 8: Geo-Physical Regions/Milk Production Significance

Annex 9: Locations of the Proposed Drying and Concentration Plants.

Annex 10: Milk Collecting Area, Ulaanbaatar Milk Processing Factory

Annex 11: Quality Standards and Milk Payment Systems

Annex 12: Projected Demand for Milk per Province

Annex 13: Time Plan for TA Team

Annex 14: Proposed Location of Industrial Milk Processing Facilities.

ANNEX 1

TERMS OF REFERENCE

General

Livestock constitute the basis for the Mongolian economy and are important sources of income and provide the principal components of the diet. All aspects of production and use of animal products (meat, milk products, hides, etc.) are important to the development efforts of the country. The Government has long recognized the role of the sector and has included assistance to livestock production as one of the principal objectives of the UNDP programme.

Organization of the Mission

The mission will be composed of two consultants: one expert in meat production, processing and marketing; and one expert in milk and milk products processing and marketing.

The mission team will be responsible for the preparation and submission of the report(s) to UNDP/OPS and the Resident Representative, Ulaanbaatar, Mongolia.

The costs of the mission will be financed by the Fund for Danish Consultancy Services. Final payments to the international consultants in settlement of all outstanding claims will be made only after the acceptance of their respective outputs by UNDP/OPS. All invoices should be supported by proper documentation.

The mission will maintain close liaison with the UNDP Resident Representative in the country, who will facilitate the work of the mission and guide it in its official contacts with the Government and specialized agencies.

The mission shall inform Government authorities in a timely manner of any needs for information, visits or meetings considered important to the proper performance of the mission. Although the mission should feel free to discuss with Government authorities any issues relevant to its assignment, it is not authorized to make any commitments on behalf of UNDP.

The recommendations (and suggestions for investment) made by the consultant should take into account the limited availability of investment funding in the short-run in Mongolia. Recommendations should be formulated to maximize the use of locally available materials and personnel, keep imports of machinery and equipment to a minimum, investigate the use of funding from joint-ventures and possible future development assistance and, generally, be realistic and appropriate for the current Mongolian context.

TERMS OF REFERENCE

Title: Consultant in meat production and processing

Date required: March/April

Duty station: Ulaanbaatar, with some trips to the surrounding countryside.

Purpose: To prepare a comprehensive needs assessment in the field of meat production and processing in Mongolia.

Duties will include:

1. To analyze the current network of slaughterhouses with a view to increasing the efficiency of the existing slaughterhouses as well as identifying possibilities for increased national coverage.

2. To assess the quality of the processing and identification of areas where quality might be raised. The consultant should focus on improvement taking the quality of meat available as fixed (for the moment).

3. To evaluate the present system of procurement of livestock, including transportation, and make recommendations for its improvement.

4. To outline the possibilities of use and marketing of meat products, including those that are currently discarded as waste.

Qualifications: Experience in meat production, processing and marketing.

Languages: English, russian desirable.

TERMS OF REFERENCE

Title: Consultant in milk processing and milk products

Duration: One month

Date required: March/April

Duty station: Ulaanbaatar, with some trips to the surrounding countryside.

Purpose: To prepare a comprehensive assessment of the milk processing industry in Mongolia.

Duties will include:

1. An in-depth analysis of the status of the milk processing industry in Mongolia, with particular emphasis on the efficiency of lack thereof of the various sectors, and recommendations as to the possibilities for its modernization.

2. An assessment of the quality of milk and milk products produced, with special attention to areas where the quality, quantity and variety might be raised.

3. An appraisal of the difficulties and possibilities involved in the production of various milk products.

4. An evaluation of the potential for marketing of diverse milk products.

Qualifications: Experience in milk and milk products processing and marketing.

Languages: English, russian desirable.

ANNEX 2

MONGOLIA: NEEDS ASSESSMENT MISSION

PERSONS AND INSTITUTIONS MET

1. Mr. Vagn Egebjerg, Ambassador of Denmark,
   Royal Danish Embassy, USSR/Mongolian Repole's Republic, Moscow

2. Mr. Bent Rasmussen,
   APV Pasilac A/S, Moscow.

3. Mr. Eric De Mul, Resident Representative,
   UNDP, Ulaanbaatar.

4. Mongolian Food Industry Corporation, Ulaanbaatar.

   - Dr. Gurragchaagiin Lhagvaa, General Director.
   - Mr. D. Okhinoo, Deputy General Director.
   - Mr. Janchivyn Badral, Officer (meat section).
   - Mrs. Radnaagijn Dolchinsuren (milk section).

5. Mr. Bavuugin Bayarsaikhan, Deputy Minister,
   Ministry of Agriculture.

6. Dr. Rentsengiin Batmen, Deputy Minister,
   Ministry of National Development.

7. Mr. Micolas Guyer, Agricultural Management Project,
   Ministry of Agriculture.

8. Mr. Bayarsaikhan, Ministry of Agriculture.

9. Mrs. J. Khulan, Officer, Foreign Relations Department,
   Ministry of Agriculture.

10. Mr. L. Tseldendors,
    Chief of State Veterinarian Department Services.

11. Mr. M. Lhachinbal, Deputy Director,
    Meat Processing Factory, Ulaanbaatar.

12. Ulaanbaatar State Dairy Factory.

    - Mr. Jardanbek, Director.
    - Mr. Damdinsuren, Deputy Director.
    - Mr. Norov, Manager, Milk Powder Department.
    - Mr. Boldbaatar, General Supervisor.

13. Baby Food Factory, Ulaanbaatar.

14. Mr. Banzragch, Director,
    Darkhan Food Processing Combinate.

15. Mr. Chulumbaatar, Chief Engineer,
    Darkhan Meat Combinate.

16. State Dairy Farm, Ochuurt

17. Mechanized Dairy, "Bayantokhom"

18. Mechanized Dairy, "Sharkholoo"

    - Mr. Dalkhjar, Darm Director.
    - Mr. Yadam, Animal Husbandry.

