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SOMALIA

AGRICULTURAL SECTOR SURVEY

Main Report

and

Strategy

January 24, 1986

[The views expressed in this report are those of a mission which visited Somalia during October-November 1985 and draw heavily on the work of the Agricultural Task Forces, on which government and donor supported staff participated. The views expressed do not necessarily reflect those of the Government of Somalia or of participating donors however.]

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Main Report

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SUMMARY

i. This report is the result of an undertaking by the Government of Somalia, The World Bank, USAID, GTZ, ODA and UNDP to jointly carry out an Agricultural Sector Survey of Somalia and to develop a strategy to guide future development in the sector. Work was carried out in 1985 by five Task-Forces composed of Somali and donor provided staff, and this report is the result of a final mission to summarize the results. The views expressed are those of that mission and do not necessarily reflect those of the government of Somalia or of participating donor agencies. The intent of this report is to provide a basis for future Somalia-Donor cooperation in the refinement or modification and implementation of the strategy, and suggestions about the mechanism to accomplish this are made in the report (see Introduction and Chapter IV, para 4.98).

ii. The report attempts to identify the most important issues needing attention in the sector (Chapters II and III) and to suggest how they can be dealt with (Chapters IV and V). There is not now, nor is there likely to be in the future, unanimity among donors and between them and the government of Somalia on many of these issues. Some of the most critical problems needing solutions involve economic and policy questions and will be the most difficult to deal with (Chapter IV). As the report demonstrates however, even seemingly sector specific, technical issues -- training, manpower, research, water management, for example -- cannot be solved without progress toward the solution of larger problems. The report does not attempt a compromise between the many conflicting views that emerged in the work of the task forces. It presents the issues and proposes solutions in the hope that the government and donors will agree that these are the essential issues, and that the approach suggested provides a basis for working toward a joint solution that can be implemented.

iii. Agricultural performance in Somalia from 1970 to 1980 was extremely poor. Over the fifteen years ending in 1984, sectoral output (54% of total GDP) grew by only 0.4 percent per year, slightly more rapidly in the livestock sector (35% of GDP) and considerably slower in the crop sector(11% of GDP). Per capita food production declined during these years by nearly 3.0% per year, and the country's dependence on imported grain and cereals aid rose from 40,000 to 350,000 tons. With nearly $600 million invested in the sector during these years, agriculture's poor performance contributed directly to Somalia's present external debt of $1,500 million, about equal to total GDP. This debt has resulted in an extreme balance of payments/foreign exchange shortage during 1980-85, made worse by the large food imports and the ban on Somalia's exports of livestock in 1982 to its major, virtually only market (Chapter I).

iv. Somalia is, as a result of these developments, now dependent to a very high degree on external assistance which supports 100% of the investment budget, close to half the domestic operating budget, nearly $100 million in technical assistance (over 1,200 people) and nearly $ 100

million in food aid. Interaction between donors and government therefore affects virtually every aspect of agricultural sector activity in Somalia, and thus the need for a clearer understanding of objectives and methods to achieve them.

v. In the first five years of this decade major economic policy changes were introduced which improved significantly the performance of the sector. Crop production, particularly cereals, has increased 40-50% since 1980, and there is a resurgence of interest in agriculture. The new directions in which the economy is moving that relate to the agricultural sector include:

(a) a move toward a mixed, more private economy;

(b) liberalization of internal marketing for many crops, particularly cereals and a reduced role for public sector institutions in the marketing of agricultural commodities;

(c) major devaluations of the Somali Shilling which have brought agricultural and input prices more in line with world prices;

(d) liberalization of foreign exchange controls allowing private sector access;

(e) transfer of some state farms to settlements; and

(f) consideration of divesting the public sector of some enterprises, or converting them to commercial or joint ventures.

vi. These changes provide the opportunity to correct some of the most serious constraints that retarded agricultural growth in the past. The results have on balance been highly positive, but the reforms are far from completed, and some have been accompanied by new difficulties or exposed problems which were not evident before.

vii. The physical/environmental constraints on agriculture have been significant. The limit to expanding livestock numbers is being reached, (or has been exceed according to some). Somalia's arid, semi-arid climate, with limited bi-model rainfall, limits the area of rainfed crop production to much less than the presumed availability of cultivatable land. Largely uncontrolled flood irrigation along the Shebelli and Juba rivers are also constraining factors. These conditions existed in the early 1970s when production of most crops was higher however, and existed in the early 1980's as production has again started to improve. While a constraint therefore, these factors do not explain the poor performance of the past (Chapter III).

viii. The major constraints appear to have been economic policy and organization, sector management and agricultural public sector enterprises performance, and the impact this had on the performance of needed sectoral support services -- research, water management, input availability and marketing (Chapter III).

ix. While the recent reforms have had a dramatic impact, on cereals production particularly, the economy and thus the agricultural sector are clearly in a transitional state. A predisposition toward market-directed agriculture exists, but there does not seem to exist a working consensus within government or between government and major donors in favour of the particular steps that would produce a rapid transition toward a market system of organization of agriculture. Existing organizations and their historical functions, personal vested interests, habitual relationships between government and donors, and the general painfulness of change and uncertainty, are impediments to further change. Yet the present situation is unstable and debilitating. The continued drain of unproductive public sector enterprises cannot continue, but until further change takes place private sector alternatives are only partial and slow to develop. Solutions to this problem are critical.

x. There are thus two levels of constraints to be overcome. At one level are the economic policy and sector management constraints. At another level are the sector specific constraints, but both are linked.

xi. Within the context of the constraints imposed by the large external debt, the foreign exchange shortage and large government deficits, which place limits on what the public sector can realistically be expected to accomplish, the report identifies four major issues that need solutions.

xii. In marketing, a continued incentive to producers is essential to future growth. The report outlines the major reasons why this may be endangered -- highly unstable prices for many crops especially cereals, a reemergence of seasonal price fluctuations, overly large marketing margins, the uneven supply of large quantities of food aid and the continued and uneven involvement of government institutions in the marketing system. The essential problems are clear and alternative solutions have been discussed. Donors and government need to agree to a workable solution. This can be accomplished during 1986. The essential issues is whether and what kind of role the public sector should have in marketing and what systems if any are needed to assure stability (Chapter IV).

xiii. Regarding input supply, again the general facts are reasonably clear and major studies have been carried out. Solutions are not forthcoming because they involve issues of costly public sector enterprises and further private sector development of distribution systems. The strategy proposes a first step would be parity pricing of the services provided and an intensive management analysis of existing institutional structures and needs. This too can be accomplished in 1986 (Chapter IV).

xiv. The drain on the economy and the sector of agricultural public sector enterprises, which remain intact but are either non-functional or operate at less than 30% of capacity, and in most cases make large losses, is so critical that a set of priorities for reform of these enterprises is identified. Based on these priorities and an enterprise by enterprise management analysis, decisions that can be mutually supported by government and donors could be taken. It is proposed that these management studies commence in 1986 (Chapter IV).

xv. Major functions that have limited sector growth in the past and need to be performed in the sector by sector ministries are:

(a) effective research, in all sub-sectors, but particularly crops and livestock;

(b) an effective system of water and drainage management in irrigated areas; and

(c) efficient systems of land leases, taxation and appropriate service charges for major public sector activities.

These key functions of the public sector have suffered because of public involvement in major investment and production efforts. A key element in the strategy is to establish the capacity within government to perform these functions as the government phases out of its costly and largely unsuccessful production, marketing and input supply activities. But this is not feasible unless intermediate measures are found to motivate and retain key staff in each of the three ministries until civil service reform is acomplished. Without this, manpower and training efforts keyed to existing ministerial structures, activities and staffing are of little use (Chapter IV, para 4.34).

A Future Development Path

xvi. The above elements of a strategy involve major economic and policy issues and obviously cannot be achieve overnight. The strategy proposes a phased approach to achieving its objectives given these constraints. The long-term objective is to enable Somalia, over time, to put in place a largely self-sustaining agricultural sector, which supports overall economic growth and provides a large measure of food self-sufficiency as well as contributes to export earnings. Measures are proposed so that in the longer run, the economy will be one in which most productive and commercial service activities are carried out by the private sector, or by fully commercial public enterprises, with government emphasis placed on appropriate support services -- research, management and maintenance of major infrastructure and the development and enforcement of facilitating laws, regulations and tax systems. In the long-run a motivated and adequately rewarded civil service will have to be in place, needing interim support as indicated above.

xvii. The immediate problems that need to be addressed include:

(a) livestock marketing as a means to stimulate export earnings;

(b) targeted, adaptive research;

(c) a management systems analysis in depth of:

(i) the cereals marketing system and a determination of the role in a future system of government and of the private sector, including the role of food aid in future cereals marketing;

(ii) of the input supply system, including ONAT the Urea Plant, AFMET, and other livestock and fisheries entities and the private sector; and

(iii) of the existing assets, operation and management of other public enterprises linked to agriculture, to establish a basis for decisions regarding the future of these enterprises;

(d) a determination of intermediate measures that could be taken to support key civil service reforms in the sector to support improved ministerial performance while longer-term civil service reform takes place; and.

(e) the establishment of a Government of Somalia - Donor mechansism to finance and staff these priority activities, while shaping external assistance in support of these undertakings.

xviii The medium-term problems that will need attention include:

(a) laying the foundation for an effective Somali research system;

(b) developing an effective water and drainage management system;

(c) developing a cost effective system of land and water charges, cost recovery, tenure and taxation;

(d) Irrigation rehabilitation; and

(e) Fostering private sector development of marketing and input supply systems.

Sector Specific Strategies

xix. Livestock. The livestock sub-sector is and will continue to be the major contributor to GDP, employment and exports in Somalia. A 2-3% average growth rate would seem the upper limit. There was general agreement that:

(a) the capacity of the range to sustain additional numbers of animals was at or near its limit;

(b) the emphasis for range management initiatives should be largely conservation and the need to maintain the current productive levels;

(c) a critical near-term problem needing attention, and the major source of growth in livestock output, is the export marketing situation and system and related facilities -- holding facilities, quarrantine, supplemental feeding;

(d) animal health services to support additional offtake for export and expanded domestic marketing and consumption are a second near-term priority; and

(e) there are possibilities for government to divest itself of a number of unproductive activities and enterprises in the livestock sector while strengthening the critical services provided by the Ministry of Livestock, Forestry and Range.

xx. In the longer term other improvements are feasible:

(a) supplemental feeding and improved holding facilities to improve export quality;

(b) developing pastoralist associations to control grazing and limit range degradation; and

(c) introduction of improved practices to limit the effect of shifting cultivation (Chapter V, paras 5.01-5.33).

xxi. A study of livestock production prospects leads to the following conclusions:

(a) livestock numbers, according to available data and wisdom, are trending moderately upward with pronounced variations associated with weather and available feed;

(b) ranges are at or near the limits of carrying capacity.

(c) the longer-run growth trend for cattle is around 1.0 percent per year and for goats and sheep around 2 percent;

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(d) output in general is increasing around 2 percent per year with large variations;

(e) domestic demand appears relatively low and is increasing at around 2.5 percent per year for goats and sheep and 1.3 percent for cattle. Demand has increased less than population and per capita consumption has declined to the mid 1980's;

(f) exports will take time to regain lost markets, but will be the main source of future growth, along with domestic demand (Chapter V, para 5.31).

xxii. Crop production has a priority in Somalia's future agricultural growth strategy that greatly exceeds its present relative significance. It is poised on the brink of major future increases as a result of:

(a) the new incentives that are stimulating cereals production;

(b) the large on-going investments in irrigation rehabilitation on the Shebelli, and the projected new investment in the construction of the Bardhera dam, which will open up irrigation possibilities on the Juba; and

(c) the promising results of the semi-mechanized rainfed production pilot project.

xxiii. Investments in the crop sector at $40-45 million in 1984 and 1985 were already two and one half times those in the livestock sector and in the new Public Investment Program are scheduled to rise to six times the investment in livestock. With such large resources/commitments there are three main objectives for crop production:

(a) import substitution primarily for cereals imports;

(b) increased and diversified crop exports; and

(c) ultimately the provision of additional feed supplies to sustain and enhance livestock exports and increase domestic supplies of meat, milk and eggs.

xxiv. To achieve these objectives and make these investments worthwhile, the critical economic policy and sector management problems mentioned above must be solved. Within the crop sub-sector itself there are five critical elements of a strategy:

(a) the urgent need for targeted, adaptive research to capitalize on improved incentives and raise yields, followed in the medium term by the development of a sound Somali research capacity (Chapter V, paras 5.41 - 42);

(b) further improvement in the extension service which is underway and should incorporate adaptive research for the time being (paras 5.43-5.47);

(c) development of water use and drainage management systems as the rehabilitation of Shebelli irrigation system takes place, and in place as the Bardhera Dam comes on stream (para 5.48-5.51);

(d) development of an equitable and efficient system of land tenure rights, land taxes and lease fees, and appropriate charges for major infrastructure works -- irrigation, drainage and land improvements (paras 4.20-4.25);

(e) the ongoing trials in semi-mechanized long fallow rainfed farming should be continued and expanded as the validity and financial viability of these techniques becomes clear (paras 5.52-5.55).

xxv. Projections of the long-term demand and supply of food crops, and the potential growth in output for non-food crops, were undertaken to determine:

(a) production levels that could reasonably be attained over the next 5, 10 and 20 years;

(b) how far this would go towards satisfying the country's food requirements; and

(c) how different assumptions about yield development, rainfed vs irrigated crops development, and changes in consumption patterns (towards increased consumption of local products) would affect the overall pattern of production and the country's dependance on imports.

xxvi. The results of these projections from a base year of 1982 shown the following developments are possible:

(a) agricultural output could grow at 4.0% per annum to 2005 based on an area increase of 2% per annum with the remainder coming from increases in yields;

(b) food grain output could grow somewhat faster;

(c) total area under cultivation could increase from a 1982 level of 900,000 ha (with 55,000 ha under controlled irrigation and 150,000 ha under flood irrigation) to 1,226,000 ha in 1995 (84,000 ha under controlled and 70,000 ha under flood irrigation), to 1,400,000 ha in 2005 (with 130,000 ha under controlled and 30,000 ha under flood irrigation);

(d) yield increases for foodgrains in the early years would have to be substantial, based on a shift of production methods from flood to high input/high output controlled irrigation methods, as the Shebelli valley is rehabilitated;

(e) complete food selfsufficiency can not be reached, but foodgrain imports could be reduced from 50% of total grain use in 1982, to around 15% in 1995, and 2005.

xxvii. The process would be one of gradual substitution of domestic production for imported food. Programmed levels of food imports and food aid should gradually be curtailed in order to permit this process to occur. Continued importation of high volumes of wheat, flour and rice will undercut this undertaking. Shifting aid resources out of food and into financial or other types of assistance would permit improved investments in productive elements of agriculture (Chapter V, paras 5.56-5.82).

xxviii. Fisheries has suffered, over the past twenty years, from over capitalization in both shore facilities and ships. The time appears to have come to wind up unviable enterprises and to develop a new strategy based on:

(a) Assistance to artisanal fisheries in coastal communities largely concerned with improving communication, supported by viable, relatively small, local private processing facilities and private transport links;

(b) selective fish resource assessments may be needed, but emphasis in the domestic system should be placed on linking fishermen with the local demand for fish;

(c) future possibilities to exploit the offshore potential for export linked to artisanal fishing are being studied under existing projects, and further development in this area should build on the results of these projects (Chapter V, paras 5.91-5.97).

A New Approach to Sectoral Planning and Donor Coordination

xxix. A new process is required, but the mechanism is by no means obvious in the short run. In the longer run, strenghtening of the operating ministries, and continual attention to strategic considerations within the ministries, can produce strong Somalia strategic leadership, with the donors financing sections of a program that meet their own institutional needs. For the present the following procedure is suggested:

(a) A series of meetings between operating ministries and local donor representatives to first identify and then critique, from a strategic view point, the actual investment program;

(b) Communication between local donor representatives (usually not the decision makers in their institutions) and their home offices on the substance of these meetings, seeking donor agency support of an agreed strategy. It is potentially impossible for the World Bank or the EEC, for example, to have an agriculture support strategy for Somalia without consideration of the overall activities in the sector and other donors' activities. If a strategic approach can be agreed, project amendments, and in the longer run new projects can support that strategy; and

(c) Because this report is a first attempt to evaluate the sector as a whole, and is based on many substantial inputs from most donors and the operating ministeries, an initial donor-government process such as that suggested above, should be convened in the next 1-2 months to focus on this report as a basis for future operations and the evolution of a progressively more precise and mutually agreed on strategy (Chapter IV, paras 4.44-4.46).

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Main Report

Introduction

1. An Agricultural Sector Review of Somalia was carried out in mid-1979.*/ Since then major changes have taken place. Somalia's economic policy has begun to shift from government ownership and management of most economic activities toward a mixed or market economy, which has had a dramatic effect on agricultural production. Cereals, production, has increased dramatically with improved incentives, and there has been a rapid expansion in land used for crop production.