19. Mr. Baldang, Veterinary Technician,
    State Dairy Farm, Chuljilsureh.

20. Milk Collection Centre, Bayanchandam.

21. Mr. Michael J. Senko, Chargé d'Affaire a.i.
    U.S. Embassy, Ulaanbaatar.

22. Mr. J.B. Hartley, Second Secretary,
    British Embassy, Ulaanbaatar.

ANNEX 3

MONGOLIA: NEEDS ASSESSMENT MISSION

LITERATURE CONSULTED

1.	Background Brief (change in Mongolia)	Foreign Commonwealth Office, London, August, 1990.
2.	Foreign Trade of Mongolia	MPR Ministry of Trade and Cooperation, 1/1990.
3.	Mongolei	Günter Siemers, Institut für Asienkunde, Hamburg.
4.	Report of the World Food Programme (WFP)	Exploratory Mission to Mongolia, October, 1990.
5.	Agricultural Sector Review	Agricultural Management Project.
	Agricultural Marketing and Supply in Mongolia	T. Bayersaikhan.
	Livestock Production	R. Namhai.
6.	Report of FAO	Agricultural Sector Review and Programming Mission for Mongolian People's Republic. Annex V: "Utilization of Hides and Skins and Animal By-products". March. 1990.
7.	Annual Report of Agriculture 1990	Central Statistical Board MPR, 5. January, 1991.
8.	This is Mongolia	Ya. Yunden, G. Zorig and Ch. Erdene.

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ANNEX 4

UNDP - NEEDS ASSESSMENT MISSION, MONGOLIA

AIDE MEMOIRE

On the request for support to the meat and milk processing industry by the Mongolian People's Republic to United Nations' Development Programme (UNDP) a mission was appointed from DANAGRO ADVISER A/S, Denmark.

The terms of reference of the mission were to analyse the present situation, appraise possibilities and constraints and assess the needs for improvement and development. The mission comprised three members: a specialist in meat, a milk processing specialist and an economist. The mission stayed in Mongolia fom 21st of May to 4th of June 1991 and cooperated with the Mongolian Food Industry Corporation and the Resident Representative of UNDP, Ulaanbaatar.

The mission had meetings with the concerned officials and visited processing plants in Ulaanbaatar, Dahran, State Farms and a milk collecting centre outside Ulaanbaatar.

At the end of the visit the enclosed list of proposed projects, listed according to priority, was prepared by the mission and approved by the Mongolian Food Industry Corporation. A report will be prepared at the return of the mission to Denmark.

This document was signed on 3rd June, 1991 in Ulaanbaatar.

(Dr. Gurragchaagiin Lhagvaa)
Director General
Mongolian Food Industry Corporation

(Erik De Mul)
Resident Representative
UNDP, Ulaanbaatar

(Ib Blechingberg)
DANAGRO ADVISER A/S
Denmark

DANAGRO ADVISER A/S, DENMARK

ANNEX TO AIDE MEMOIRE

UNDP - NEEDS ASSESSMENT MISSION, MONGOLIA
Provisional List of Proposed Projects
with Priorities

GENERAL RECOMMENDATIONS

1. Pricing

The present pricing system with government stipulated prices entails inflexibility, inefficient operation of processing plants and marketing and leaves inadequate possibility of encouragement to meet market demand. A basic condition for achieving feasible operation is the introduction of a pricing system based on demand and supply. It is realized, however, that a transition period will be required.

2. Management

The Mongolian Peoples Republic has no experience in management in a market economy. Therefore, training in management of processing industries and in establishing appropriate management systems (i. a. accounting) is required.

PROPOSED PROJECTS

MEAT SECTOR

Introduction

The Mongolian Government has stipulated a meat consumption of 88 kg/year per capita. Calculations based upon actual supply, minus export, show a consumption of around 120 kg/ caput per year. Corresponding consunption in Europe is: 80 kg, in Denmark: 95 kg and in the US: 115 kg.

This means that with respect to meat supply Mongolia is self sufficient and can afford an export of meat.

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There is, however, a lack of slaughter and meat processing facilities of sufficient capacity and quality. Below are the proposals for bringing the facilities within the meat supply sector to an acceptable standard. The aim is that the plants should have EEC standard.

1. Measures to reduce the animal abortion rate.

   Present abortion rate is 3.6-4.0 %. Reduction of the rate from 4 to 2 % will increase the meat supply potential by approximately 10 mill t/year.

2. Training abroad.

   Senior staff members (10 - 20 people) responsible for slaughtering, by-products, chilling, cutting/deboning/-packaging, classification, processing, meat inspection, hygiene.

   Purpose: To introduce the latest developments within above subjects to the staff. (Technology transfer to Mongolia).

3. Ulangom plant. (Buildings approx 80 % finished)

   Supply of equipment. To improve the meat supply situation in the province as well as to allow for slaughter and processing of the animals at present being exported live (value added to the export).

4. 10 new plants in the provinces.

   To improve the meat supply situation (quantity as well as quality) in the big cities as well as in the provinces.

   The implementation may be phased over a span of years.

5. Darhan, refurbishment

   To increase quality, utilization and efficiency as well as make the plant ready for export of processed meat. See remarks below.

6. Choibalsan, refurbishment

   To increase quality, utilization and efficiency as well as make the plant ready for export of processed meat. See remarks below.

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7. Gelatine

4 new plants to compensate for imported gelatine.

8. Dry meat

2 sets of equipment for producing dry meat for local consumption and for export.

9. Ulaanbaatar, refurbishment

To increase quality, utilization and efficiency as well as make the plant ready for export of processed meat. See remarks below.

10. Export

Diversification of the meat export is urgently required. Most likly markets in the short term are markets outside the EEC and the US. This requires experience in international export marketing of those products.

Technical Assistance is proposed for:

1. -identification of potential markets
   -establishing export contacts and implementing export
   -establishing an export section at Ministry of Agriculture/Mongolian Food Industries
   -training Mongolian staff in export activities

2. -establishing standards for export quality meeting EEC standards and implementing required processing procedures.