2. The transition to new economic approaches has not been easy and is not complete however. In the first half of the eighties, the country experienced a number of severe economic shocks: the international economy has been sluggish; high petroleum prices at the beginning of the decade hampered development; a mid-1982 ban on livestock imports by Saudi Arabia sharply reduced Somalia's main source of foreign exchange; a high degree of price instability and rapid inflation accompanied the first phase of exchange rate and price policy adjustments; and there has been a sharp rise in foreign debt and in the government's budget deficit. These shocks resulted in severe foreign exchange shortages, disrupting many productive activities, and sharply increased the country's already heavy dependence on external assistance -- financial, technical, food and commodity aid.

3. The transition is not complete for these and other reasons. Moving from a largely managed to a mixed, or private economy is not easy. There are difficult political, social and equity issues involved in determining which activities to retain in the public sector? How and at what pace to privatize? The impact of this on different groups. The private sector faces difficulties in quickly responding to new opportunities and developing confidence that these opportunities will continue. Strapped by large debts, limited resources and a poorly paid and motivated civil service, the government is not able to rehabilitate many public sector enterprises or operate them efficiently. The private sector, meanwhile, is unwilling or unable to purchase the assets of some of these enterprises, some of which are of dubious value, and in any case,

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*/ Somalia, Agricultural Sector Review (In three Volumes) World Bank Report No. 2881a-SO, Washington D.C. June 29, 1981.

a framework of supportive commercial services is not in place -- banking, credit, market information, smoothly functioning systems of foreign exchange transactions, rules and regulations to ensure competitive behaviour, etc.

4. A vacuum therefore exists: a vacuum in essential activities and services which are not being carried out by the public or the private sector; and a vacuum of uncertainty -- the private sector is not sure of the pace and consistency of government policy changes, and the government is not sure of the ability of the private sector to carry out essential functions in the best interests of the society. A third vacuum is in the government's planning process, which will inevitably be different in a mixed or market economy, but remains essentially unchanged. A fourth vacuum exists in the capacity of donors to adjust their assistance to these changes, despite the fact that in most cases they favored and fostered many of them.

5. This Survey was undertaken during this period of transition with three major objectives. First, to gain a clearer understanding of the constraints on and production possibilities of the agricultural sector in order to judge its potential to contribute to the growth of the economy. The sector (including livestock, crops, fisheries, forestry and wildlife) provides half of GDP, 80% of employment and 90% of exports. Thus success in agriculture is critical to economic growth in Somalia. It is also critical to two other national objectives: greater food self-sufficiency and food security, and generating employment.

6. A second objective is to provide a strategy to guide the sector through this period of transition so that agriculture helps solve pressing immediate problems, facilitating the transition, and is established on a firm, selfsustaining basis in the longer term.

7. A third objective was to achieve a better understanding between Somalia and donor countries and agencies about these issues and provide them with a framework around which they could work more constructively to develop an agricultural strategy. An agricultural strategy must obviously meet the needs of Somalia and be supported by it. Considering the high level of donor involvement in Somalia however, it is equally obvious that donors must agree with and support the strategy. Donors provide: (a) 100% of the Public Investment Program (PIP); (b) an important element of the Public Expenditure Budget (PEP) through counterpart funds derived from Commodity Import Programs (CIP/AIP); (c) a large fraction of the nation's food supply through concessional food aid programs; and (d) 1,270 technical assistance personnel at an annual cost of just over $95 million in 1984, some 41% of which work in the Agricultural, Livestock, Forestry and Fisheries sectors.

8. To achieve such an understanding, the survey was carried out jointly with the Government, the World Bank and other donors. Five task forces were established under the Chairmanship of the Permanent Secretary of the Ministry of Planning to investigate: Livestock, Crop Production, Fisheries, Economics of Agriculture and Planning and Statistics. Each task force was chaired by a Somali official with a Co-Chairman provided

by donors. Each task force had Somali staff and donor provided consultants. The donors that participated actively were The World Bank, USAID, GTZ, ODA and UNDP. Consultations took place with other donors and other government ministries.

9. The task forces commenced their work in April and completed it in September 1985, producing summary reports for each task force, a Senior Adviser's Report and a number of working papers.
The preliminary findings of the task forces were discussed at a meeting of senior government and donor officials in Mogadishu on August 10-11, 1985. The reports and working papers were circulated to the government and donors on September 20, 1985.

10. Based on the work of the task forces a small mission visited Somalia during October-November 1985 to prepare this main report and Sector Strategy. That mission consulted with concerned government agencies and donor organizations in Mogadishu to obtain their views on the results of the task force's work and on the major issues that emerged from it.

11. This report -- the result of the above mission -- attempts to synthesize and condense the work of the task forces and to develop a Strategy for the future development of the agriculture sector of Somalia. The mission attempted to reflect in this report a broad measure of government and donor involvement and agreement on major issues, and to achieve, to the extent possible, a mutual understanding between the government and the donor community. The report nevertheless at this stage reflects the views of the above mission, as did the work of the task forces. Neither the government nor donors have approved or sanctioned it.

12. Indeed a complete understanding on issues and solutions is obviously not possible. There were clear differences of opinion between consultants and Somali participants in the task forces. There are differences between donors as to objectives and types of activities supported and differences between the donors as a group and the Somali Government.

13. Given these differences the Government of Somalia is the final arbiter of what problems will be tackled and what decisions taken. But donor agreement on major policy, economic and sectoral issues is also critical. The work of the task forces illustrates that in the past the interaction between the government and donors (and indeed between the donors themselves) has not, in far too many cases, resulted in the best use of resources nor has it, in many cases, resulted in strong, self-sustaining projects and programs in the sector. Donors and the government share responsibility for many past failures in the sector and their joint efforts will be necessary to chart a different course for the future. This strategy tries to provide a basis on which to chart that course.

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Chapter I: The Country and Economy

A. Characteristics

1.01 Somalia is a sparsely populated country - 5.8 million people (excluding refugees) and 738 thousand km^2 (64 million ha) of land. It occupies the eastern tip of the Horn of Africa, sharing borders with Ethiopia and Kenya on the west, and a 3,300 km coast line on the east. The climate is arid to semi-arid, a major factor in sector performance and future possibilities. Only two areas have relatively good rainfall (400-600 mm) -- a small area in the northwest around Hargeisa and a much larger area in the south in the inter-riverine area between the Shebelli and the Juba Rivers. Rain falls mostly in the Gu (mid April-June) and Der (October-December) seasons. This bimodal pattern -- limited total rainfall separated by two dry spells -- means that moisture dependability and sufficiency for rainfed crop production is barely adequate. Moderate droughts occur every 3-4 years and major ones every 8-10 years. In this harsh environment, crop production takes place on no more than 1 mil. ha (1.5% of the area). Some 50-100,000 ha along the Shebelli and to a lesser extent the Juba benefit from largely seasonal, flood irrigation with low water use efficiency (20-25%).

1.02 Nomadic livestock grazing -- on an estimated 44 mil. ha of rangelands -- is the traditional occupation of most Somalis and is the dominant activity in the sector and in the economy. Some 4 million cattle, 6 million camels, 18 million goates and 12 million sheep are maintained.

1.03 The population was estimated by the government at 5.8 million in 1985, growing at 3.1% per year. The country is supporting some 300-700,000 refugees, depending on estimates. Per capita income in 1985 was estimated by the government at $300, giving a total national income of $ 1.7 billion. Other population and total and per capita GNP estimates range higher and lower.

B. Agricultural Sector

1.04 The agricultural sector (including crops, livestock, forestry and fishing) has, on average, contribuited 52% of total GDP during the period 1970-84, with livestock accounting for 35%, crop production 11%, forestry 5% and fisheries less than one percent. Crop production has therefore played a modest role in the past, and fisheries have been even less significant.

1.05 While Somalia's per capita is on a par with India and Tanzania, Somalia's present economic condition has been aggravated by two decades of negative per capita economic growth (-0.8% per capita GNP from 1965 to 1983). It has therefore lost ground relative to other countries in the past two decades.

1.06 Crop production improved dramatically in the early eighties, after a decade long period of decline and stagnation, but the country's index of food production per capita in 1981-83 was only 72% of the 1974-76 level; fertilizer (nutrients) consumption per hectare of arable land declined from 3.1 to 0.9 kgs between 1970 and 1982 (compared with 4.2 kgs for Sub-Saharan Africa); and cereals imports grew from 28,000 to 150,000 tons, and food aid from 12,000 to 200,000 tons, between 1974 and 1982/83.

1.07 The sector provides about 80% of employment now, compared with 87% in 1965, at least 60% in the livestock sector. Primary commodities provided 99% of merchandise exports in 1982 (the peak export year). Livestock and products account for 90% of exports in most years, bananas about 6-7% and fish, frankincense and myrrh the remainder.

C. Economic Policy and Performance

1.08 The government embarked on a new approach to economic organization and management in the early 1980's - shifting from government ownership and management of the economy toward a mixed, open economy. But the burden of poor performance over the past two decades has left it with a high external debt, severe balance of payments problem, a seriously weakened public sector economy, a rapidly rising government budget deficit and heavy dependence on external assistance.

1.09 In 1984, the trade balance was in deficit by $350 million, equal to three times the average value of exports in recent years and six times the level of 1984 exports. Public and private loans, grants, credits and capital transfers reduced this to an overall balance of $102 million, a financing gap still equal to recent average exports and twice the value of 1984 exports (Annex Table 1). The country is thus heavily dependent on external grants and loans. The total external debt ($1,400 million in 1984) is about equal to total GDP. The debt service ratio reached 50% of export earnings in 1984, rising sharply from 12-14% in 1981 and 1982.

1.10 Both the debt and the capacity to repay it relate directly to the agricultural sector. Between 1979 and 1984, loans to the sector totalled $350 million (of which $73 million was food aid). This was 30% of the loans to Somalia during these years, excluding suppliers credits and non centrally recorded loans. If loans to the sector contracted before 1979 are included, the outstanding sectoral debt rises to more than $570 million.

1.11 The government's projections of exports and imports for the period 1985-88 (Table 1.1) indicate that it expects this external dependency to increase and a major factor in this increase is the continued heavy investment in the agricultural sector - nearly 50% of the Public Investment Program (PIP).

1.12 An equally serious constraint, which affects the entire sector, especially issues of public sector possibilities in the near and long term, is the sharply rising government budget deficit and the extremely low allocation to productive services (Annex Table 2). The ordinary budget was more or less in balance until 1978, but has rapidly

deteriorated since then, with a deficit exceeding SoSh 3,000 million by 1984. The overall budget defidit (including development expenditures - PIP-) has increased from less than SoSh 500 million in 1975 and SoSh 1,500 million in 1980 to SoSh 6,500 millionm in 1984. For an economy attempting to operate and manage most economic activities the ..... of these rising government expenditures economic sectors is dangerously low - declining from less than 20% in 1975 to less than 7% ion 1984. Government expenditures on social services are comparably low and have declined in like manner (Annex Table 3).

1.13 The agricultural sector therefore operates within severe natural, external debt and internal budget deficit constraints, which have overriding effects on any future strategy for the sector.

Table 1.1

FOREIGN EXCHANGE CASH FLOW ANALYSIS, 1985-88
(in millions of dollars)

	1985	1986	1987	1988
OVERALL SURPLUS/DEFICIT	0	-108	-95	-115
Receipts	232	235	245	264
Exports	110	130	150	170
Non-factor services	10	13	13	12
Other investment income	2	2	2	2
Private transfers	70	60	50	50
Cash aid	40	30	30	30
Payments	-232	-343	-340	-379
Foreign exchange imports	-122	-160	-180	200
IMF charges	-11	1-	-8	-6
AMF charges	-2	-2	-2	-2
Other interest payments	-21	-55	-37	44
Settlement of arrears	-18	-31	-	-
External loan repayments	-23	-54	-63	-75
Private capital flows	-20	-10	-5	-
Reserve build-up	-15	-21	-45	-52
GOVERNMENT SECTOR SURPLUS/DEFICIT	-26	-130	-105	-122

Source: National Development Strategy and Programme, GOS/MNP, Mogadishu, September 1985.

Chapter II: New Directions and Major Issues - Toward an Agricultural Strategy

2.01 The new Somali development policy since 1982 has stimulated agricultural growth. The strategy developed in chapters IV and V reflects these changes and builds on them. It also takes into account the current severe constraints facing the economy and the sector. This chapter reviews some of the major elements of the strategy and the constraints that need to be overcome.

A. New Directions

2.02 The new directions in which the economy is moving that relate to the agricultural sector include:

(a) a move toward a mixed or private economy;

(b) liberalization of internal marketing for many crops, particularly cereals, and a much reduced role for ADC and ENC in the marketing of agricultural commodities;

(c) major devaluations of the Somali Shilling which have brought many internal prices more in line with world prices;

(d) liberalization of foreign exchange controls allowing private sector access;

(e) transfer of some state farms to settlements in connection with reducing the size of the civil service; and

(f) consideration of divesting the public sector of some enterprises, or converting them to commercial or joint ventures.

2.03 The importance of these changes cannot be overstated. They provide opportunities for major corrective steps to overcome many of the constraints that retarded agricultural growth in the past (see Chapter III). These reforms are far from completed however, and some have been accompanied by new difficulties or exposed problems which were not evident before. They have also been accompanied by events which make the move toward additional reforms difficult.

2.04 The results of these changes have on balance been highly positive. Food production has increased sharply, private individuals have been strongly attracted to agriculture, and traditional farmers have responded to the new incentives.

B. Constraints

2.05 There are many constraints however. Some -- the large external debt, the foreign exchange shortage, the government deficit and the dependence on external assistance -- apply to the economy as a whole, but

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have important implications for the sector. Related to this is another economy-wide problem that applies critically to the sector and to the planning process in general -- a lack of clear priorities and of a system to evaluate or reevaluate if necessary investment and policy decisions in light of new priorities or changes in them. Others also apply to the economy as a whole, but have more direct impact on the sector -- progress in the commercialazation or privatization of agricultural public sector enterprises and the weakness of the public (civil) service. A third set of constraints relate directly to major problem areas in the sector in the past -- the marketing system and the system of input supply. A fourth set of constraints is still more sector specific -- research limitations, the absence of a water and drainage management system and of clear land and water use rights in the crop production sector, an as yet weak marketing system and range management system in the livestock sector and a lack of clarity about objectives and realism about how to achieve them in fisheries. The absence of an effective land tenure system and the ineffective system of land taxes, land lease charges and charges for major capital services affect all subsectors, particularly the crop sector.. The constraints on fisheries are quite specific to the sub-sector, and involve investment choices inconsistent with sector capacities and management, organization, mrketing and equipment supply.

2.06 These constraints are sketched out below and dealt and in more depth in the following chapters.

Overall constraints

2.07 Four major constraints affect the sector through their impact on the economy as a whole: the large external public sector debt, the shortage of foreign exchange, the internal budget deficit and the dependence on external assistance.

2.08 The foreign debt of Somalia, now equal to total GNP, seriously constrains the government, and thus the sector, particularly the role that the government and new public investment can play in future development. The strategy looks to development programs that minimize investment and maximize production from past investments to generate exports or reduce imports, and thereby reduce the debt. The foreign exchange shortage places a premium on development efforts that use a minimum of foreign exchange, especially within the public sector, and generates or conserve foreign exchange.

2.09 The dependence on external assistance is an advantage during this period of transition, but a successful strategy will require new forms of understanding between Somalia and donors and, in the long-term, seek to free Somalia from this dependence. The areas where these new understandings will be most important include:

(a) agreement on a mix of investment -- in the sector, within sub-sectors and between agriculture and other sectors -- that is consistent with growth in agriculture and the need to reduce the debt and the need for overall economic growth;

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(b) agreement about the relationship between external investment support and support for operational objectives -- balance of payment, commodity and recurrent costs, in order to mobilize the existing productive capacities of the economy before or while new investments are considered;

(c) Agreement on the most constructive use of technical assistance (now about 1,200 people, costing $100 million) in view of the need for civil service reform and the need to develop Somali skills; and

(d) developing a means for government and donors to evaluate, on a rolling basis, the composition of assistance of all kinds as it contributes to or detracts from the strategy, which implies a change in the present PIP project specific system, introducing a clearer system of priorities and a mechanism to modify assistance as priorities change (see Chapter IV).

Major Internal Constraints

2.10 Although economy-wide in scope, the weakness of the public (civil) service and the pace of commercialization or privatization of public sector enterprises, have direct implications for an agricultural strategy, and both are linked to the foreign exchange and budget deficit constraints. Ideally one can see a mix of private and public enterprises based on efficiency of operations, but the present low level of civil service salaries, motivation and career development prospects, as well as public sector management practices, places severe constraints for rapid commercialization of enterprises within the public sector. The extreme shortage of foreign exchange and public sector domestic resources makes it even more urgent to stress the rapid divestiture by government of economic activities which can be performed by the private sector.

2.11 The pace of decisions to deal with public sector agricultural enterprises will be influenced by the above constraints, as well as, by the capacity of the private sector to undertake these functions. The development of a clear strategy about privatization/commercialization and how to implement it is crucial, and this will require a clear factual basis on which to take decisions (Chapter IV).

The Marketing and Distribution Systems

2.12 In the agricultural sector the weakness of the marketing system has been a major bottleneck constraining production in the past. The role of ADC and ENC in cereals marketing have been sharply reduced with significant benefits to improved producer incentives. But ADC and ENC still exist and influence marketing, and government still exerts price and market controls over certain crops, livestock products and fish.

2.13 Moreover, since liberalizing the internal grain market, it has become evident that a high degree of price instability exists because of domestic surpluses or shortfalls and the quantity, timing, composition and pricing of imports and aid flows. This is also affected by weakness in the re-emerging private marketing system and the residual activities

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of government largely through ENC. A need exists for a stabilization/food security mechanism to ensure maintenance of producer incentives as well as reasonable consumer prices and adequate supplies of food to refugees. There exists also the need to improve private marketing systems to reduce disparities between producer and consumer prices and to stabilize producer prices over the year. The problem is discussed in Chapter III and solutions are proposed in Chapter IV.

2.14 Lack of an effective input supply system of systems is the other key constraint within the sector. To deal with this constraint requires dealing with the issue of public sector enterprise such as ONAT and the Urea Plant, as well as public sector services like AFMET in the crop sector, the Ministry of Livestock, Forestry and Range, and the many government or donor systems operating, not very effectively, in the fisheries sub-sector. The interface between the existing public sector activities and the new objective to foster development of private sector input supply systems, which would include credit, raises a complex of issues. A seeds industry and supply system as well as systems to supply pesticides, herbicides and other chemicals is linked to these issues and to the research issue discussed below. These issues are considered in both Chapters IV and V.

Internal Sector Constraints

2.15 Key constraints to past sectoral growth have been:

(a) The absence of effective research, in all sub-sectors, but particularly crops and livestock;

(b) The absence of an effective system of water and drainage management in irrigated areas; and

(c) The absence of an effective system of land use and lease rights, taxation and appropriate service charges for major public sector investments.

2.16 These key functions of the public sector have suffered at the expense of public involvement in major investment and production efforts -- state farms, agricultural enterprises and public sector livestock and fisheries projects. A key element in the strategy is to establish the capacity within government to perform these functions as the government phases out of its costly and largely unsuccessful production marketing and input supply activities (Chapters IV and V).

C. A Future Development Path

2.17 Obviously these changes cannot take place overnight and there is need to be clear about longer term objectives to guide intermediate steps. The strategy proposes a phased approach to achieving these objectives given the constraints discussed above and the need for realism about how fast such changes could come about.

2.18 The objective of the strategy is to enable Somalia, over time, to put in place a largely self-sustaining agricultural sector, which supports overall economic growth, provides a large measure of food

self-sufficiency as well as export earnings, and provides, to the maximum extent possible, productive employment in the sector. It is assumed that, in the longer run, the economy will be one in which most productive and commercial service activities are carried out by the private sector, or by fully commercial public enterprises, with government emphasis placed on appropriate support services -- research, management and maintenance of major infrastructure, and the development and enforcement of facilitating laws, regulations and tax systems. An economy of this sort would shift the burden of investment (and thus cost recovery) to the private sector, except for major infrastructure works, which would greatly reduce the drain on the public sector budget. This would permit the government to allocate larger amounts of an improved system of government revenue to support services. It is also assumed that in the long-run a motivated and adequately rewarded civil service will be in place. Interim measures to build toward such systems are proposed, however, since to await their materializing would defeat the process of change.

Phasing

2.19 The strategy is developed in three phases:

(a) Immediate problems and their solutions (next three years);

(b) Near-term problems and their solutions, until 1995; and

(c) Longer-term solutions - the next two decades.

Immediate problems

2.20 Some problems need to be addressed immediately. These include:

(a) Livestock marketing as a means to stimulate export earnings;

(b) Targeted, adaptive research;

(c) A management systems analysis in depth of the cereals marketing system and a determination of the role in a future system of ADC and ENC and of the private sector, including the role of food aid in future cereals marketing;

(d) An analysis in depth of the input supply system, including the future role of ONAT the Urea Plant, AFMET, other livestock and fisheries entities and the private sector in such a system;

(e) An analysis in depth of the existing assets, operation and management of public enterprises (other than those noted above) linked to agriculture, to establish a basis for decisions regarding the future of these enterprises;

(f) A determination of intermediate measures that could be taken to support key civil service reforms in the sector, to support improved ministerial performance while longer-term civil service reform takes place; and

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(g) The establishment of a Government of Somalia - Donor mechansism to carry out financing and staffing these priority activities, while shaping external assistance in support of medium and long-term undertakings.

2.21 Proposals for action in these areas are made in the strategy, but it is recognized that these are complex issues requiring factual information beyond the capacity of this sector survey. Academic studies are not proposed. The issues are urgent and professional analysis leading to specific and implementable actions is needed. It is proposed that this factual information be developed and these studies be completed within the year.

Medium-term problems

2.22 While the above, urgent, work is being carried out, the basis for longer term solutions needs to be layed in the medium term including:

(a) Laying the foundation for an effective Somali research system;

(b) Developing an effective water and drainage management system;

(c) Developing a cost effective system of land and water charges, cost recovery and land tenure and taxation system;

(d) Irrigation rehabilitation;

(e) Fostering private sector development of marketing and input supply systems; and

(f) Implementing the results of the studies and analysis carried out to address immediate problems (paragraph 2.20).

Longer-term Problems

2.22 The solutions to longer term problems require largely a continuation of the above activities, but with the added impact of the construction of the Baardhera Dam and the development of the Juba Valley. It is critical that when this major new capital investment comes on stream, the solutions to the above problems are in place and a new agricultural system is fully in operation.

2.23 Chapter III reviews the development of the sector over the past 15 years and provides the basis for the strategy proposals in Chapters IV and V.

Chapter III: Sectoral Performance 1970-85

A. Sector Performance

Aggregate Growth 1970-84

3.01 Agricultural performance over the past fifteen years has been extremely poor. Based on the government's Gross Domestic Product (GDP) aggregates, total agricultural output grew by only 0.4 percent per year from 1970 through 1984; livestock output by 0.5%; crop output by -0.3%; forestry by 1.2%; and fisheries by 10.5% (Table 3.1). This is probably a reasonably accurate assessment of the sectors long term performance given the very limited factual data available. With population growth at 2.5-3.0%, per capita food production declined sharply by -3.0% per year.

Table 3.1

Somalia: Value of Agricultural Output, Total and Sub-sector 1970-1984

	1970-72	1976-78	1982-84	Annual Growth Rate 1970-84
	---Million SoSh at 1977 Prices---			
Total	2,709	2,842	2,842	
Livestock	1,810	2,020	1,918	
Crops	647	551	610	
Forestry	242	250	282	
Fisheries	10	20	33	
	----------Index (1970-72 = 100)----------			
Total	100	105	105	0.4
Livestock	100	112	106	0.5
Crops	100	85	94	-0.3
Forestry	100	103	116	1.2
Fisheries	100	200	330	10.5

Source: Annex Table 4

3.02 A more positive view of grain production is evident after 1980 (Table 3.2). After an absolute decline in output between 1970 and 1980, growth in the crop sector since 1981 is dramatic. Most of this has been due to rapidly expanding maize and sorghum production and a recovery in banana production. Growth rates in this four or five year period have averaged over 5% per year. Cereals production is reported to have doubled and fruit and vegetable production increased by 24%.

Table 3.2

Somalia: Production of Food and Non Food Crops 1970-1985

Year	Grain & Oilseeds	Sugar, Veg. and Fruits	Food Crops Total	Non Food	Total Crop Output	Output Index (1970=100)
			1,000 metric tons			
1970	342.2	376.6	719.2	1.3	720.5	100
1980	315.9	316.8	637.2	1.5	634.2	88
1981	449.3	338.0	787.3	1.1	788.4	109
1982	478.1	349.4	827.5	1.8	829.3	115
1983	444.8	364.0	808.8	1.5	810.3	112
1984	563.7	394.4	958.1	1.5	959.6	133
1985E	634.0	398.9	1,032.9	1.5	1,034.4	144

SOURCE: Annex Table 5

3.03 It is surprising that this recent increase in crop output is not reflected in the Ministry of National Planning's (MNP) GDP aggregates, and we have not been able to reconcile these two indexes, but there is little doubt that the production increase in the crop sector is real. Nevertheless, the MNP index for the sector and for the period as a whole probably remains corrrect. There could not have been growth in the livestock sector since mid-1982, when the ban on livestock imports from Somalia was imposed by Saudi Arabia, and livestock weights very heavily in total sector output.

3.04 A Statistical caution needs to be introduced here which applies throughout the report and to all sub-sectors. Every task force indicated that inadequate statistical data was the major problem it faced in carrying out its task. No sub-sector has clear and unambiguous data. Issues arose over such significant questions as to whether the area had increased or decreased for specific crops, whether yields were rising or falling, whether there were more or less livestock. There was no solution to this absence of data, and throughout this report the data cited reflect the best judgment of the task forces or of the final

mission. At best the data should be used as a guide to patterns and trends which the task forces or the final mission are reasonably confident of.

Crop Production

3.05 The recent crop production increases are apparently the result of spontaneous area and yield increases in the private sector (Annex Tables 6, 7 and 8) and reflect the positive effect of improved incentives and weather. Better seed varieties and other improved inputs were not available in significantly larger quantities, and no major improvements took place in the irrigation system. But there has been a rapid increase in land leased for crop production, over 150,00 ha since 1975.

3.06 A fairly steady increase in the sorghum area, the major smallholder rainfed crop, is reported throughout most of the period, rising from 290,000 ha in 1970-71 to 540,000 ha in 1982. The impact of this was offset until 1980 by a decline in yields. The combination of larger area and higher yields after 1980 produced the reported nearly 60% increase in sorghum production. It may also be that the yield and production were understated during much of the seventies as farmers withheld grain from compulsory sales to the government at disincentive prices.

3.07 The increase in maize production, an irrigated and rainfed crop, is a post-1980 phenomenon widely evident in the country. The area planted to maize varied between 100 to 150,000 ha until 1980, but is reported to have risen sharply to its present 350,000 ha. Unlike sorghum, maize yields have remained low at about 720-780 kg/ha, probably reflecting the rapid expansion of maize in rainfed areas, where yields are quite low, and in irrigated areas where limited availability of research, higher yielding varieties and inputs has kept yields low as well. Modest area increases are also reported for beans and sesame seed, but not for other crops -- rice, wheat, groundnuts and cotton (Annex Table 6).

3.08 Bananas and sugar, important export and import substitution crops, both of which are irrigated, show opposite patterns of development (Table 3.3). The area planted to bananas has changed little over the 15 years, but there has been a noticeable recovery in the area harvested and in yields since 1982, reflecting better prices and better access to inputs, fuel and tractor services through SOMALFRUIT. Output at 106-110,000 tons in 1984 and 1985 remains significantly below the average of 150,000 tons produced during 1970-74 however.

3.09 Sugarcane, a government owned and managed irrigated crop, has had its area double from 5,500 to 10,000 ha over the fifteen years, but yields have fallen by more than half - from 13 tons/ha to 5.3 tons/ha. Output in 1984 and 1985 is therefore about what it was in 1950. With government controlled prices, extreme shortage of foreign exchange through the government sector, and major difficulties in operating the irrigation systems, sugarcane did not share in the incentive increases experienced by most other crops.

Table 3.3

Bananas and Sugarcane: Area, Yield and Production 1970-1985

	Bananas				Sugarcane			
	Area				Area			
Year	Planted 1000 Ha	Harvested 1000 Ha	Yield Kg.	Output 1000Tons	Planted 1000 Ha	Harvested 1000 Ha	Yield Kg.	Output 1000 Tons
1970	6.5	4.9	29,694	145.5	5.5	3.7	13,514	50.0
1971	7.6	5.7	26,456	150.8	5.5	3.5	13,057	45.7
1972	7.5	7.1	21,239	150.8	5.0	3.2	12,906	41.3
1979	6.0	4.8	15,146	72.7	6.7	3.0	8,700	26.1
1980	4.6	2.6	23,231	60.4	8.1	6.6	6,045	39.9
1981	3.6	2.9	23,793	69.0	10.2	8.2	5,793	47.5
1982	4.3	2.8	25,714	72.0	9.8	8.5	5,976	50.8
1983	6.2	4.7	18,085	85.0	10.0	9.3	5,108	47.5
1984	5.8	5.5	19,273	106.0	10.0	9.8	5,327	52.2
1985E	5.7	5.5	20,000	110.0	10.0	9.8	5,306	52.0

SOURCE: Compiled from reports of MOA and Banana Board (SOMALFRUIT) (Annex Table 9).

Livestock

3.10 The development of the livestock sector, while clearly the most important sub-sector, is the least precisely measurable. Extensive efforts were made by the task forces to determine changes in numbers, slaughter and births and deaths, but substantial margins of error exist. A summary of these results is given in Table 2.4. The overall index of annual offtake reached 116% (1977 = 100) in 1982, and 1983, with sizable fluctuations above and below the 1977 level before and after that year. Over the entire 15 year period livestock numbers have apparently increased by 10% for cattle, 14% for camels, 21% for goats and 19% for sheep (five year averages excluding 1985). The high point in livestock numbers and offtake was in 1982/1983 as the Saudi ban on livestock imports from Somalia came into effect. This sharp restriction on Somalia's major export was the most dramatic factor influencing output during the period. The other factor was the growth of the nomad population, which exerted a continuing pressure to increase the number of animals, despite the limited supply of feed and recurrent droughts.

Table 3.4

Somalia Livestock and Fish Production and Index of Annual Offtake 1970-1985

Year	Cattle	Camel	Goat	Sheep	Poultry	Fish	Milk	Aggreg.	Index
	-----Value aggregates in Mil. Sh. in 1976-78 prices----------1977=100								
1970	284	75	576	318	46	19	2,895	4,213	94.8
1971	321	81	551	350	48	24	3,027	4,402	99.0
1972	377	83	594	350	52	24	2,993	4,473	100.6
1973	316	93	431	312	54	26	3,095	4,327	97.3
1974	245	58	371	232	58	21	3,092	4,077	91.7
1975	343	84	334	271	61	36	2,942	4,071	91.6
1976	391	98	430	275	63	40	3,053	4,350	97.9
1977	394	95	520	357	65	34	2,980	4,445	100.0
1978	376	87	489	367	67	35	3,185	4,606	103.6
1979	385	84	515	349	69	35	3,418	4,855	109.2
1980	439	95	607	399	72	35	3,387	5,034	113.3
1981	498	95	515	339	75	39	3,360	4,921	110.7
1982	527	96	589	343	77	31	3,496	5,159	116.1
1983	434	74	590	332	79	50	3,630	5,189	116.7
1974	370	70	545	297	80	42	3,467	4,871	109.6
1985E	405	84	660	390	75	38	3,516	5,168	116.3

SOURCE: Agricultural Sector Survey calculations based on data from MLFR (See Annex 2).

Annual offtake is the sum of exports and slaughter.

E = Estimated

Fish

3.11 The record of fish production is especially sketchy. Inshore catches are small and fishing villages isolated. During the last half of the 1970s a variety of externally supported offshore projects had some impact on increasing production -- the Somalfish project supported by the USSR, for example, caught about 15,000 tons of deep sea fish and lobsters during 1974-1978, but most of these projects lapsed in the early eighties. It is unlikely that fish production has again reached the 12,000-15,000 ton annual level reported for the years 1975 and 1976, made up of 4,000 tons of ocean fish and 7,000-8,000 tons of inshore fish (see Fisheries Annex 3).

Agricultural Trade

3.12 The production pattern described above had a predictable impact on Somalia's trade balance (Table 3.5). The cyclical recovery of the livestock sector in the last part of the seventies and early eighties carried livestock exports to a peak of 1.5 billion SoSh in 1982, which fell nearly two-thirds by 1984. The recovery of banana production and exports boosted export earnings in 1982 and 1983, but much of these earnings were plowed back into the sector in 1984. Other exports, largely frankincense and myrr, fish, hides and skins and some citrus fruit have shown modest improvement, but these are relatively insignificant in total exports. The value of agricultural exports in 1984 -- SoSh. 818 million -- was the lowest of any year in the past decade and one half, and in terms of US$ less than half the level of 1975 (Annex Table 10). Exports reportedly improved in 1985.

3.13 In the face of this deterioration in exports (the sector accounts for more than 90%), there has been a dramatic rise in official imports, made up largely of foodstuffs and petroleum (Annex Table 11). The recorded imports (foreign exchange data) reveal only a fraction of the food and agriculturally related imports. Some food has been imported under the franco valuta system, and much of the "grants in kind" and "commodity loans" are food and agriculturally related commodities. Among the imported foods, cereals are far and away the major item, accounting for 80-85% of all (exchange data) food imports. As Table 3.6 indicates however, food aid in the form of cereals has often matched or exceeded commercial imports. During 1980-84, commercial and food aid cereals imports averaged more than 300,000 tons annually. Other significant food imports include dairy products, sugar and vegetable oils and animal fats. The value of food aid in 1985 was estimated at $90 million, and the government anticipates that this will increase in the period 1986-88 to over $100 million (Annex Table 13). Only half of this is for refugees.

B. Factors Influencing Past Performance

Natural Constraints

3.14 Climate. Despite an apparent abundance of land, the climate is arid and hot and a major constraint. Rainfall comes in a bimodal pattern with the Der season rains (November-December) averaging about 36 days and about 150-200 mm, and the larger Gu rains about 44 days and averaging about 200-300 mm. Rainfall is therefore not dependable in total amount, timing nor intensity. Rains are often localized, particularly in the Der season. The bimodal rainfall pattern is essentially at the borderline for rainfed cropping, and minor droughts occur every 3-5 years with major droughts every 8-10 years. Climatic adversities played a role limiting production in some of the past 15 years, but exact measurements are not available.