Remarks to point 5, 6, and 9:

The refurbishment is to cover the following areas/equipment for each of the plants:

1. Edible by-products treatment
2. Cutting/deboning
3. Meat processing (sausages, canning)
4. Carcass freezers and cold store
5. Refrigeration plant

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6. Casing/stomach cleaning

7. Fat rendering

8. By-product rendering

9. Slaughter line

10. Blood collection and plasma production

DAIRY SECTOR

Status:

1 National situation

Mongolia has a total production of 312 million litres of milk. Milk is a major food source, particularly in the summer when meat is not available. The demand is therefore high, and estimated by Government as a national average of 270 kg/year per capita.

85% of the milk produced is not collected for national distribution due to lack of infrastructure. The surplus occurs particularly in the summer when production is highest.

Only 15% of the milk (48 million litres) is at present available to the major cities in which about half the population live, and there is a major shortage of milk in the urban areas, where the availability is approximately 70 litres/year per capita.

2 Production

80% of the milk available to the urban areas is produced by 41 intensive "mechanized" dairies.

Visits to the mechanized dairies indicate that milking efficiency is low, cooling of the milk is inadequate and that attention to hygiene and maintenance is lacking. Over 12% of the milk received by the major dairy factories is of low quality, and this proportion has almost doubled from 1989 to 1990.

3 Processing

The major dairies seen are in a bad state of repair and there are high losses of product due to poor packaging and inadequate refrigeration.

The two largest processing units, Ulaanbaatar factory and Darhan dairy unit, need substantial upgrading and should be renovated. The dairy units at Choibalsan and Erdenet were not seen by the mission, but are understood to be similar.

Government has plans to erect drying plants in areas with large summer surpluses so that the milk powder can be recombined in the urban areas in the winter.

Provisional recommendations

Long term Technical Assistance

That a team of Technical Assistance experts be provided to the Mongolian Government for a period of four years.

The team should give assistance with the specific projects listed below:

1 Production (Ministry of Agriculture)

1.1 Planning of dairy industry development at national level, particularly with regard to the intended change from central planning to a market economy.

1.2 Training in milking technique and clean milk production, re-equipment and upgrading of existing mechanized dairies including arranging provision of milk cooling and storage, in order to increase the availability and quality of fresh milk supplied to the urban areas.

1.3 Completion of the five new mechanized dairies already under construction, inclusive of redesign to incorporate pipe-line milking parlours with refrigerated milk cooling and storage

2 Processing (Mongolian Food Industry Corporation)

2.4 Re-equipment and upgrading of Darhan and Choibalsan dairy units including the projected provision of milk drying facilities.

2.5 Improvement of milk collecting systems

2.6 Re-equipment and upgrading of Ulaanbaatar dairy factory, including arranging provision of new packaging machines for milk and fermented products, milk clarifiers, the main refrigeration system and compressed air services.

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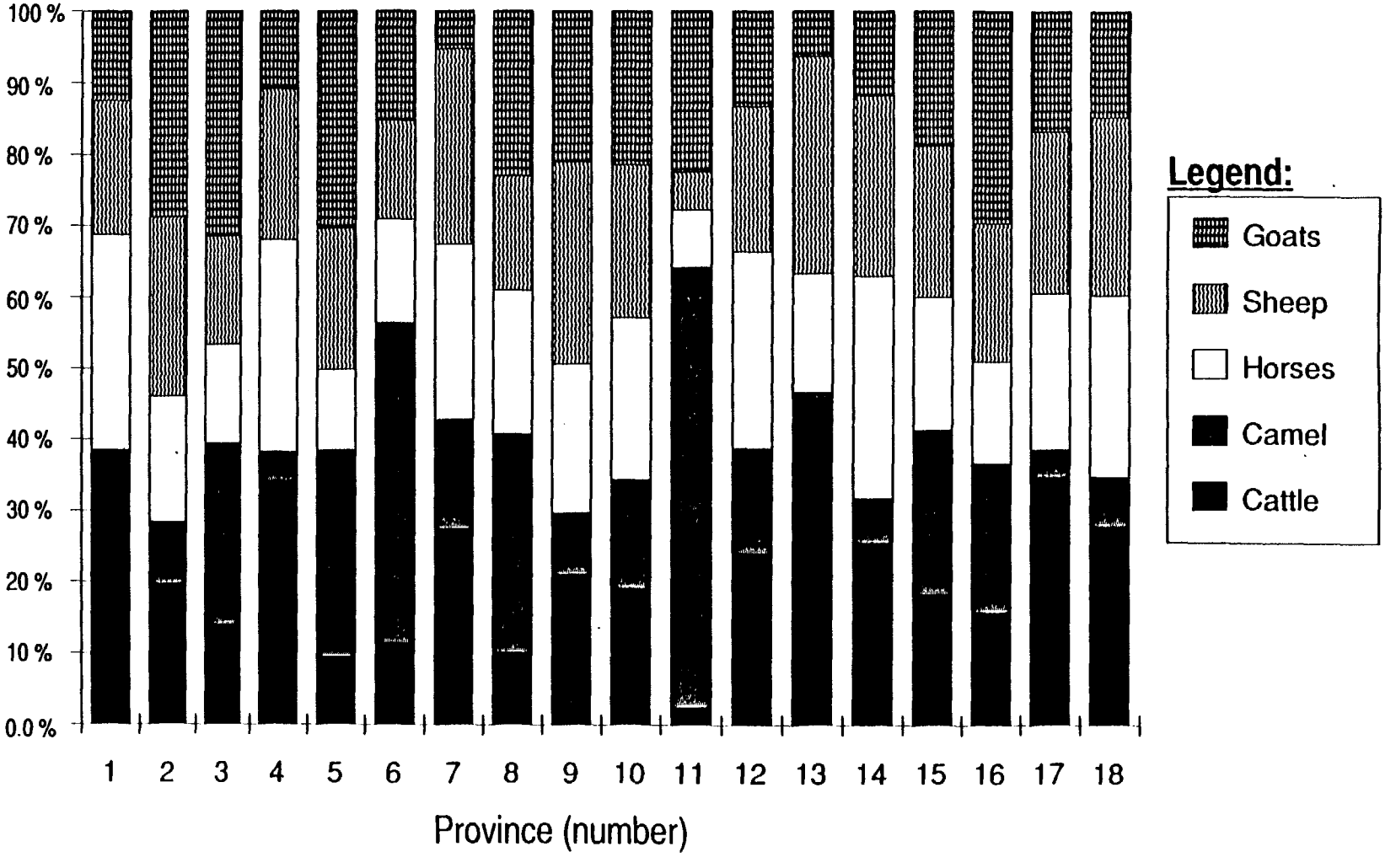
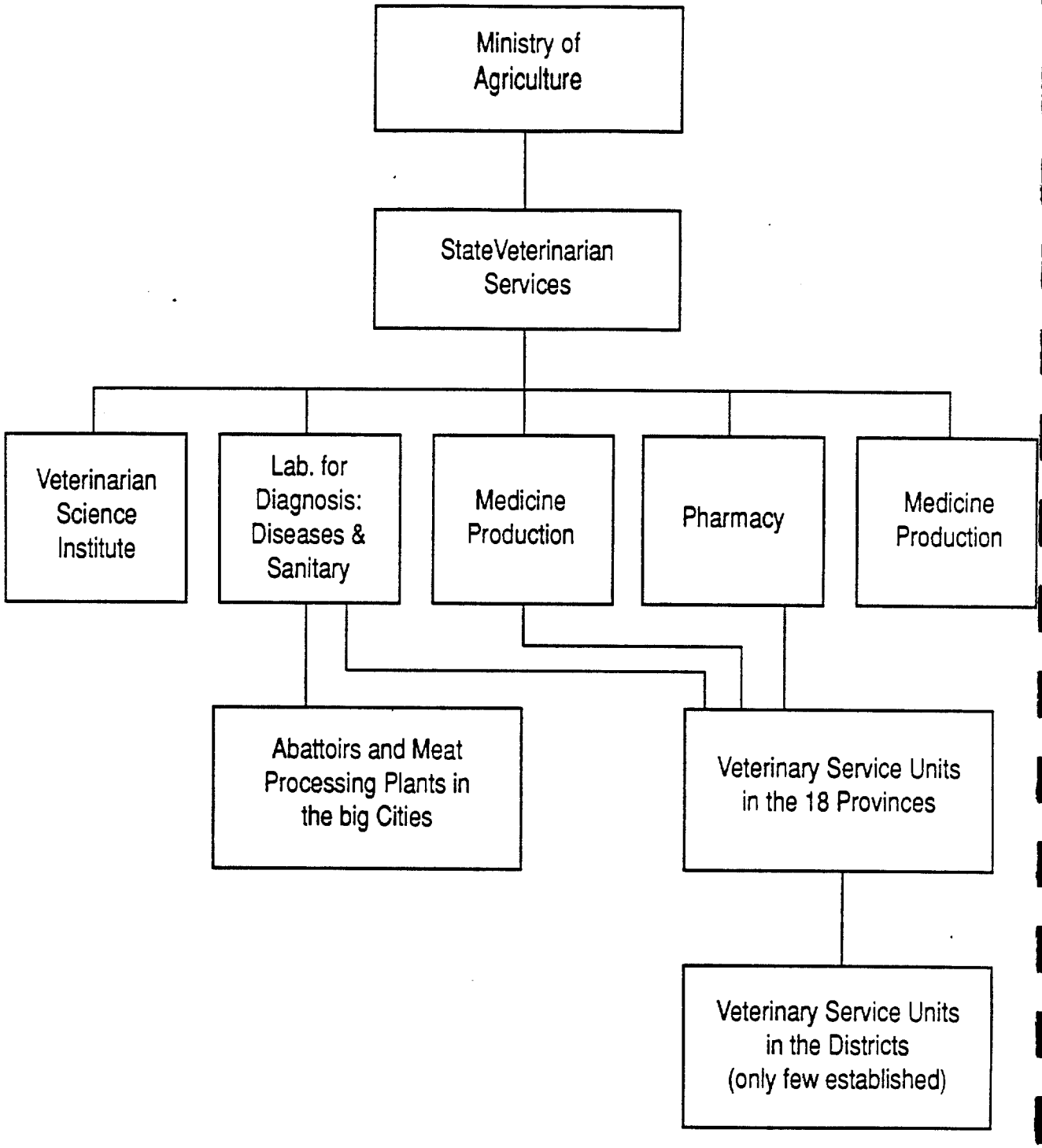
Mongolia: Needs Assessment Mission

Annex 5: Animal Population; nationwide % distribution in Provinces of each animal category



MONGOLIA: Needs Assessment Mission

Annex 6: Organization of Veterinary Services



ANNEX 7

THE DISTRIBUTION OF MILK PRODUCTION AND TRADITIONAL PROCESSING IN MONGOLIA

Six species are milked in Mongolia: Cow; Yak; Sheep; Goat; Camel and Horse. The numbers of animals milked is given in table A.7.1 below:

TABLE A.7.1: Numbers of Animals milked by Species. 1982 - 1989

SPECIES	1982	1988	1989
Cow and Yak	572,267	563,142	603,251
Sheep	144,113	146,717	152,548
Horse	90,734	98,387	107,042
Camel	20,460	20,772	21,916
Goat	66,074	63,382	71,646

Source: Mongolian Food Industries Corporation

The importance of the various species as milk producers varies between the five geophysical regions of the country as depicted on Map A.

Yak milk is reported to be mixed with cow's milk, however milk from the other species is collected and processed separately. Only one processing unit at Arvaikheer in Ovorkhangai Aimak is reported to commercially process goat's milk during the two months period of June and July when the animals are milked. The milk is sold pasteurized and as yoghurt. Sheep are milked for about 45 days from 1st June.

Horse milk is prepared as Koumiss or fermented to "Airak", an alcoholic drink containing about 12% alcohol, while camel's milk in the Gobi regions is processed into curd and a white cheese.

The traditional drinks and foods prepared during the spring and summer in Mongolia are many and varied. Soured milks, curds and cheeses are commonly made in all rural regions. Mongolian women make "Urum" or white butter from milk by boiling and stirring until a thick layer is formed. The skin is poured off, cooled and dried for preservation during the winter. By melting Urum, a ghee "Shar tos" is made, which is used for frying.