3.15 Soils. The soils of Somalia are more or less typical of East Africa, being developed from limestone and basic igneous parent material. The major exceptions are the valleys of the Shebelli and Juba rivers.

3.16 The Juba Valley is relatively narrower and approaches its estuary more or less in a direct line. Sediment is directed toward the outlet, rather than overflooding the river banks, and the soils in the Juba Valley are thus a poor second to the Shebelli.

Table 3.5

SOMALIA

AGRICULTURAL SECTOR SURVEY

Exports, Imports, Net Exports and Balance of Payments 1978-84

	1978	1979	1980	1981	1982	1983	1984
	(Million So. Sh.)						
EXPORTS F.O.B.	689	667	839	1,104	1,836	1,423	818
Banana	59	73	51	40	114	103	6
Live animals	570	474	640	1,002	1,517	1,122	514
Other	60	120	149	62	206	198	297
IMPORTS C & F	-1,732	-2,481	-2,905	-2,681	-5,824	-6,571	-10,715
Exchange Data	-729	-1,818	-1,740	-1,199	-2,424	-2,844	-2,217
Franco valuta	-477	-217	-345	-309	-70	0	-3,000
Grants in kind	-132	-95	-440	-703	-1,744	-2,323	-3,320
Loans (Commodity)	-393	-350	-386	-470	-1,587	-1,404	-2,178
NET EXPORT	-,1073	-1,887	-2,116	-1,662	-3,807	-5,008	-10,065
TRADE BALANCE	-1,043	-1,813	-2,066	-1,577	3,988	-5,148	-9,897
US $ Values 1/	US $ (Million)						
Exports	109	105	133	130	141	89	45
Imports	975	393	461	315	448	411	429
Exchange Rate 1/	6.3	6.3	6.3	8.5	13.0	16.0	1/

1/ Exchange Rage for 1984: Franco valuta - 60;
Exchange Record - 18; Aid flows - 21.

SOURCE: Central Bank of Somalia, Ministry of National Planning

Table 3.6

SOMALIA
AGRICULTURAL SECTOR SURVEY
IMPORTS OF FOOD PRODUCTS BY TYPE AND VOLUME 1970-1984

	RECORDED BY GOVERNMENT (Foreign Exchange Record)										NOT RECORDED/ESTIMATED		
											Cereals 1/		
Year	Meat Products	Milk & Eggs	Fish etc.	Cereals	Fruit and Veg.	Sugar	Coff. Tea etc.	Fodder	Misc.	TOTAL	Aid	Total	Veg. Oils & Fats
						1,000 tons							
1970	10	610	8	59,935	18,642	522	3,205	3	451	83,385	10.3	56.2	5.28
1971	68	549	36	129,910	19,885	365	4,625	0	511	155,948	8.0	123.4	6.02
1972	11	451	11	68,520	12,743	15,184	5,180	0	395	102,503	15.0	68.3	5.53
1973	6	309	6	50,988	11,485	23,202	2,631	230	101	88,966	21.0	50.1	4.91
1974	11	206	1	27,684	16,162	12,080	3,549	4	111	59,807	12.0	42.2	3.11
1975	29	1,492	0	116,942	15,480	768	2,777	6	411	137,906	51.5	164.8	8.67
1976	41	3,480	0	102,703	4,491	315	5,839	103	696	117,671	51.5	148.1	11.05
1977	5	7,232	29	122,754	4,262	470	2,684	3	1,211	138,851	43.9	173.8	9.03
1978	2	23,420	0	17,142	6,399	34,557	4,556	0	136	86,211	50.0	87.3	11.35
1979	2	2,431	1	8,855	3,598	1,719	5,002	16	609	22,234	80.8	209.1	18.49
1980	201	16,676	99	168,107	4,614	10,042	4,393	18	250	204,399	174.2	301.4	12.60
1981	54	10,389	27	115,114	3,035	21,517	2,886	11	601	153,633	180.7	386.8	19.80
1982	20	2,332	19	152,367	2,336	10,053	1,493	13	234	168,868	132.7	301.5	26.00
1983						32,000					251.3	377.0	29.90
1984						30,000					289.0	359.1	28.70

SOURCE: MNP, CSD, "Foreign Trade Returns", 1970-1982.

1/ Estimated from reports of MOA, CSD, , USAID and FAO and Third Country Sources.

Soils in the Shebelli Valley are extensive alluvial deposited in a plain parallel to the Indian Ocean coastline for the final 400 or more kilometers. These soild were originally fertile and arable, but years of irrigation, low or no fertilization, poor drainage and poor soil husbandry has resulted in saline, periodically waterlogged soils of rather low fertility.

3.17 The soils of the Bay Region and the interriverine area are the most fertile, and these are the major areas of rainfed cropping. They originated from limestone and consequently are fine textured (clay) and alkaline in nature. The finer textured soils are desirable from the viewpoint of holding soil moisture and plant nutrients. The soils of the Northern Region are variable and more influenced by topography and position in the landscape. It is possible to find pockets of fertile and fine textured soils in valley bottoms in the north but the extent is limited.

Irrigation

3.18 Only the two major rivers have a significant potential for irrigation. The Shebelli originates in Ethiopia, enters Somalia near Belet Weyn and travels about 640 km before terminating into a swamp about 30 km from the Indian Ocean. Since it does not empty into the ocean, the salt and sediment load is deposited alongside its bank, in the irrigated fields and the terminal swamp. The annual flow of the Shebelli is estimated at 1,800 million cubic meters, and the monthly flow ranges from a low of 10-20 million cubic meters in January-February to a high of 385 million cubic meters in September and October. Average monthly flow, if regulated, would be about 150 million cubic meters, and could fully irrigate some 50-60,000 ha.

3.19 A suitable dam site does not exist on the Shebelli within Somalia, but offstream storage exists at Jowhar, upstream from the greater part of the irrigated lands but downstream from the Jowhar Sugar Estate. The Jowhar Offstream Reservoir has a present capacity of 200 million cubic meters. A second offstream storage reservoir is proposed at Dudubla, upstream of Jowhar, which will store 130 million cubic meters. With both the Jowhar and Duduble storage, the river flow can be regulated to provide a more uniform supply of irrigation water throughout the year. But such water control was not possible during 1970-85 and fluctuations in river flow have combined with shortages of rainfall to limit crop production.

3.20 The Juba River annual flow is about three times the Shebelli, some 6,500 million cubic meters. The annual flow pattern is similar to the Shebelli, dropping to less than 50 million cubic meters in February but reaching almost 1,200 million cubic meters in October. Average monthly flow would be about 550 million cubic meters with storage. There are no dams along the Juba, but government and donor attention is now focussed on the construction of the Bardhera Dam which, when completed, would provide maximum water control and storage for the Juba valley, and possible diversion to the lower Shebelli at a later date. Presently 8,000 ha have perennial irrigation and about 15,000 ha have seasonal irrigation.

3.21 The cultivable area in the Shebelli is around 150,000 ha. The annual addition of salt is 149,000 tons, or about one ton per ha per year. Over 50 years the salt level has reached 50 tons/ha. Assuming that the controlled irrigated lands (maybe 25,000 ha) receive ten times the water of non-irrigated lands, a total accumulation of 400-500 tons of NaCl have been added to each ha. Since both sodium and chloride are toxic to plant growth and have a dispersing effect on soil structure inhibiting water infiltration, the absence of controlled irrigation and drainage have been critical limiting factors on crop production.

3.22 There are a variety of irrigation projects along the Shebelli. Production ranges from sugar, bananas and citrus -- which need perennial (year around) irrigation, to paddy rice -- which requires flooded conditions for 80-90 days, to vegetables and upland rice -- which need generous supplies of water for up to 140 days, to maize and sesame which are commonly grown with a single "wild flood" irrigation. Thus there is not a homogeneous irrigation nor cropping system throughout the Valley and no system for water allocation and management. Farmers will have to organize themselves, or be organized, into water distribution, drainage and reclamation units, with a small but capable and motivated government irrigation management service, before these problems can be solved. The absence of such a system has also been a major constraint on crop production.

Drainage

3.23 Irrigation projects in Somalia have largely ignored drainage which, after 50 or more years of irrigation, has led to large accumulations of salts particularly sodium chloride. The Jowhar Sugar Estate which has been cultivated for 50-60 years has declined to a fraction of its original cultivated land (from 8,000 to 2,000 ha) primarily due to salinity in its soil. In 1984 Jowhar reclaimed 1,000 ha by leaching and draining, but the leached salts were returned to the river and therefore passed on to downstream projects and farmers. The sediment and salt load vary greatly month to month, but with a closed river system the effect is cumulative and salts and sediments stay in the Shebelli Valley.

3.24 The groundwater potential of Somalia is limited because of the limited potential for recharge. With limited rainfall, slowly permeable soils, relatively level topography and few if any extensive aquifers, it would be surprising to find anything but localized ground water supplies. Consequently supplying small amounts of water for human and livestock populations should take precedence over developing water for irrigation of crops from groundwater sources. In the Northern Region there are subsurface flows in wadis that are tapped for small (1-25 ha) irrigated farms.

Rainfed Cropping

3.25 The extent of rainfed cropping varies from year to year and, although nearly 900,000 ha are reported as rainfed cropped land, only 500,000 to 700,000 ha are cropped in any one season. The balance of the land is in fallows of one sort or another (Annex table 6). It should be noted that there are quite contradictory data about the area under crops.

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In contrast to the significicant increase in the cropped area accepted in this review, there are data by FAO showing a virtually constant rainfed area of 1 million ha and an irrigated area of 165,000 ha throughout the period 1970-85 (Annex Table 14). It seems highly unlikely that such constancy could have prevailed in Somalia during these years, but such a large discrepancy suggests caution in assuming precision regarding area, yield or production changes.

3.26 The potential for rainfed cultivation is a major unresolved issue. A long standing estimate is that less than 8% of the potential rainfed land (6.9 million) is cultivated, but there are serious limitations on the use of this potential. Infrastructure is one, but the absence of viable technologies, land tenure problems and social and political factors are also involved. It is doubtful that most of this potential will ever be realized, but there are clear possibilities for expanded rainfed production (see Chapter V). Traditionally, Somali farmers have not used animal draft power, and only 2-5 ha can be managed with family labor. Experiments in semi-mechanized farming are being conducted which show promising results, and may facilitate more rapid expansion of rainfed cropping in the future. At present, government contemplates doing so by increasing the number of settlements, but the technology could permit single owner larger farm expansion as well.

3.27 The largest area for rainfed farming expansion is in the Southern Region where 81% of the potential exists. The Northern Region has only 6.5% and the Central Region 12.6%. Thus the interriverine and Bay regions, which have the greatest amount of rainfed farming now, will be the area of greatest expansion in the future.

3.28 Yields and production of rainfed crops reflect total rainfall, its distribution in any one year and each season, and the capacity to retain soil moisture. The effect of rainfall is frequently noted in the subsequent year's area and yield (Table 3.7).

Table 3.7

Interactions between Rainfall and Sorghum Area and Yield */

Year	Sorghum Area '000 ha	Sorghum Yield kg/ha	Rainfall mm
1982	540	435	260
1983	475	253	150
1984	445	497	363
1985	520	-	-

* Other crops cultivated under rainfed conditions include millets, groundnuts, cow peas, mung, beans and maize.

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3.29 Thus, for rainfed crops, yields are low and the amount of land farmers can manage is constrained by the amount of labor the family can allocate to farm work. Both of these conditions are likely to persist and limit the expansion of rainfed farming unless the semi-mechanized approaches now being developed or other techniques are able to relax the labor constraint. Even if this constraint is relaxed, large scale expolitation of rainfed potential will require relatively large production units with relative large inputs of machinery and small numbers of people involved. These techniques, when practised elsewhere, compensate for low yields by cultivating large areas, and the variability in production from year to year in less relevant than long term average yields.

Support Services

3.30 The services supplied to farmers in the form of agricultural research, extension, irrigation water management and drainage have been weak and this has contributed to past poor performance (marketing and input supplies are considered in the next section).

3.31 Agricultural research has been beneficial to irrigated farmers to some extent, but essentially no research has been carried out for rainfed farmers. The research on bananas, fruit and maize has been helpful. Trials on fertility by agronomists and pest control by entomologists have also been useful. But little knowledge has been provided relative to sorghum production until recently. There has been some project associated adaptive research with rice, sugar and cotton. The banana and citrus growers also have some informal research within their production and marketing groups. But in general research has been neglected and only infrequently stimulated with the assignment of expatriate advisors whose efforts have made little significant contribution to the base of agricultural knowledge of Somalia. The absence of research has been a key constraint.

3.32 The National Extension Service (NES), has developed in advance of the research system, or research results. The medium of dissemination has thus been put in place before packages of technology have been developed to extend. The organization is nevertheless in place and being enlarged and better trained. Extension is concentrated in irrigated areas where results have been modest but in a few cases excellent, and to a lesser extent in the Bay Region, where a few key farmers have benefitted. The Semi-Mechanized Rainfed Farming Project has also been able to inform and train farmers in rainfed farming who had little or no farming experience.

3.33 The water management and drainage services are almost non-existent, compared with other developing countries where irrigation is practiced. The absence of an effective water authority or management system in Somalia is a major factor explaining the low, 20-25%, reported irrigation efficiency that now exists. Task Force reports mention wholesale breaching of river banks and major canals to establish wild flooding. Irrigation abstractions appear to be done by individual farmers or groups of farmers at will, and neither irrigation by need, rotation nor calendar appear to influence these decision. Water use is governed by proximity to the distribution outlet and location up-stream, with those less well situated reporting repeated water deficits (Annex 1).

Natural Constraints to Livestock and Fisheries

3.34 A major issue that has plagued analysis of the livestock sector for the past two decades is the carrying capacity of the range. Arguments and analysis range from indications of serious deterioration, and thus reduced carrying capacity, to optimism that unlimited numbers of animals can accumulate. In the Northern rangelands there is evidence of serious degradation, and some indication of degradation in the Central Rangelands. The problems in the Southern Rangelands are largely animal pests and diseases, particularly tsetse.

3.35 The less than precise data on livestock numbers (table 3.4) indicate a continued buildup of animal numbers, but much of this is cyclical recovery from the 1973-75 drought. The concensus within the livestock task force is that on a long-term basis the range is fully stocked or over-stocked at the peak of the cycle, and thus the long-term possibilities for increasing livestock numbers are limited. This natural constraint on increasing livestock numbers is severe and has major implications for the future growth of livestock production. While the underlying constraint on numbers and feed supply exists, livestock production in the near-term will depend on solutions to marketing and related animal health offtake problems, with the longer term possibility of range improvement and forage production (see Annex 2).

3.36 With over 3,000 km of coast line, and apparently large ocean fishing resources, natural factors have not constrained fisheries output. Lack of infrastructure, inappropriate project undertakings, constrained marketing and lack of fishing gear and support services are the major constraints. Limited domestic demand and poorly designed and managed ocean fishing projects are also factors.

C. Agricultural Management, Policies and Services Constraints

3.37 The natural environment of Somalia, although harsh, does not account for the stagnation of the sector for most of the past 15 years. Higher levels of production in the early 1970s and the rapid growth of grain production since 1980 testify to this. The analysis of the natural environment does underscore however the extreme scarcity and high value of the water/land combination and the importance of managing these scarce resources in an interactive way to maximize output.

3.38 Just as land and water, as such, do not explain past performance, neither does a shortage of capital. While refined analysis could not be carried out by the task forces, the evidence (Chapter I and II) suggests that with nearly $600 million invested in the sector over the past decade or so, scarcity of capital was not a constraint, although its use and management clearly were (see below).

3.39 The major constraints to production in the sector in the past 15 years fall into three categories: agricultural management, economic policies and services. These critical elements are, in some cases, in the process of change as a result of the new policies introduced recently. Continued and accelerated change in these areas is critical to future growth and loom large in the future sector strategy (Chapters IV

and V). Thus, in the following paragraphs, performance since 1980 is reviewed in the light of these changes.

Sector Management and Economic Policies

3.40 Throughout most of the past 15 years Government took very heavy responsibilities in the agricultural sector, attempting to stimulate and manage development through widespread control over output and input markets and ownership and management of the production process itself. Some of the major interventions were:

(a) Output markets. Marketing was monopolized by:

(i) the Agricultural Development Corporation (ADC) for sorghum, maize, rice and oilseeds;

(ii) the National Banana Board (NBB), now SOMALFRUIT, for bananas of export quality;

(iii) the National Commercial Agency (ENC) for sugar, tea, coffee, wheat, edible oils and imported basic consumer goods;

(iv) the combined Marketing Agencies and Processing Agencies such as SOMALTEX (cotton) ITOP (fruit and vegetable canning) SNAI and Juba Sugar Projects (sugar);

(v) The Hides and Skins Agency (HASA) monopolized the collection and wholesaling of hides and skins and their export.