The commercial "Aarul" made in Ulaanbaatar factory and all Kombinats has it's origins in rural customs, where it is made simply by dehydrating curdled milk and drying the curd pieces in the sun.

The habit of sour milk distillation has survived in some places in Mongolia. The resultant product "Shimiyn arkhi" or Mongolian vodka is about 10 to 12° proof.

Source: "This is Mongolia". Ya, Yunden, Zorig and Erdene, Ulaanbaatar. 1991

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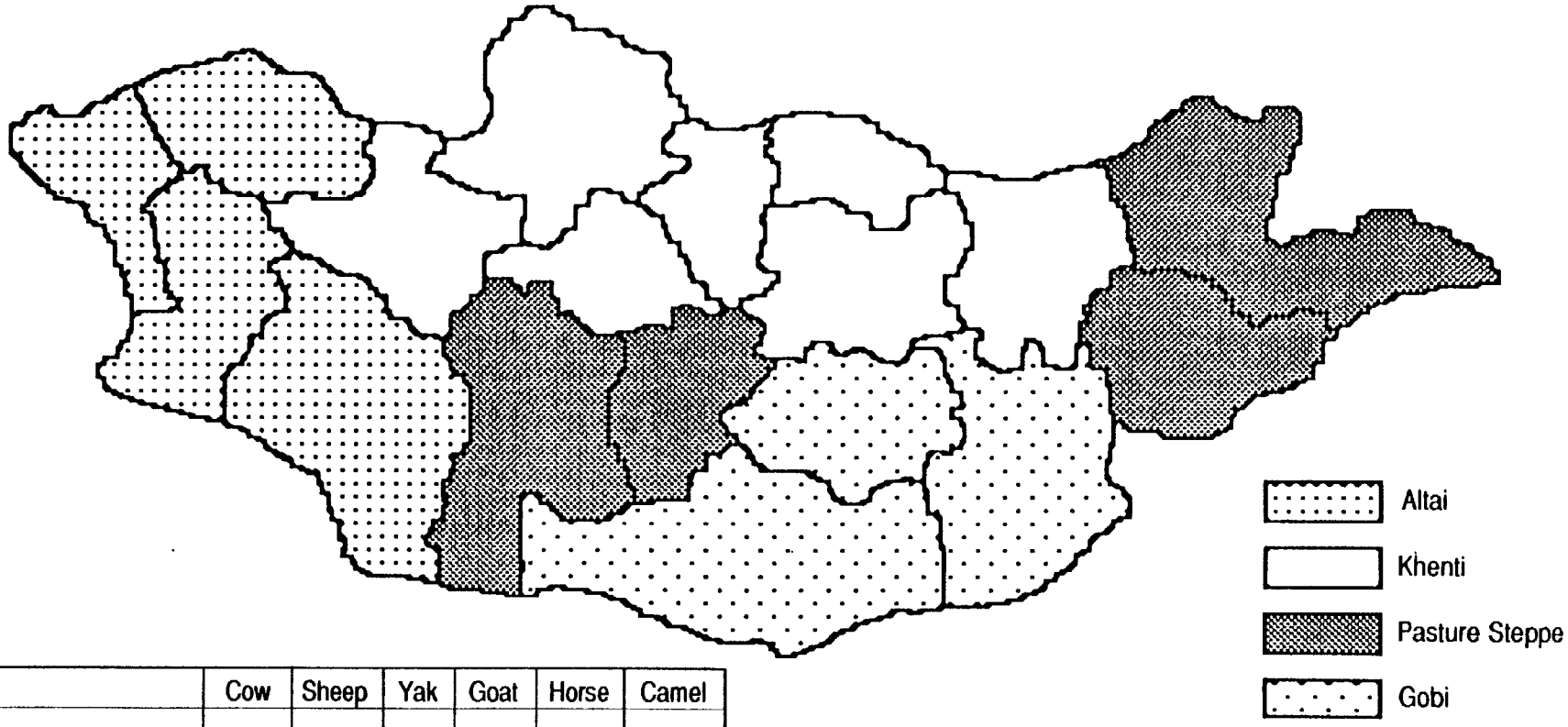
Annex 8: Geo-physical regions classified according to milk prduction significance



	Cow	Sheep	Yak	Goat	Horse	Camel
North Altai/West Khenti	++	+		+		
South Altai	++	+	++	+		
South West Pasture	++	++			+	
Central Khenti	++				+	
East Khenti North East Pasture	++					
Gobi	+					++