(b) Input markets. Input supply functions were monopolized or dominated by:

(i) ONAT in tractor hire services and irrigation development, and (before 1983) in import and distribution of fertilizer, spraying equipment and agricultural chemicals;

(ii) AFMET in import and distribution of fertilizer and chemicals;

(iii) the National Banana Board and Agriculture Assistance Center in provision of services and inputs to banana growers;

(iv) The Afgoi farm and other government projects in the screening, development, bulking and distribution of seeds;

(v) the government owned banks, Somali Development Bank and the Commercial and Savings Bank, in agricultural credit.

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(vi) the Urea Project in provision of nitrogenous fertilizer;

(vii) the Animal Health department in provision of drugs and veterinary services;

(viii) the Settlement Development Agency and various state farm projects in providing a package of inputs in project areas.

(c) Production Enterprises

(i) In eighteen (18) major state farm projects, the organization and management of production on an allocated area of 70,000 hectares, mostly irrigated or potentially irrigated. (Special purpose farms, such as prison farms and military farms are excluded - Annex Table 15);

(ii) In three major settlement programs, organization and management of production on allocated area totalling 47,000 hectares;

(iii) In major fishing and settlement projects, control of inputs, prices and processing facilities.

(iv) The ownership and management of Agricultural Industries including:

1. Wheat flour and Pasta factory, Mogadishu
2. Oil mill, Mogadishu
3. Milk factory, Mogadishu
4. Cigarette and match factory
5. Tannery and shoes factory KM-7
6. UREA plant
7. Sopral meat processing
8. Juba Sugar complex
9. INCAS packing Jamame
10. Kismayo Meat Factory
11. Marine products
12. Tannery and shoes factory, Kismayo
13. Vegetable and fruit industry
14. SNAI BIASA, Jowhar
15. SNAI Sugar Factory, Jowhar
16. Somaltex
17. Various small private industries.

3.41 The management of this wide range of activities was not successful. Marketing systems did not offer sufficient incentives, input supplies were not adequate or reliable and institutions providing them were not successful in their promotional effects. Most productive enterprises were costly and disappointing in their output results and return on investment (see Annexes 7 and 8).

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3.42 Furthermore, while intervening in input and output markets, and undertaking large direct production responsibilities, the public sector has not performed some of the main government functions necessary for the development of the sector: (a) a clear and supportive land tenure and registration system; (b) water and drainage management; and (c) research to provide needed technical packages for agriculture.

3.43 The planning and management capabilities in the agricultural ministries were clearly overloaded by the identification, design, construction and management of this large range of activities. It is probable that the load would have been too great whatever the situation in the civil service and whatever management policies were adopted, but the distressed situation of the Somali Civil Service was a serious complicating factor. In addition to salary disadvantages and a lack of career development opportunities in the public sector, lack of management discretion, lack of control over enterprise funds and their use and over output prices and input costs, and the severe shortage of public sector foreign exchange, combined to further weaken public sector performance.

Marketing and Incentives

3.44 One of the most dramatic changes that has affected agriculture (crop production) has been the liberalization of the internal market for cereals.

Table 3.8

Retail Prices of Cereals and Beans in 1977-85

Year	Maize Milled	Sorghum	Rice	Flour	Bread	Beans
1977	1.24	1.24	4.48	2.50	3.00	3.03
1978	1.25	1.84	3.83	2.60	3.95	3.04
1979	2.39	2.21	5.24	2.80	4.17	4.17
1980	7.22	8.77	6.00	3.10	5.38	12.62
1981	4.11	6.20	9.00	5.00	7.69	6.77
1982	5.28	5.61	12.11	7.23	7.72	7.79
1983	8.67	6.88	16.28	12.24	14.19	14.34
1984	34.40	27.00	36.86	32.69	31.91	40.78
1985E	45.00	40.00	55.00	35.00	37.00	58.00

Source: MNP, CSD.

3.45 Grain Marketing. Throughout the 1970's and early 1980's both the Agricultural Development Corporation (ADC) and the Ente Nazionale Comercio (ENC) held legal monopolies over different aspects of internal trade. ADC controlled all local and imported trade in maize and sorghum. It was formed to "protect farmers from exploitation by traders" as well as to "protect the interest and well-being of consumers", but the agency devolved into one distributing imported maize and sorghum and purchasing and selling a declining share of domestic production at price

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increasingly below farmer production costs and import parity. It was assisted in this by the inflow of increased quantities of concessional food aid. ADC relied upon fooed aid and commercial imports of maize more than on local purchases as a source of supply, and in most years after 1975 its dependence on external supplies was between 75 and 95% (Annex Table 16). Its ability to compete in the market for local grains declined, and ADC ended up forcing farmers and village authorities to sell their grain to ADC at sharply declining real prices (Table 3.9). By 1982 ADC's buying price was one half the level of 1973 and seriously below international parity at a realistic exchange rate.

Table 3.9

Somalia : Nominal and "Real" Prices of Red Sorghum: Selected Years, 1973-1982

	1973	1977	1978	1979	1981	1982
ADC buying price SoSh/qt	42	75	75	75	150	150
Mogadishu CIP index (1970 =100):	100.1	178.2	196.1	196.1	558.3	690.6
Real price Sosh/qt	42	42.1	38.2	30.9	26.9	21.7
Real Price Index:	100.0	100.2	91.1	73.7	63.9	51.7

Source: Agricultural Incentives and Grain Marketing in Somalia, January 1984.

3.46 ADC is now a marginal actor in the marketing of locally produced maize and sorghum, with purchases declining from 30% to 2% of total production over the past 6 years (Annex Table 17). It was used constructively in 1985 however to temporarily support the producer price of maize at an incentive level.

3.47 Ente Nazionale Comercio (ENC). Until 1981, ENC held a monopoly on imports of rice, wheat, flour, edible oil, pasta, sugar and tea. It operated an extensive distribution system throughout the country, supplying both public institutions and private shopkeepers with imported commodities. ENC's role has also been reduced since 1982 to that of distributing concessionally imported foodstuffs to public sector institutions, largely in Mogadishu. ENC also distributes locally produced sugar and pasta. While ENC's imports of grains have declined since their peak in 1979 - 1981, unlike ADC its role in the grain market remains substantial (Table 3.10), and its sales prices continue to be below (48 to 75%) market prices (Table 3.11).

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Table 3.10

ENC Cereals Imports 1972 - 83

Year	Wheat Flour	Rice	Total
	1,000 tons		
1972	30	39	69
1973	14	25	39
1974	10	17	27
1975	37	22	59
1976	43	19	62
1977	24	29	53
1978	34	33	67
1979	54	76	130
1980	53	62	115
1981	55	43	98
1982	16	41	57
1983	15	42	57

Source: ENC

Table 3.11

ENC Sales Prices And Market Prices

	ENC Sales Prices	Market Prices (Retail Mog) (Sept-Dec 84)	Market Price (Retail Mog) (Jan-Apr 85)	ENC Price as % of Market Price
	(SoSh per Kilo)			
9/7/84				
Rice	16.50	34.2		48%
Wheat Flour	11.65	24.1		48%
Local Spaghetti	20	27.9		72%
1985				
Rice	-	-	-	-
Wheat Flour	19.62		26.1	75%
Spaghetti	23.44		37.9	62%

Source: CSD, MNP, ENC

3.48 The Pasta Factory, is also dependent on food aid (wheat) imports. The factory, started in 1976, has generally earned a profit, and has expanded its production capacity significantly, based on the continued flow of concessional wheat imports. Should these imports be reduced, and the factory need to purchase wheat on a commercial basis, the price of locally produced pasta (which is much below market and parity prices) would have to be raised substantially for the factory to break even.

3.49 Although grain marketing has been liberalized since the Presidential decree of 1982, and the main public grain marketing institutions have reduced their role, many factors continue to set the parameters for the private trading system, including:

(a) Determination of refugee numbers and food requirements and decisions regarding refugee food distribution;

(b) Decisions regarding the quantities and prices of concessional imports;

(c) Decisions on levels and collection of customs duties;

(d) Application of checkpoints and local taxes;

(e) Pasta Factory sales policies; and

(f) Regulation of the livestock export trade (as many of the most important commodity importers are also livestock exporters).

3.50 A number of other prices in the agricultural sector continue to be fixed or influenced by government, most notably sugar, cotton, hides and skins and frozen fish. Livestock product prices are also influenced by government through the exchange allocation systems and taxation on livestock exports.

3.51 Recent Problems In Grain Marketing. While the liberalization of internal grain marketing has had a dramatically positive effect on producer incentives, a number of problems have emerged and many issues are outstanding. Among these the most important are:

(a) instability in food and producer prices;

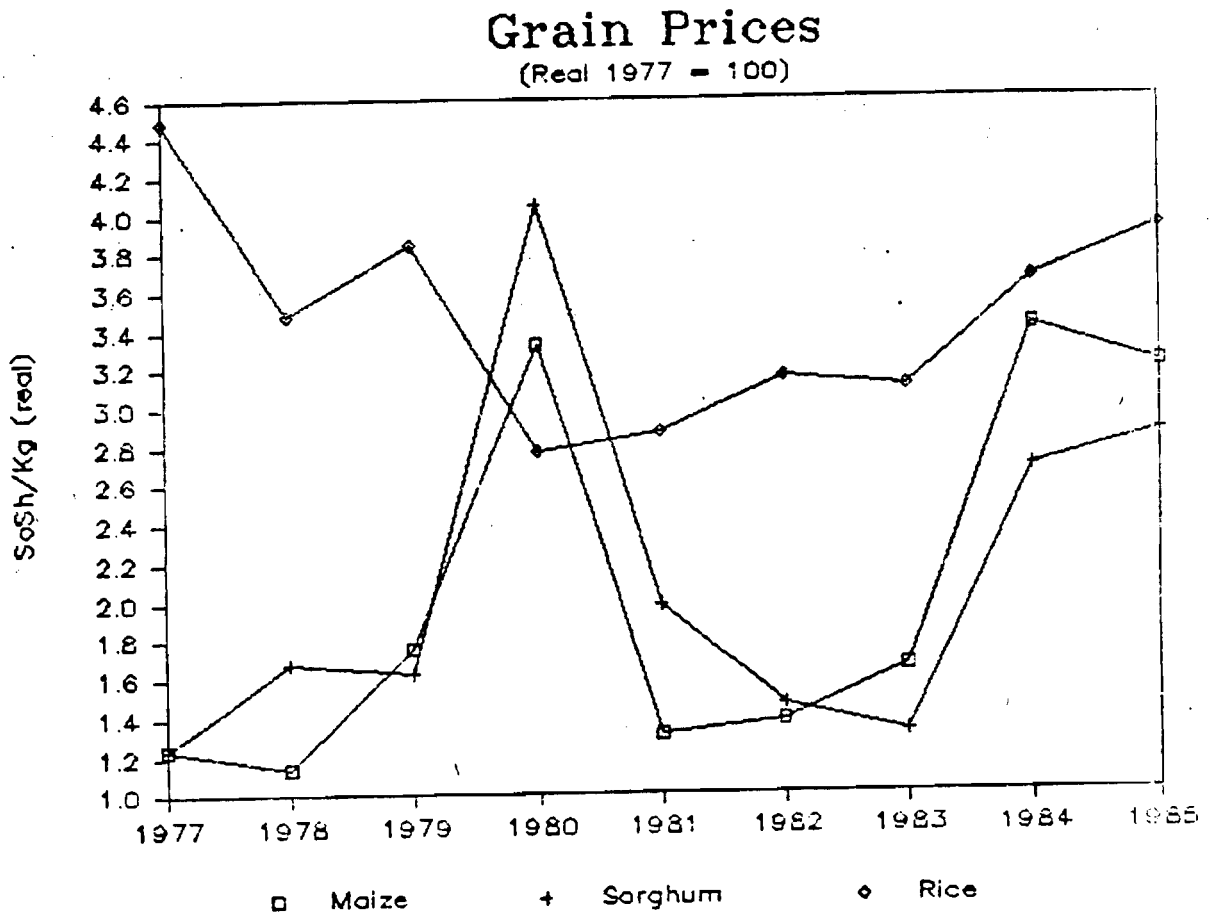
(b) a still unclear role for ADC and ENC;

(c) the present weakness of re-emerging private sector marketing institutions; and

(d) the problems of a constructive interaction between policies and programs to increase domestic food production and the large and uncertain inflow of food aid.

3.52 Grain Price Instability. Incipient decontrol and poor harvests in 1980, coupled with the influx of refugees, combined to drive maize and sorghum prices to record highs. With the production increase starting in 1981, and increases in food aid for refugees and other purposes, the grain supply increased substantially, and real prices in Mogadishu dropped (see Figure 3.1 below). But with a poor harvest in 1983/84, and delays in arrival of imports, prices were again driven up to very high levels.

Figure 3.1



3.53 The principal determinants of grain prices are the two harvest seasons and the flow of grain imports. These have tended to coincide, accentuating price instability. As a consequence, maize prices for example, which were well below import parity until January 1984, rose to two or three times the parity level in May 1984 and remained above that level until August 1985 (Figure 3.2). These elements of price instability have been associated with the dramatic increase in local grain production (mostly sorghum and white maize) from some 260,000 tons in 1980 to 550,000 tons in 1985, and in grain imports (including concessional aid) from about 170,000 tons in the late 1970s to an average annual level of 350,000 tons during 1980-85, with an increasing proportion provided as concessional aid - from 65% to 88% in 1985. Most of the aid is wheat, rice and yellow maize (Figure 3.3).