Significance
++ Major
+ Minor

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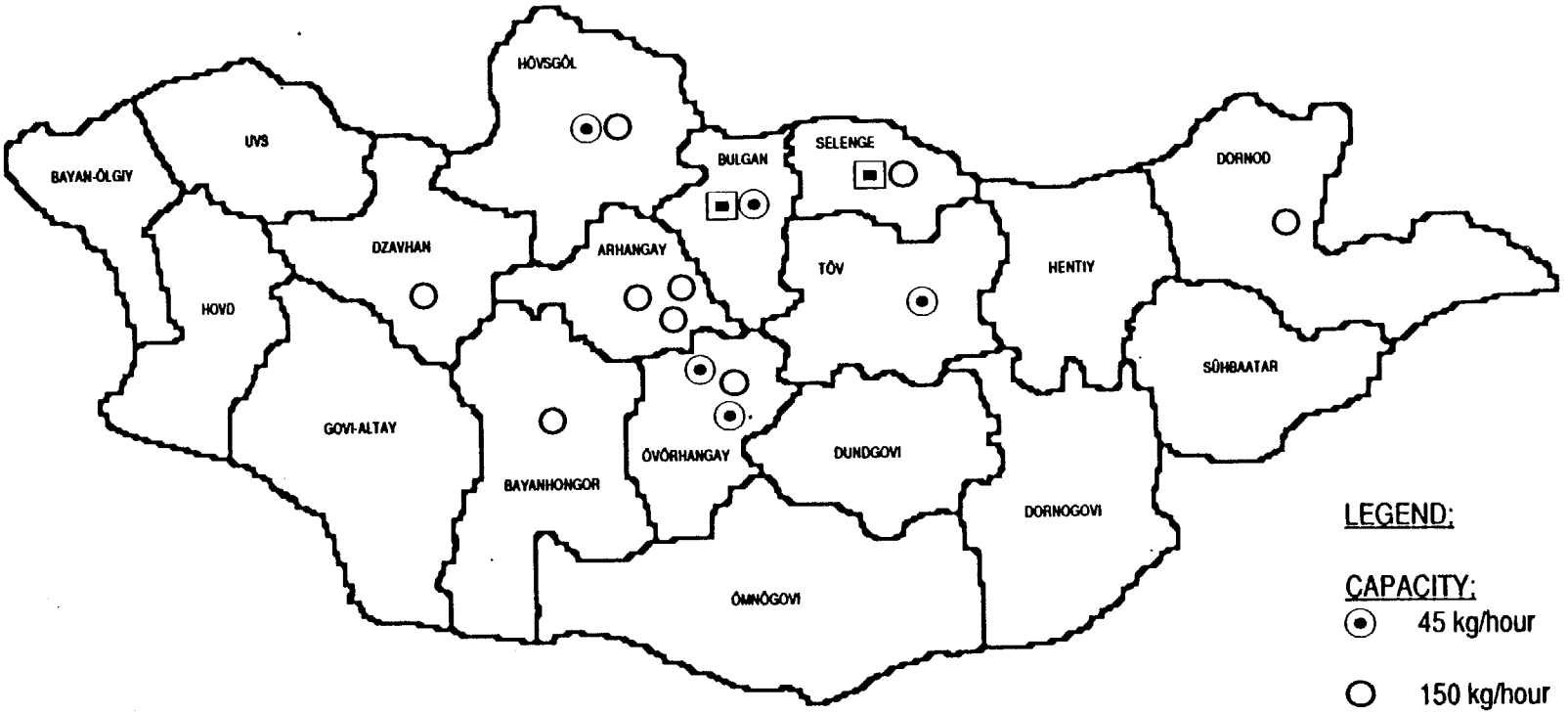
Annex 9: Proposed location of Spray Dryers and Concentration Plants



LEGEND:

CAPACITY:

- ⊙ 45 kg/hour
- ○ 150 kg/hour
- ▣ 330 kg/hour

(concentrates only)

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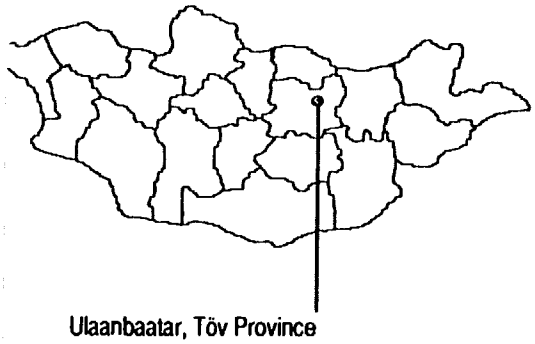
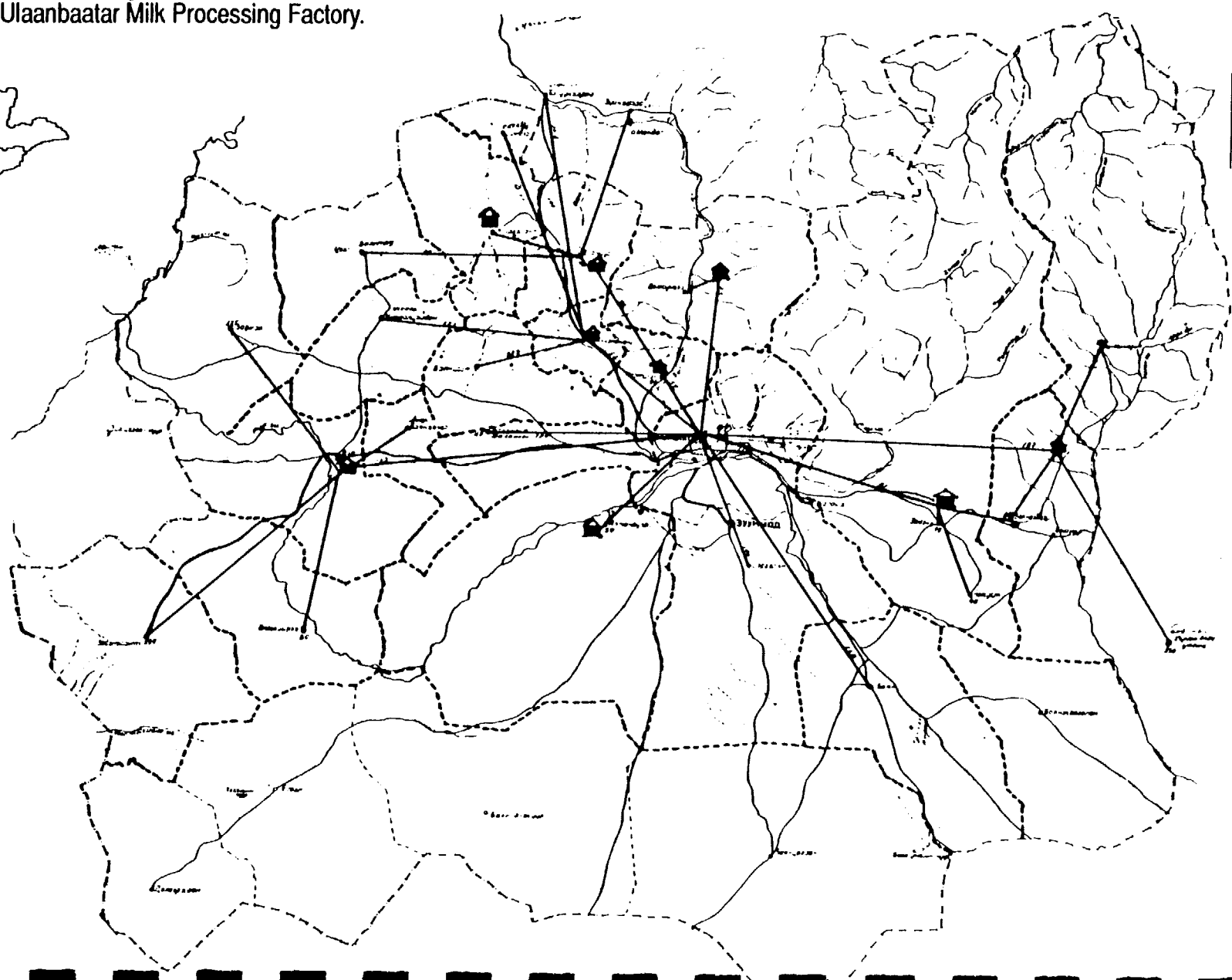
Annex 10: Milk Collecting Area,
Ulaanbaatar Milk Processing Factory.

Map of Mongolia





ANNEX 10

ANNEX 11

QUALITY STANDARDS AND MILK PAYMENT SYSTEMS IN MONGOLIA

1. GOVERNMENT STANDARDS

Government standards for quality classification and payment for milk are given in Table A.11.1 below:

TABLE A.11.1: Milk Classification Standards

TEST	PARAMETER	STANDARD	PAYMENT
1	Butterfat (Berber)	>3.5 % 3.2 % - 3.5 % <3.2 %	+ 2 % Tug. 5.00/l - 1 %
2	Acid	not exceeding 20° >20° and not exceeding 22°	Tug. 5.00/l - 10 %
3	Extraneous matter (Sediment test)	Filter 1 Filter 2 Filter 3	Tug. 5.00/l Tug. 5.00/l - 10 %

Source: Mongolian Food Corporation

2. COMMENT ON QUALITY TESTING

The three tests specified above are inadequate to control the milk supply to commercial processing factories. As a minimum the above tests should be supplemented by a dyestuff reduction test for keeping quality such as the Methylene Blue test, and a test for residual antibiotics.

3. COMMENT ON PAYMENT DIFFERENTIALS

It will be observed that a premium is paid only for high butterfat content, and that the corresponding penalty for low butterfat is not punitive to any great extent.

The highest penalties are levied on milk with high acidity and high extraneous matter. This reflects the concern of the industry over the conditions of hygiene under which the milk is produced and stored before arrival at the factory.

4. REJECTION

The Government Quality Standards as translated to the mission do not specify any conditions for rejection. This may be a translation omission. It was however, interesting to note from the visit of the mission to Darkhan

Kombinat, that even sour milk is received and paid for. (Refer main report Chapter 4, section 4.10.5).

5. SUMMARY

The present standards are inadequate, and can be considerably improved by the application of simple additional tests and strengthening of the enforcement of standards. This can be done by both improved control over the testing laboratories and through readjustment of the premia and differentials for performance in clean milk production.

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ANNEX 12

PROJECTED DEMAND FOR MILK IN MONGOLIA

(Reference main report Chapter 4, section 4.6.3)

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Annex __: Projected Demand for Milk in Mongolia

Province No	Name	Region 1985	Expected demand for dairy products ('000 litres) 1990	1995	2000	
1	Arhangay	2	25	27.2	30.4	34.5
2	Bajan-Ulgiy	1	23.5	25.7	28.3	31.4
3	Bayanhongor	4	20.3	22.8	25.6	29
4	Bulgan	2	13.6	14.7	16.4	18.2
5	Gobi-Altaj	1	18.9	20.6	22.9	25.7
6	Dornogobi	5	10.8	13.1	15.8	18.9
7	Dornod	3	17.4	21	25.7	31.6
8	Dundgobi	5	11.1	13.4	16.2	19.9
9	Dzavhan	2	24.2	26.7	29.9	33.6
10	Ovorhangay	4	26.7	29.8	33.5	37.9
11	Omnogobi	5	9	10.5	12.1	14
12	Suhbaatar	3	15.2	18.5	22.4	25.4
13	Selenge	2	20.3	24.2	28.9	34.2
14	Tov	2	27.9	31.7	36	41
15	Uws	1	23.9	26.7	29.8	33.4
16	Hovd	1	20	22.1	24.6	27.4
17	Hovsgol	2	29	33.9	40.5	46
18	Hentiy	2	18.2	21.4	25.3	30.2
19	Darchan		11.2	13.7	16.5	20.7
20	Ulaanbaatar		85.1	98	112.9	129.2
21	Erdenet		6.1	7.4	8.7	10.1
	Bagamuur (Town)		2.6	3.8	5.2	6.3
	Bor Ondor (Town)		1.1	2	3.2	4.2
	TOTAL		461.1	528.9	610.8	702.8
Percentage increase			0	14.70	15.48	15.06

Total demand in litres per geophysical region:

		1985	1990	1995	2000
1	ALTAI	86300	95100	105600	117900
2	KHENTI	260600	298900	345500	397700
3	NEPAST	32600	39500	48100	57000
4	SWPAST	47000	52600	59100	66900
5	GOBI	30900	37000	44100	52800
	Other Towns	3700	5800	8400	10500
		461100	528900	610800	702800

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Annex 12 (continued): Project Demand increase (%) per Geophysical Region.

Mongolia: Needs Assessment Mission
Annex __ (continued): Projected Demand increase (%) per Geophysical Region