Figure 3.2

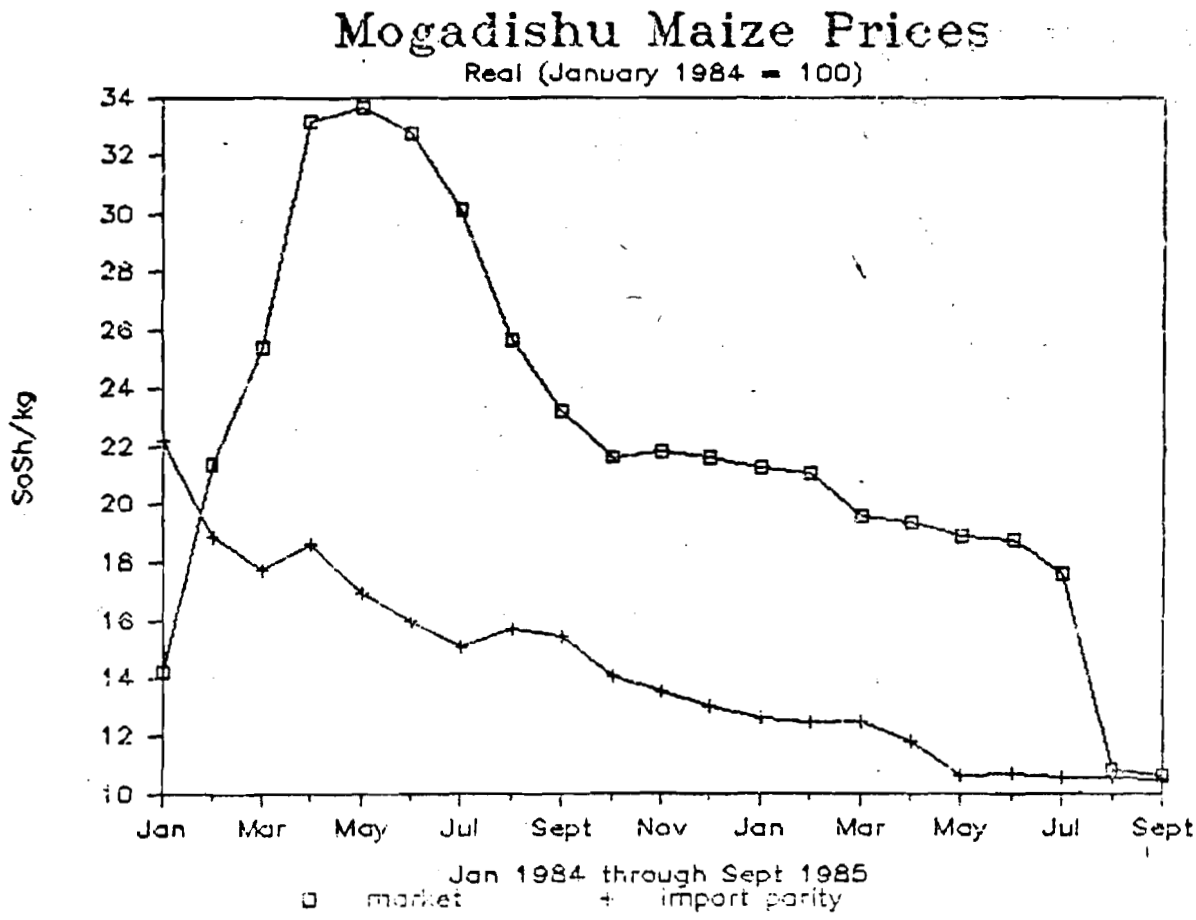


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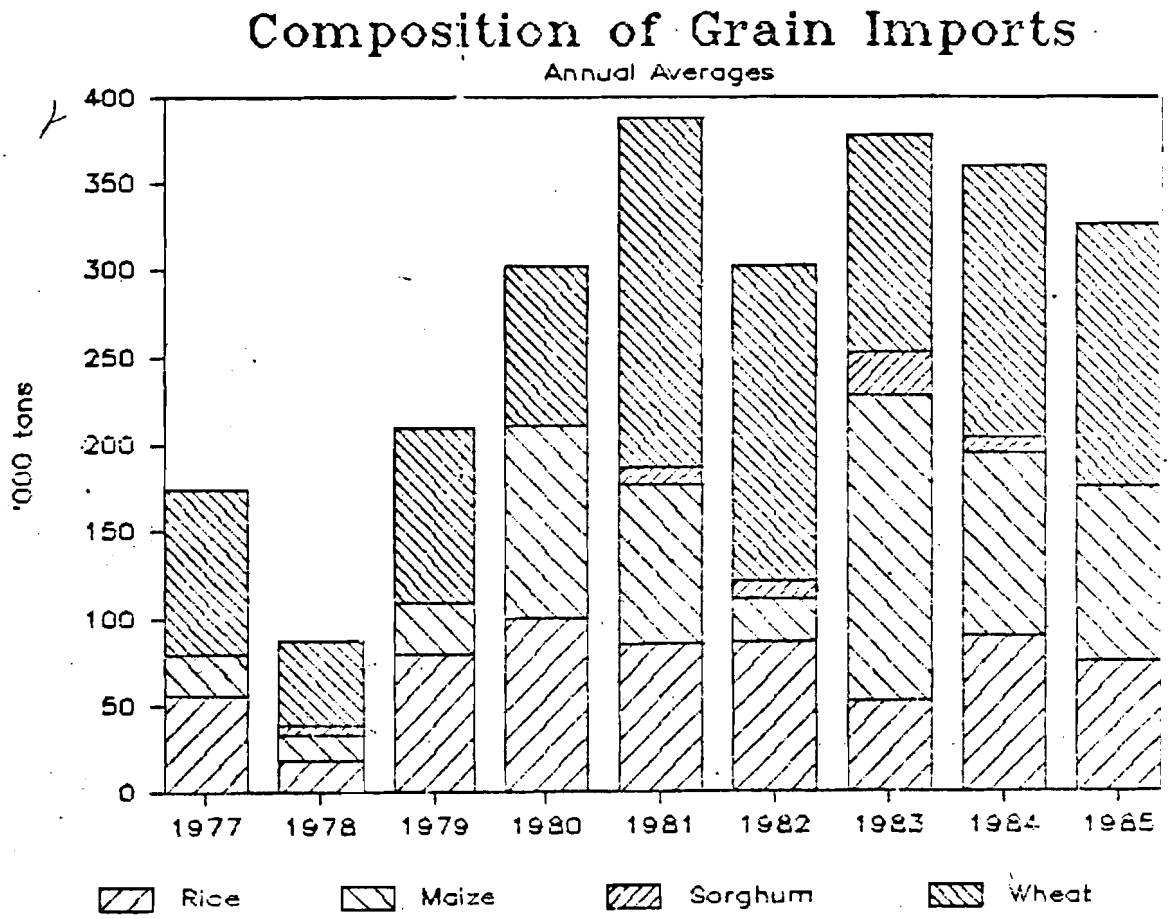
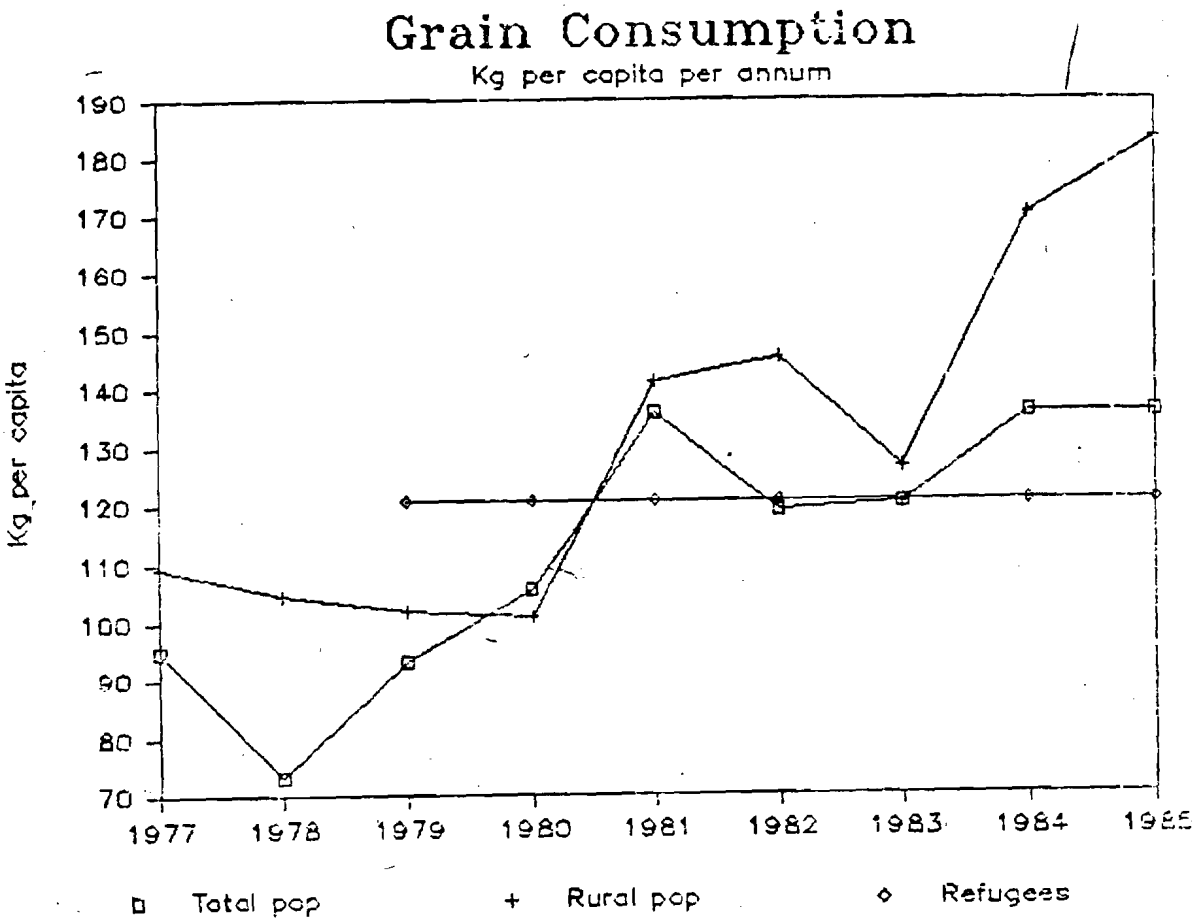
Figure 3.3



3.54 Grain Consumption. This vastly increased supply of grain has resulted in a major increase in grain consumption per capita from less than 80 kg in 1978 to nearly 130 kg in 1984 and 1985 (Figure 3.4), and there has been a dramatic shift out of sorghum and maize to wheat products and rice. Meat and livestock product consumption per capita has also declined (see Chapter 5).

Figure 3.4



3.55 Seasonality in Farmgate Prices. After years of suppressed prices, the marked seasonal pattern to farmgate prices has reemerged in Somalia as shown by the results of a year long survey in Baidoa. Seasonal variations for maize and sorghum of about 30% are evident (Figure 3.5), which influence producer prices, despite the much higher average prices in Mogadishu.

3.56 Farmgate And Market Prices. Prices in Mogadishu are from 50% to 125% above the price in Baidoa depending on the time of year. Margins are greatest in the September - December harvest period. These margins are well above the costs of transport, handling and storage between Baidoa and Mogadishu - some 2.5 SoSh/kg. The average purchase price for maize in Baidoa between June 1984 and May 1985 was 19.5 SoSh/kg - the average retail price in Mogadishu over the same period was 35.7 SoSh/kg. The difference, 16.2 SoSh/kg, is 6.5 times the actual costs, and reflects the relatively recent reemergence of private grain marketing, fuel and transport disruptions, uncertainty about marketing policies and about the flow of concessional food aid. In short, the private market has imperfections at this early stage of its restoration.

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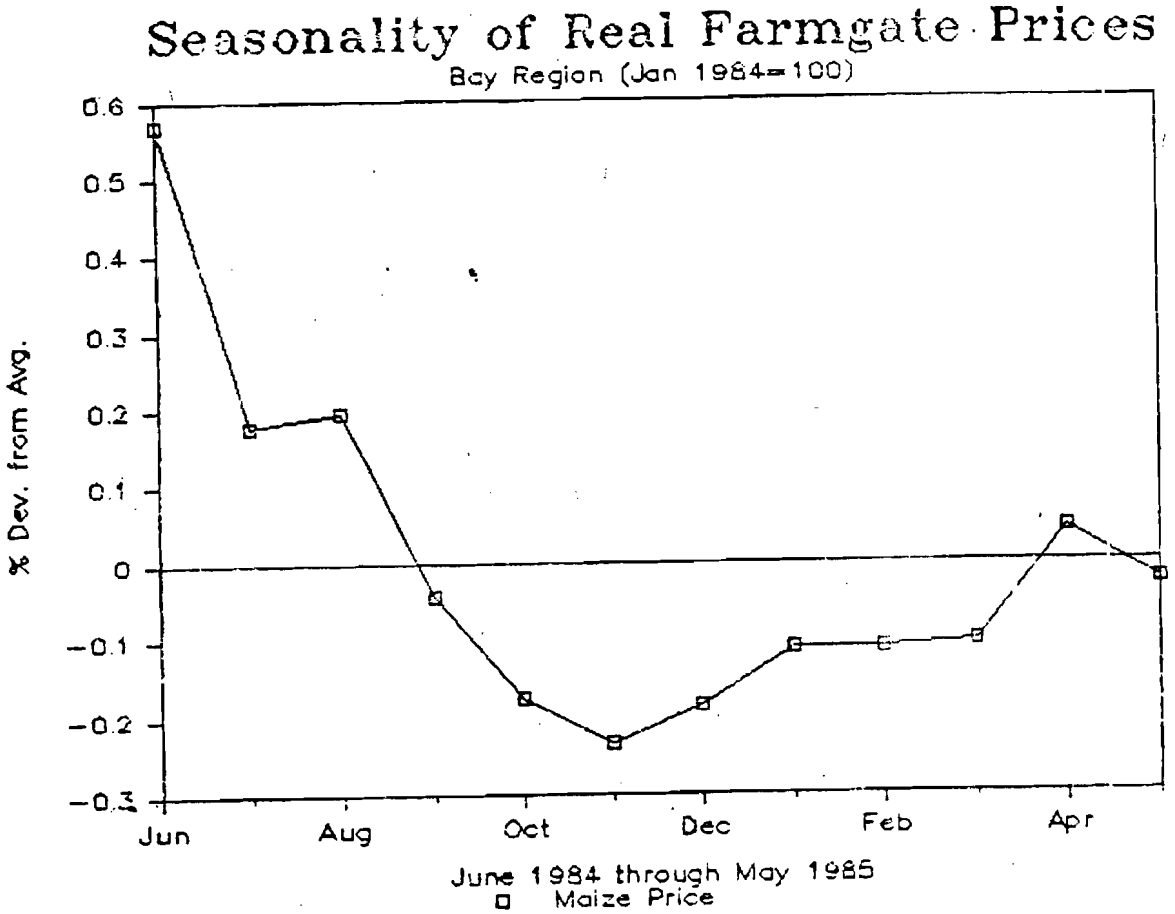
Figure 3.5



3.57 Despite these problems, the liberalization of the marketing system in 1981 greatly increased nominal and real producer incentives. Maize and sorghum prices in Mogadishu in 1985 were 2 times the average price in 1981 in real terms and although prices at farmgate are well below this the relative improvement is also evident for rural areas.

3.58 Producer Incentives and Import Parity. Production margins at current price levels, and at existing average yield levels for various crops and farming systems, are presented in Annex Table 18. The crop budgets which underly these calculations are in Annex 4. At these prices and yields, farmers are making reasonable returns. At "breakeven price" levels (where revenues just cover costs for large mechanized farms, or where returns per man day equal the wage rate for small holders), and of "minimum return levels" (where large mechanized farms make at least US$ 100/ha, and small farmers get 50% more than the going wage on a returns per day basis) farmers are making substantially more than a minimum return on all crops. Thus it would appear that:

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(a) At current prices, margins (and returns to labour) are satisfactory for all crops;

(b) Break-even price levels for the crops reviewed are 60% or less of current prices;

(c) Prices necessary to obtain a "minimum" return from production are at or below the import parity equivalent for maize and rice. Returns to sorghum production, at import parity levels, are only marginally profitable;

(d) ADC's intervention in 1985 to support farmgate prices did so at about the "minimum return" level;

(e) Semi-mechanized, irrigated maize stands out as the crop with the highest margin, and the lowest "minimum return" price after tomatoes (for which the market is fairly thin and volatile);

3.59 A comparison of local prices with import parity prices (Annex Table 19) permits several observations:

(a) The import parity price does not include the import duty. If an appropriate import tariff is applied to the maize, sorghum and rice price, then margins are all comfortably favourable.

(b) Import parity is calculated at the "market" exchange rate (of SoSh 85 to the US dollar). At the "official" rate (of SoSh 46.0 = US$ 1.0) none of these crops would be competitive on the international market.

(c) Only the direct costs of marketing are applied to the import parity price in Mogadishu to arrive at the farmgate. If current marketing margins, which include a large risk element as well as other market imperfections, were applied to import parity prices in Mogadishu, then the profitability of many of these crops becomes doubtful.

3.60 Price behaviour in the past three years indicates that the average farmgate price may decrease as much as 30% during harvest. At the low point of this cycle, producer prices would be in the neighbourhood of the "break even" price for all but the most profitable of the cropping systems analysed. Measures should be taken to keep farmgate prices at current parity levels by reducing seasonal fluctuations, and by reducing the present large marketing margins. Management of the grain market should also include reducing the effect that grain imports (which arrive in a bunch at harvest time) have on farmgate prices. These issues figure prominantly in the strategy outlined in Chapter IV.

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Input Supply

3.61 Demand for improved farm inputs in Somalia is still at a very low level, even by African standards. Research has not yielded firm recommendations for dissemination through the extension service on specific crops, varieties, soils and moisture conditions. The extension service is in the process of being built up, but field agents lack experience and have few attractive innovations to disseminate. Because of low levels of imports and poor distribution systems improved farm inputs have mostly not been available when needed in rural areas.

3.62 The banana subsector has been the major crop activity to use a package of modern agricultural inputs, and even in this subsector input shortages occurred and production declined. Except for the banana subsector, the major improved input in common use has been the tractor, used for land preparation and ploughing, while weeding, harvesting and threshing have remained manual operations. At the end of 1984, operational tractors numbered about 2,000, with about 370 of these owned by the public tractor service company (ONAT). ONAT, whose primary task was tractor hire service, provided about 150,000 hours of service per year, and private owners a similar amount. At the artificially low exchange rate that prevailed until 1984, and the concessional provision of tractors and machinery, ONAT was able to heavily subsidize prices. At these prices there was excess demand for tractor service, with ONAT estimating that they served only half of requests. Even in these conditions however, ONAT was not able to recover its costs or adequately pay drivers and mechanics, and its services and facitilities progressively deteriorated.

3.63 Other input markets were much more rudimentary. Use of fertilizer, almost exclusively urea, was limited to a maximum 7,000 to 8,000 tons in some years, of which 3,000 tons was for the banana industry. This is about 7kg/ha of cropped land, compared to 18kg on average for the rest of Africa. No commercial market for urea existed. Production and use of certified seed for field crops was insignificant, but use of improved vegetable and fruit seed was more widespread, estimated at 10 tons in 1984. Pesticides were usually not available, and herbicides were seldomed used.

3.64 Few farm implements have been adapted and developed for use in Somalia. The most common plow, is the three disc (tractor drawn) plough that has drawbacks for many irrigated agricultural conditions. Animal traction is largely confined to the Northwest and the Bay region, but even in these areas is little used. Pumps are extensively used for irrigation, but fuel to operate them and foreign exchange to import and repair them have been major constraints.

3.65 In fisheries, traditional fishing boats were augmented by increasing supplies of motorized boats and modern gear provided under a variety of aid programs, but as these projects were completed boats and gear deteriorated and boats were often used for non-fishing purposes. In the livestock sector, veterinary drugs were the main input, and a lively demand stimulated a strong parallel market in addition to government supplied drugs. Animal vaccines are now produced in excess of their use in Somalia.

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3.66 The shortage of tractors, implements and pumps can partly be explained by chronic shortage of foreign exchange for their import through the public sector, complicated by tight control on the supply of foreign exchange for private imports. These constraints have been relaxed significantly by commodity import programs in the past 2-3 years and by the devaluation of the Somali Shilling. Since January 1985 some two-thirds of the foreign exchange supply has been available to the open market and sizable private imports of agricultural inputs have taken place. There remain however, many complicating factors. In the case of fertilizer, a strong demand has yet to develop, since it is not apparent that urea, the available fertilizer, has a high payoff in the absence of other fertilizers, trace elements and other inputs. Insecticides, for which there would be strong demand because of the large gains from control of stemborer and other pests, have not had a strong supply system.

3.67 Thus, while inadequate input supply systems have been a constraint in past growth, they are likely to be a still more significant constraint on future growth unless these systems are dramatically improved. Major improvements however involve complicated interactions between research, decisions regarding the future role in input supply of ONAT, ADC, AFMET, The Urea Plant, i.e. the reform of public sector enterprises, and the development of the private sector in these activities (see Chapter IV).

Agricultural Enterprises

3.68 Agricultural enterprise in the public sector have on balance been disappointing; on some occasions they inhibited development, and in other cases (more common) they failed to deliver the services needed. The issues of ADC, ENC and ONAT have been noted. The output of most other public sector enterprises dealing with agricultural products has stagnated, declined or ceased altogether in recent years (Annex Table 20). With few exceptions, none of the public sector enterprises processing agricultural products or providing agricultural services has been able to cover its costs and most are making substantial losses (Table 3.12). Only the flour and pasta factory is operating at a reasonable level of plant utilization -- 33% in 1983 and 68% in 1984. The Juba Sugar Complex is operating at 40% of capacity, while others are operating at 30% or less capacity utilization and many are closed. Nevertheless, these enterprises employ some 7,000 workers.

3.69 Trade in hides and skins was (and is) a monopoly of the Hides and Skins Agency and exports of hides and skins have fallen significantly. The hides and skins market has not developed vigorously, and over much of the country hides and skins are not collected and preserved.

3.70 Trade in fish in the main local market, Mogadishu, was controlled and subsidized during most of this period through the Mogadishu Cold Store and Supermarket. Although parallel markets developed, they were impeeded by public sector regulations. Elsewhere, expensive experiments in public sector deep sea fishing, fish processing and storage were unsuccessful, and attempts to stimulate artisanal fisheries had very scant results. Attempts to subsidize operations and a lack of output and efficiency oriented management were the main reasons.

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Table 3.12

SOMALIA

AGRICULTURAL SECTOR SURVEY

Manufacturing Enterprises: Performance Indicators 1983-1984

ENTERPRISES	Gross Sales (SoSh. Million) 1983	1984	Profit/Loss (-) 1983	1984	Number of Employees 1983	1984	Gross Sales per Employee 1/ 1983	1984	Use of Installed Capacity 1983	1984
	—SoSh Mil.—				—Number—		—SoSh Mil.—		—%—	
. Juba Sugar Complex	373	324	Loss	-52	1,870	1,834	200	177	42	40
. SNAI Sugar Factory	26	11	-82	-93	1,863	1,379	14	8	7	2
. Oil Mill, Mogadishu	4	0	-1.6	Loss	80	80	50	0	1	0
. Wheat Flour and Pasta Factory	100	150	-7	6.6	297	310	337	483	33	68
. Meat Factory, Kismayo	8	13	-	-3.7	303	228	26	59	2	3
. Milk Factory, Mogadishu	2	0	-0.7	-1.7	71	24	28	0	2	0
. Urea Plant	-	14	-	-11.7	-	189	-	74	-	3
. Cigarette & Matches FActory	941	460	24	26.5	595	543	1,582	847	39	18
. Somaltex, Balad	120	113	-10	-6.6	1,200	854	100	132	33	23
. Tannery Km. 7, Mogadishu	23	28	-5.7	Profit	304	250	76	110	30	29
. Petroleum Refinery	757	588	-	-	179	179	4,229	1,832	43	31
. Somali Marine Products	-	17	-	0.7	-	121	-	141	-	33
. Miscellaneous & Private Sector	263	380	-	-	750	770	351	363	-	-
TOTAL	2,617	2,098	-	-	7,449	6,761	7,327	4,480	232	250 2/

1/ Net sales (minus operating costs, capital costs and return on investment) not available, but presumably would be negative for most since most make net losses.

2/ Estimate.

SOURCE: Agricultural Task Forces from Ministry of Industry and Commerce (Annex 10).

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3.71 Credit for agriculture and for all but the final stage of livestock export was extremely scarce or nonexistant. No significant credit was available to farmers seasonally, and no credit links were forged in the input delivery or crop marketing systems. This was partly the result of poor market penetration by the nationalized Banks, partly the result of low savings, and partly the result of the very heavy government presence in the markets most easily reached by credit -- the crop and input markets.

3.72 State farms of all types (their experience is described in Annex 1 and major ones are listed in Annex Table 15) generally failed to justify the land devoted to them or their heavy investment. Labor shortages and management and financial problems led to their farming much less than their allocated land, sometimes with a wastage of land clearance and irrigation infrastructure. Inability to maintain irrigation systems and to design and maintain adequate drainage has resulted in heavy losses of production and water logging and salinity.

3.73 The most noteworthy attempts to stimulate cattle and meat export, the number one immediate priority in the agricultural sector, were the Livestock Development Agency (LDA) and the Kismayu meat factory. LDA was eventually abandoned because of poor performance. The meat factory was successful for a time, based on trading with the USSR in canned meats, but has not been important since the severence of Russian cooperation in 1977.

3.74 Government control of the fuel market has not resulted in an adequate supply of fuel, even for the limited mechanization already in place. Fuel prices through official channels have been artificially low and rationing systems inaffective in ensuring fuel supplies for agricultural uses. Shortage of fuel in the past two years (1984 and 1985) has probably been the major impediment to crop and livestock production and marketing. Many agricultural projects have been at a virtual standstill for lack of fuel, and private farmers and traders have been impeded in their operation of trucks, tractors and pumps by fuel shortages.

3.75 Finally, agricultural public enterprises have been a drain on public revenues, both as unproductive investments and (often) as losses on current account. Few, if any, enterprise show an ex post positive financial or economic rate of return, and some of the losses have been spectacular, e.g. the deep sea fishing attempts, the urea plant, and most of the state farms. This resource drain has had multiple adverse effects on the sector through its impact on the foreign exchange shortage, the deterioration in the public service and the shortage of credit and other resources available to the sector. More directly neither the market for an expanded agricultural output nor the supply of needed agricultural services and inputs has been provided.

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Chapter IV: Future Strategy - Agricultural Sector Management and Economic Policy

A. Reform of Public Sector Agricultural Enterprises

4.01 The Government of Somalia has already begun the process of public enterprise reform. The major reforms, so far, have been:

(a) elimination of the grain buying monopoly of ADC;

(b) modification of the market behaviour of ENC by introducing auction systems into sales of some commodities;

(c) substantial opening up of the market for agricultural inputs and provision of private access to foreign exchange for these inputs, as opposed to government input channels; and

(d) an announced willingness to consider the reform of public sector enterprises, their sale to the private sector or closing them down.

4.02 The importance of these reforms can hardly be overstated, but major inefficiencies remain in the agricultural sector which could be mitigated by further reform in the operation of public enterprises, and in many cases their transfer to the private sector. The most important target for reform are enterprises which cut across potentially productive market channels and disrupt ordinary agricultural commerce. Reforms in these enterprises (Priority 1, below) are necessary to allow farmers and supporting commercial enterprises to get on with the business of producing without undue interference. In a second category are enterprises which waste resources by tying up productive assets without substantially contributing to output. Since they do not actively disrupt production, reform of these enterprises is less pressing than those in priority 1. A third set of enterprises requiring reform consists of those which were uneconomic in the first instance. The goal of reform should be minimization of losses and care to prevent secondary distortions. Finally a fourth category consists of promotional but unprofitable government operations, where a legitimate goal is maximum promotional effect per shilling of subsidy expended.

4.03 Discussion of enterprise reform has often taken the ownership structure as a point of departure, recommeding, or seeking to find grounds to recommend, the privatization of some, the formation of joint ventures with others, and the retention of still others within the public sector under new principles of operation with improved management. These are indeed important questions, but a prior list of questions must first be answered which concern the place of these enterprises in wider markets and the functions of these wider markets that these enterprises currently enhance or inhibit. If a clear view of these facts can be established -- "what are these enterprises doing to aid or impede development" -- then the steps toward reform, including the questions of ownership, may be more readily perceived.

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Priorities In Reform of Agricultural Public Enterprises

4.04 Priority 1 - Reduce Distortion in Marketing and in the Allocation of Private Resources. Reform of public enterprises is most important in those areas where they substantially distort the allocation of productive resources leading to secondary effects which aggravate problems of agricultural production or trade. The table below classifies five public enterprises in this "problem enterprise" category, and summarizes their roles as impediments to the agricultural development process.

4.05 Reform of ENC is technically easy. The market distortions that are introduced by current operations and their elimination can be summarized:

(a) As a government procurement and distribution agent, where government purchasers are the final users of the product, ENC uses prices based on an artificial exchange rate having nothing to do with costs. This distorts government budgets. The solution is to change ENC's prices to CIF prices at market exchange rates.

(b) Where public sector purchasers buy intermediate products from ENC, the use of the same artificial prices distorts the final product market, by favoring these enterprises or individuals over others that purchase ENC commodities in the free market. These prices also distort input markets, by favoring the input (usually imported) that is underpriced and thus preventing economical substitutions in the production formula. A clear case in point is the public sector pasta factory, which offers relatively cheap pasta, in competition with domestic cereal products, and uses imported high-value wheat as its main ingredient.

4.06 The question of ownership of ENC is unimportant. The government needs a purchasing agent. To the extent that ENC would pay the going price for its purchases and operate reasonably efficiently, thereby breaking even with reasonable mark-ups, it would serve the needed function of public procurement, whether it continued to be public or became a private firm with special contracts with government.

4.07 Reform or privatization of HASA is of secondary importance. What is urgently required is to expand the market for hides and skins by stimulating exports. The first step is to allow private firms to export hides and skins and their products with no extraordinary controls. The second step is to include hides and skins in the general export promotion drive that is recommended for livestock and livestock products, including well planned assistance to all firms (including HASA) in developing export links and efficient, export-oriented production processes. Finally, in the interests of improving HASA's efficiency, an analysis of its operations should recommend specific management improvements, including the question of ownership.

Enterprise	Main Functions	Major Distortions
ENC	Trading in concessional food imports; trading among Government enterprises.	Introduces arbitrary elements into pricing of concessional imports, and distorts price signals and limits the development of private trading.
HASA	Purchase of hides and skins and sale to domestic processors and for export.	Decreases market for exports by preventing private exports. Thus reduces demand for hides and skins, and perpetuates decline in this market.
ONAT	Farm tractor services	By providing services at less than cost, ONAT constitutes a barrier to entry of private firms in tractor hire services, while failing to deliver sufficient services itself.
Mogadishu Cold Store & Super-Market	Sale of fish in Mogadishu market at below market prices.	By purchasing and selling at sub-market prices, MCSS undercuts the development of private trade in fish and its large overcapacity continues to inhibit private entry into the transport and retailing business.
Somalia Development Bank and Commercial and Savings Bank	Credit to the Agricultural Sector	Very limited credit for livestock marketing. Underdeveloped credit systems for marketing farm inputs and outputs.

4.08 In ONAT reform, three main issues are at stake: revitalization of the tractor fleet to preserve and make use of the large assets of ONAT; management of that fleet, in order to provide motivated tractor services and economize on new tractors; and finally, raising the official price of ONAT's tractor services to a level that reflects full cost of production, at replacement value depreciation rates, and at market exchange rates. The last of these is easiest technically, and by far the most important, since the development of private tractor-hire services, which are needed for rapid area expansion and efficient production in irrigated areas whatever happens to ONAT, is unlikely to take place as long as the leading firm in the sector drastically underprices its output. In Annex 7, which discusses ONAT in considerable detail, the conclusion is reached that ONAT should be privatized, but step-wise alternatives would serve nearly as well: raising ONAT prices by 100% and then by 50% each year until ONAT prices reach full cost prices (currently around Sh 900-1,000 per hour for wheeled tractor services); after the price increase, rehabilitation of ONAT's fleet and workshops (necessary in any case, but probably futile in the absence of price increases, to provide for efficient operation maintenance replacement); a management audit, simultaneous with fleet and workshop reconstruction, and provision of the required management and manpower reforms, and changes in wages and incentives, to turn ONAT into an efficient operating enterprise. That no African country has successfully run a tractor hire service, should induce caution and a careful consideration of alternatives.

4.09 For the Mogadishu Cold Store and Supermarket, the problem once again is pricing, and possibly management, with questions of ownership being relatively unimportant. If MCSS would price its output at Mogadishu market prices for fish, allowing it to compete profitably for raw fish and expand and improve its transport operations, it would simultaneously become more effective as a promoter of fishing, and less a threat to private operators in the field. (Annex 3).

4.10 Finally, for the banking and credit needs of the sector, the general Somali banking approach is inadequate. At a minimum, the easier credit targets (e.g. links in the cattle export chain, wholesale and retail links in the agricultural inputs and outputs markets, creditworthy larger farmers) should be served with credit at market prices. The process of liberalization depends on the private sector absorbing many new trade and production functions, and credit will be necessary for this purpose.

4.11 Priority 2 - Increase Productivity of Capital Tied Up In Potentially Profitable Enterprises. Several of the agricultural public enterprises are tying up land or capital in unproductive operations while there are probably high productivity uses for these resources. These enterprises usually lose money as well, aggravating the fiscal problems of government. Reform of these enterprises offers the possibility of significant improvements in productivity in the near future. The table below classifies one enterprise and one whole category of enterprises under this heading and summarizes the types of improvements which might be expected from reform.

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Enterprise	Unproductive Assets	Gains from Reform
ADC	Massive (probably more than sufficient for national needs) storage facilities which are largely unused.	Use of facilities by private sector to buy and sell grain seasonally or in longer term speculation to even out seasonal prices. Use of storage facilities for agricultural inputs.
Various State Farms	High potential land in irrigated areas, often with unused irrigation infrastructure.	Use of land in viable farm sizes to increase agricultural output and incomes.

4.12 In the case of ACD storage, it makes little difference whether excess public capacity is leased or sold. It may be prudent to offer leases in the short run, considering the newness of the private grain market and the shortage of loan capital. At any lease price, it is more economic to put the facilities to use than to hold them idle, and leasing would obviate the evaluation, needed for immediate sale.

4.13 In the case of state farms, the government has recognized that private farmer incentives are important for the maintenance and productivity of land. Privatization must be planned, however, to insure private viability, to provide for maintenance of public services (which necessitates cost recovery) and, particularly in irrigated areas which comprise the bulk of state farms, to facilitate provision of public infrustructure. Annex 1 recommends a farm by farm project approach to this privatization.

4.14 Priority 3 - Minimize Losses in Activities of Dubious Long Term Viability. There are several agricultural public enterprises based on investments of dubious economic feasibility from their inception. It is generally not clear whether practicable use can be made of the assets of these enterprises, and the main argument for reform is to minimize the fiscal drain of their continued operation and to prevent secondary distortions caused by their operation. Several comparatively large enterprises fall into this category, as shown below.

Enterprise	Main Features	Potential Problems
Urea Plant	High cost new urea plant, too large for domestic demand.	Distortion in urea prices and/or operation at costs which exceed international prices.
Boat Factory	Production of costly boats that cannot be amortized in operations of domestic fishermen.	Equipping fishermen with inappropriate equipment that makes their operations financially nonviable. Drain on public resources (or poor use of aid).
Jowhar Sugar Factory	High cost, generally obsolete factory	Costly rehabilitation without solving basic agricultural problem.
SNIA BIASA	Suffering from salinization of cropland.	Competition in a limited domestic market, potentially in competition with Juba Sugar Factory.

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4.15 In the case of the urea plant, it should be recognized that the capital loss in building a high cost plant has already been incurred. Debt service is an unavoidable cost, and should not affect the decision to operate the plant or the price of urea. Fortunately, the plant can probably be operated at variable costs (materials and operations) which are equal to or slightly lower than CIF costs of imported urea.* Ownership of the plant is hardly an issue. It is very important, however, that the pricing of urea continue to be based on CIF costs, as it is under present policy. "Reform" in this case amounts to not much more than clarifying and announcing the sound pricing principles that are currently in force.

4.16 The boat factory is a highly adaptable plant currently producing an uneconomic output. A change in product line is necessary, and privatization of the plant (considering its low non-real estate assets) amounts to little more than selling the site and buildings. Alternatively, new product lines can be investigated as present contracts expire.

4.17 The Jowhar Sugar Factory would need complete refurbishment and massive and difficult reclamation of saline sugar estate lands to operate. In view of better and cheaper domestic alternatives (the Juba Sugar operation) the Jowhar Factory should be allowed to run down, with eventual conversion of the estate to private farms.

4.18 Priority 4 - Focus on Promotional Value of Unprofitable Enterprises. There are several enterprises which, though they cannot operate profitably, may have important promotional value. Privatization is more or less out of the question, even at written-draw asset prices, and the main considerations for reform are to clarify their promotional function and to arrange to gain maximum benefits for the public costs involved in continued operation. The table below classifies two enterprises under this heading and summarizes the possibilities for improved promotional performance.

Enterprise	Main Features	Potential
Kismayo Meat Factory	Generally obsolete factory in poor repair currently closed, which has never penetrated commercial markets.	Minimum repair and use in a pilot operation in connection with recommendations of a major livestock export program. Pilot operation in use of by products.
Kismayo Fish Factory	Modern factory designed to support national fish industry, which has never had adequate supplies of fish because of inadequate incentives to fishermen.	Use in a pilot operation to test the feasibility of expanded land transport and increased fishermen's incentives.

4.19 Both of these factories could operate in markets where Somalia has an unrealized potential. There is a strong argument for using them experimently as pilot projects to test operational and marketing alternatives.