1	**ALTAI**		Projected demand 1985	1990	1995	2000	
2	Bajan-Ulgiy	1	23.5	25.7	28.3	31.4	
5	Gobi-Altaj	1	18.9	20.6	22.9	25.7	
15	Uws 1		23.9	26.7	29.8	33.4	
16	Hovd 1	q	20	22.1	24.6	27.4	
	TOTAL		86.3	95.1	105.6	117.9	
Percentage increase				0	10.1	11.0	11.6
2	**KHENTI**		Projected demand 1985	1990	1995	2000	
1	Arhangay	2	25	27.2	30.4	34.5	
4	Bulgan	2	13.6	14.7	16.4	18.2	
9	Dzavhan	2	24.2	26.7	29.9	33.6	
13	Selenge	2	20.3	24.2	28.9	34.2	
14	Tov	2	27.9	31.7	36	41	
17	Hovsgol	2	29	33.9	40.5	46	
18	Hentiy	2	18.2	21.4	25.3	30.2	
19	Darchan		85.1	98	112.9	129.2	
20	Ulaanbaatar		11.2	13.7	16.5	20.7	
21	Erdenet		6.1	7.4	8.7	10.1	
	TOTAL		260.6	298.9	345.5	397.7	
Percentage increase				0	14.6	15.5	15.1
3	**NE PASTURE**		Projected demand 1985	1990	1995	2000	
7	Dornod	3	17.4	21	25.7	31.6	
12	Suhbaatar	3	15.2	18.5	22.4	25.4	
	TOTAL		32.6	39.5	48.1	57	
Percentage increase				0	21.1	21.7	18.5
4	**SW PASTURE**		Projected demand 1985	1990	1995	2000	
3	Bayanhongor	4	20.3	22.8	25.6	29	
10	Ovorhangay	4	26.7	29.8	33.5	37.9	
	TOTAL		47	52.6	59.1	66.9	
Percentage increase				0	11.9	12.3	13.1
5	**GOBI**		Projected demand 1985	1990	1995	2000	
6	Dornogobi		510.8	13.1	15.8	18.9	
8	Dundgobi	5	11.1	13.4	16.2	19.9	
11	Omnogobi	5	9	10.5	12.1	14	
	TOTAL		30.9	37	44.1	52.8	
Percentage increase				0	19.7	19.1	19.7
	Other Towns		Projected demand 1985	1990	1995	2000	
	Bagamuur (Town)		2.6	3.8	5.2	6.3	
	Bor Ondor (Town)		1.1	2	3.2	4.2	
			3.7	5.8	8.4	10.5	
Percentage increase				0	56.7	44.8	25

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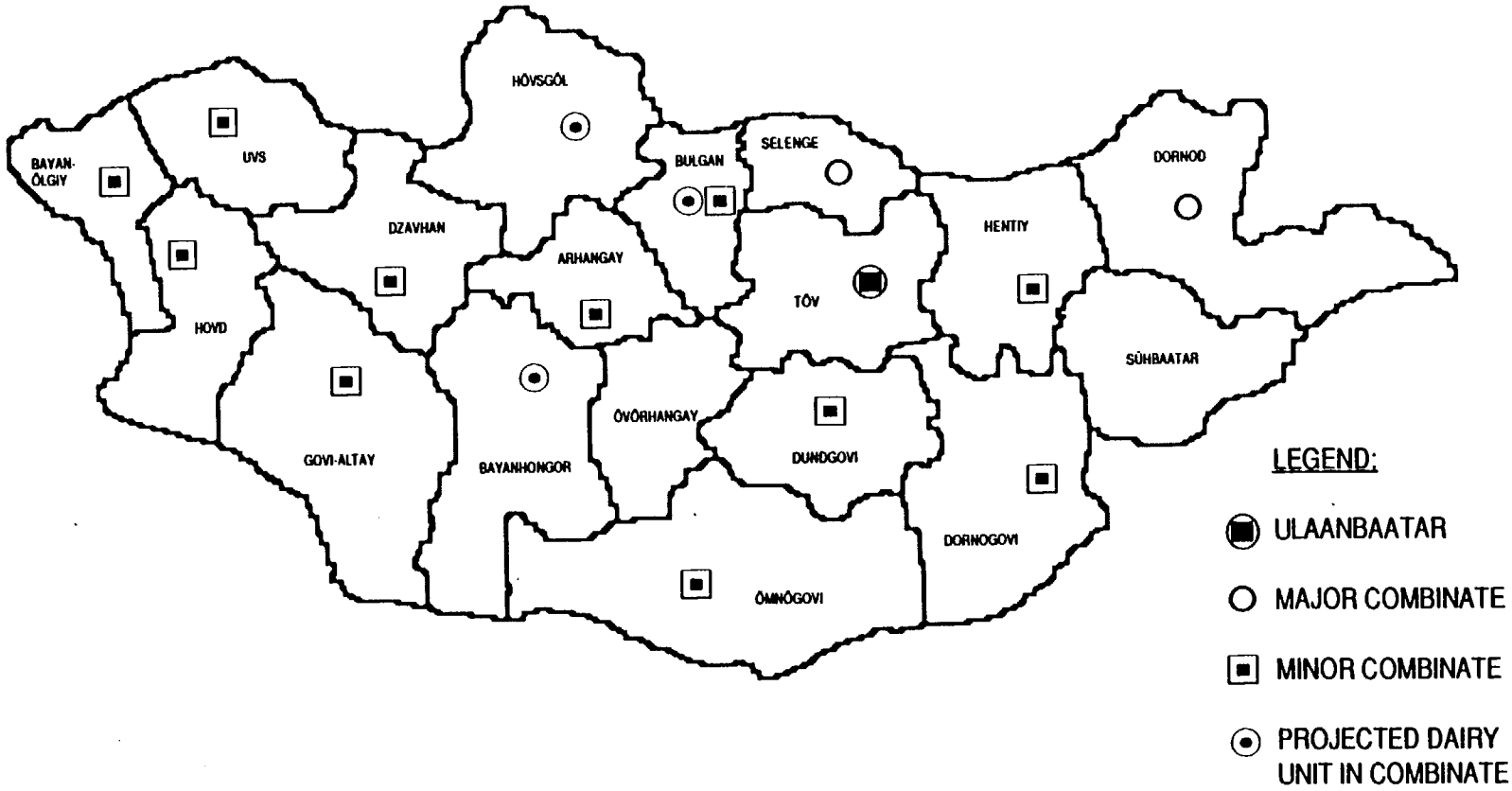
Annex 13: Proposed location of Industrial Milk Processing Facilities



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Annex 14: Technical Assistance Mobilization; man-months.

	Year 1	Year 2	Year 3	Total Man-Months
1. Team Leader				36
2. Agricultural Economist				24
3. Husbandry Leader				36
4. Farm-Dairy Expert 1				6
5. Farm-Dairy Expert 2				6
6. Farm-Dairy Expert 3				6
7. Farm-Dairy Expert 4				6
8. Farm-Dairy Expert 5				6
9. Farm-Dairy Expert 6				6
10. Dairy Expert 1				24
11. Dairy Expert 2				10
12. Dairy Expert 3				10
13. Dairy Expert 4				10

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