B. Taxation, Pricing and Cost Recovery

Taxation and Cost Recovery

4.20 Taxation and cost recovery in the agricultural sector relate to two separate but related problems:

(a) First, the present state and trend in the general fiscal accounts of Somalia is unsustainable. Large and growing current account deficits provide no Somali contribution to investment, and even with very large deficits the amounts available for all economic and social services are very low. A way must be found to increase revenues, which over the three year period 1981-84 averaged just over 10% of GDP. Agriculture, as the leading productive sector and source of exports, must be expected to share the burden of this taxation. Because the tax system consists mostly of indirect taxes, it is probable that increased taxes on agricultural trade are to be expected.

(b) Second, the agricultural sector is itself characterized by underpriced services, money losing enterprises, and low-payoff investments which contribute to the fiscal problem. There are good allocation arguments, in addition to fiscal arguments, for raising prices, reforming enterprises and getting rid of money losing investments.

4.23 In general one would not expect reasonable prices for agricultural services to have a major impact on the larger fiscal problems; the order of magnitude of the two problems is different. Nevertheless, in a situation like Somali agriculture, where most services in the public sector are charging prices which do not cover costs of production and a reasonable return on investment, import parity prices for imported food and agricultural inputs would sharply improve performance, and coincidentally greater cost recovery.

4.24 Except in a few cases, the analysis for this report alone will not support precise pricing recommendations, but a few generalizations and recommendations can be made.

(a) Water charges for controlled irrigation, and still more urgently (if possible) for uncontrolled irrigation are necessary immediately. They will not be practical, however, until better management systems for water and drainage are in place. The urgency for water charges if particularly acute along the shebelli. Water is scarce and any use in low flow seasons restricts other uses. Furthermore, the Shebelli has both local and systemic drainage and salinization problems, and excessive water use complicates the drainage and salinization control problems. In these circumstances, water charges should be "high" rather than "low", and a detailed analysis of reasonable water uses charges needs to be urgently

undertaken. In the present situation, with low or zero charges throughout the system, water saving crops and techniques are not rewarded nor are water extravagant ones penalized As farming is progressively privatized, and as major irrigation rehabilitation projects are completed, water charges will become important for both cost recovery and for support of water management systems. To establish a method for irrigation water control and for water charging is a long run activity that should be started with the current generation of irrigation rehabilitation projects and conversions of state farms to private uses.

(b) Prices for tractor services and veterinary services: Both of these services are provided by government at a substantial loss. Both are scarce, in that large unsatisfied demands for services exist at present (subsidized) prices, and in both fields the government wants to encourage private provision of these services. In the circumstances there is a strong case for higher prices. For tractor services these can be estimated as something like 900 to 1000 shillings per hour, but the exact level should be established on the basis of actual ONAT operating costs, plus a return on capital and management. For veterinary services, no estimate has been made of cost, but except for control of contageous diseases and promotional efforts, there seems to be no argument for prices lower than than cost of providing the service.

(c) Prices of improved seeds, insecticides and fertilizers. In spite of a fairly long period of government presence in these markets, none of these inputs has yet developed an extensive market. A promotional argument could be made for pricing any or all of them below cost, in this case CIF costs, since none is domestically produced except for urea. Most of these input markets are being privatized, and this is probably as good a way as any to solve the pricing problem. Urea production will probably remain in the public sector, and its pricing is discussed eleswhere where CIF prices are recommended, in spite of the financial loss. Seed development and screening (as opposed to bulking and marketing) may eventually become a viable and efficient government function, but in the short run there may be a case for "use inducement" prices. For all of these inputs, however, subsidies (if used) should be across the board for the public and private sector, so as not to discourage the development of the private distribution system.

(d) Pricing of fuel. Like veterinary services and tractor services, fuel is underpriced and scarce. A strong case can be made for encouraging competition in wholesale and retail markets and allowing price to be determined in private markets based on CIF prices of imports.

(e) Charges for land development and service packages. In programs such as the semi-mechanized farming project, which provides management, a package of inputs and develops and prepares land for individual farmers, the determination of its viability as an option to expand rainfed production will be the ability of such projects to recover costs (assuming that full costs are charged for irrigation development and rehabilitation and other similar services.

(f) Charges for development of private land. In programs such as the Northwest Development project there is a good case for offering the service in a market transaction to individual farmers or groups of farmers at full-cost prices (a progressive cost recovery program is already a part of the North West project, which could serve to test the limits of farmer interest at full cost). There would seem to be little argument for such projects if returns do not support such charges. In this and the above case, credit arrangements would probably be necessary and of course, full cost would have to be charged for comparable services.

(g) Charges for undeveloped land, rents, land taxes. The grey area between charges and taxes should be explored. Land is already scarce, particularly along the rivers where irrigation is possible. In law it is state owned, but much of it is leased on a haphazard basis which urgently needs reform for taxation (domestic resource mobilization), equity and efficiency reasons. A good starting basis for lease prices or taxes on already leased land would be some fraction of the "open" or "disguised" values of land in the Shebelli area, which are well known to local inhabitants.

4.25 Summing up, it is clear that the suggestions above tend toward greater cost recovery in most cases. The recommended change in direction of charges is based in each case on making markets more efficient and working toward better allocation of resources. In a few cases, adjustments can be made quickly, but given the rudimentary state of management in the sector, most would require further analysis and development of institutions and systems. No quick fix is likely, but pricing problems are too important to delay the beginning of reasonable price development on a case by case basis.

C. Credit and Banking Services

4.26 The steps for development recommended throughout this report require new credit lines. The more important credit bottlenecks will arise from progress on other fronts.

(a) As marketing of livestock improves, credit will be required to fund the offtake process as well as those portions of the export process that now receive credit;

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(b) Privatization of important services such as veterinary medicine and tractor services will require credit for purchasing assets and materials;

(c) Privatization of the grain trade and grain storage will require credit for transport equipment and for holding stocks;

(d) Development of agricultural inputs markets will require credit to wholesalers and retailers for transport, storage and promotion, and for onlending as suppliers credit.

4.27 Aside from questions of aggregate supply and competing demands for credit, the activities mentioned above are not difficult. In many cases what is required is the expansion of very ordinary commercial operations, the stock in trade of banks. In other cases, longer term credit can be granted with capital assets mortgaged or hire purchase arrangements. In only a few cases (such as veterinary services) will the character of the borrower be the only security. It should be possible to take a "project" approach to these credit needs, supporting pre-identified types of credit operations of either or both of the nation's banks, with financial resources and, as necessary, management assistance. This type of operation, which stimulates the development of private markets, seems almost indispensable for progress in agriculture along a liberalized path.

4.28 It would be more difficult, but hardly impossible, to begin funding, under a similar project arrangement, on-farm improvements of some of the larger, better situated farmers, for example, those in irrigation rehabilitation projects for on-farm works (levelling, etc.). In the present legal context (land being unpurchasable legally) the creditworthiness of the farmer would be the only insurance against default, although land leases are also used as security. Probably only the Commercial and Savings Bank, with its comparatively widespread branch network, would be in a position to identify acceptable credit risks in this market.

4.29 New firms, or Somali branches of estabalished firms, are investigating the potential of local manufacture (assembly, processing) of agricultural inputs. In some cases they would appear to have natural advantages. For example, a local tractor supply firm could, in principle, carve out a local advantage in service and spares. Local pesticide, herbicide, and fertilizer blenders would appear to have natural advantages as they become familiar with localized input packages. And repackaing to suit local needs is an inherently local process. If firms in such emerging activities are adequately capitalized, they are logical targets for a credit project approach.

4.30 It will also be necessary, whether or not it is possible to do so under present Somali laws and traditions, to devise a system for indirect credit to farmers who must pay for development costs in major projects. This is a hard problem. It requires close attention to minimum farm sizes and maximum development costs, if repayment by farmers is to be possible. Farmers cannot be expected to repay exhorbitant

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project costs, as now characterise many development projects in Somalia. It also requires some legal innovation if debts are to be collectable. Without assuming the answer to this problem, any rehabilitation or land development project should include in its preparation work, a plausible method for this credit extension.

4.31 Finally, it is probably advisable to continue experimenting with various devices for credit to small farmers, even where traditions do not support such efforts. Joint liability of family or village groups, real cooperatives with local leadership keyed to the existing local political leaders, crop mortgaging with disaster insurance provisions, hire purchase of tools, credit for inputs, and delayed payments for services all offer grounds for experimentation. It is advisable to run such experiments outside normal banking channels (and on a very small scale) until promising repayment results have been established.

D. Public Management and Planning in the Agriculture Sector

4.32 Public planning and administration in the agricultural sector can be characterized by the degree of public participation. At one extreme, the public sector can attempt to run agriculture through ownership and management of farms and public operation of input and output markets. At the opposite extreme, it may involve itself only with selected activities such as land registration, water rights regulation, the provision of services such as research and extension, and in the construction and maintenance of large infrastructure such as major irrigation works and access roads. These two extremes are sometimes characterized as the "managed system" and the "market system". Somalia has had, until very recently, virtually all of the attributes of the managed system. Recently there has been important movements toward the market systems. The present system is not a tenable one, however and the strategy outlined in this report assumes a future Somali economy that, at least in productive sectors, is largely a market system.

4.33 There does not seem to exist a consensus within government or between government and major donors in favour of the particular steps that would produce a rapid transition toward a market system of organization of agriculture. While a predisposition toward market-directed agriculture exists, there are impediments: existing organizations and their historical functions; personal vested interests; habitual relationships between government and donors, and the general painfulness of change and uncertainty. This section of the report outlines alternative paths for arriving at an agricultural sector that functions according to commercial principle within a fairly short time period -- say, ten years. It provides a brief description of the present system of planning and management, details some of the important steps toward a market system that have recently been taken, highlights some of the difficulties and rigidities of the transition period and suggests concrete steps to be taken toward further liberalization. It is assumed initially that the goal of a substantially market-directed agriculture, after this transition period, will be pursued fairly consistently by government and supported by donors.

The Manpower for Management and Planning

4.34 The recommendations in the preceeding section generally imply a reduced role for the public sector in direct agricultural production and its management and increased responsibility for governmental functions such as land registration, water management, and research. On balance, less management and planning should be required, but a different mix of skills must be learned and used.

4.35 Recruitment and retention of the required manpower for management and planning will be impossible at the current wage rates and career development prospects in the Somali Civil Service. Except for the few civil servants whose wages are supplemented by extraordinary allowances, pay and allowances generally fall in the range 600 - 1000 shillings per month. Basic living requirements demand an income in the neighbourhood of four to five times this amount. In these circumstances it is impossible to visualize a method to foster discipline and initiative within the ministries, and all accounts indicate low and declining morale and efficiency, and rapid loss of staff.

4.36 The problem is to some extent mitigated by the common practice of salary supplements for key project personnel working on donor funded projects or ministerial personnel working with donor funded experts. It is unlikely that these programs compete directly with the ministries since at current salaries these staff could not have been retained in line ministerial positions at any rate. In spite of these donor financed supplements, however, many vital positions are not supplemented, particularly within the ministries themselves (as opposed to ministerially sponsored projects).

4.37 Technical assistance in support of the agricultural ministries has been effective to the extent that experts have performed important line functions, but quite ineffective in improving Somali performance in the ministries. No improvement in performance of Somali technical experts -- the usual suggestion is for a greater stress on training with the expert as advisor and teacher rather than doer -- is likely to result in long term improvement in Somali performance in the ministries in this circumstance.

4.38 Dissatisfaction with the current situation is ubiquitous and there is no disagreement on the need for substantial civil service reform, which would include massive increases in salaries and improved systems for recruitment and promotion based on merit. But there are no prospects for near time improvement, given the extremely tight position of the government budget. Progress in the sector is likely to be hampered for the next several years at least by inadequate functioning of the key sector ministries unless some system is developed to substitute for the long delayed civil service reform.

4.39 One obvious route out of this civil service constraint is grant financing for key posts within operating ministries, combined with a regularization of salary supplements on the basis of equal pay for equal work and responsibility in donor funded projects. There are obvious difficulties in this approach -- e.g. gross disparities in wages within ministries and donor reluctance to finance civil service wages -- but it

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can be observed that the cost of this type of solution is very small compared to present and proposed donor support for the sector. It has been roughly estimated that stabilizing and training for fifty key posts in the Ministry of Agriculture and an equal number in the Ministry of Livestock, with perhaps twenty-five posts in the smaller Ministry of Fisheries, would be sufficient to make an important improvement in ministerial performance. Annual costs for salary supplements for this number would be about $650,000, or less than 1% of total technical assistance to Somalia in 1984.

4.40 If (and only if) a way can be found to retain key personnel, the substantially restructured functions of the agricultural ministries, and the low current state of morale and efficiency, argue for a rigorous analysis of personnel needs in line with the new functions. An analysis of manpower and training needs based on the existing structure is of little use. A management assistance program, starting from the analysis of needs under a new structure, and incorporating common-sense recommendations for routine management improvement such as contained in the recently completed civil service study, would be a high priority, high pay-off form of assistance.

Implications for Strategy in Sector Planning

4.41 The concrete steps suggested above imply a point of view on sector strategy as a whole and particularly on sector planning and management. To arrive at a market oriented sector 10 years from now, these steps must be combined with strict attention to the characteristics of new programs, which must be designed so that they too work in this direction.

4.42 New approaches to planning, and particularly to donor coordination, are urgently required, lest programs continue to be funded only to find that they are in need of substantial redirection from their inception. A review of the present methods of deciding on new investments in the sector will suggest some useful modifications to the process.

4.43 The most highly visible planning and programming activity is the Consultative Group process, in which the Government of Somalia meets with major donors to consider and agree, as much as possible, on the support that can be expected for Somalia's development over a three year period. The meeting centers on the Government's "National Development Strategy and Program," (The Plan), a document combining macroeconomics, general policy and strategy considerations for all sectors, and the Government's three year (rolling) public investment program (PIP). The discussion below will examine the strategy proposed in this report in light of the PIP and Plan recently discussed by the government and donors.

Major Macro-economic Elements:

(a) The macro balance of payments projections in the PIP show exports of livestock recovering from $32 million (estimated actual 1984 exports), to $80 million in 1985 and then increasing to $130 million in three years (1987). At $130 million, livestock exports would be about one quarter higher than their previous peak ($106 million in 1982).

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The 1985 recovery is still not documented, but has apparently been significant. More important, however, is that a strong marketing strategy, and the analytical underpinning of that strategy, is not yet available. The importance of livestock exports in the macro strategy reinforces the conclusion of this report that a top flight marketing study for livestock and the design of programs to implement that strategy is the highest priority activity in the sector.

(b) Crucial to both balance of payments projections and fiscal projections is the estimate of concessional food aid of $45 million per year over the period (1985-88) covered by the Plan. To put this quantity in perspective, concessional food imports cover 17% of the balance of payments gap in the 1985 projection. Converted at the market rate, say 100 shillings to the dollar, these concessional imports would result in generation of Sh 4.5 billion, an amount equal to roughly half the ordinary annual expenditures of the Somalia government. The plan also foresees food aid for refugees in the neighbourhood of $60 million per year. As has been pointed out in Chapters III and IV, it is crucial for the agricultural sector to plan food imports and their release to the market with an eye toward agricultural incentives. Consistent with the strategy outlined in Chapter V and the projections at the end of that chapter, total grain imports substantially below these levels with an improved composition and much better stock management, would be compatible with market prices approaching CIF prices in the local market. In monetary terms, this would be about $50 million worth of total grain imports, roughly half the amount foreseen in the macro calculations of the plan. From an agricultural development point of view, imports in excess of $50 million would be excessive and much more than this would be disastrous for incentives. Finding alternative gap fillers (both balance of payments and fiscal) is beyond the scope of this report, but needs to be carefully explored by the government and donors. The importance of the cereals marketing issue (including the role of food aid) makes the detailed analysis of marketing on an urgent basis, leading to government-donor decisions a second high priority undertaking.

(c) Investments in agriculture figure heavily in the investment budget and the subsequent maintanance and operation budget. For the period 1986-88, investments in the agricultural sector (including livestock, forestry and fisheries) are projected at nearly $500 million, 48% of the total investments in the PIP. By 1988, annual recurrent costs of projects in the sector, for projects completed after 1980, are projected at Sh. 1.5 million, about 38% of the corresponding cost for all government investments. Clearly Somalia is putting many many eggs in the agricultural basket, and the performance of the sector will to a large extent determine overall economic development.

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The implication of agricultural cost recovery for the budget are similarly obvious. Private sector involvement in investment and maintenance could multiply the growth effects of public investment, and perhaps reduce the drain on both the investment and maintenance budgets.

Strategy in the Plan compared to this Report

4.44 The Plan has expressed strategies for the agricultural subsectors. Comparing these strategies to the implications of the strategy in this report we find:

(a) For livestock, increased offtake is not mentioned in the government's plan and active foreign marketing, the number one agricultural priority in this report, comes out as "identify possibilities for market diversification." The key ideas in the plan are integration of the pastoralists through infrastructure and basic needs provisions, improvement in range productivity, and progress in animal health. The last of these will become an important priority as and when marketing and offtake are improved, but the others show little prospect of significant near-term results.

(b) For agriculture, the list of policies and strategies in the plan is long and inclusive, with the result that the priority activity is not clear. None of the suggestions in this report is inconsistent with plan strategies, but it is hard to imagine a set of recommendations that would be.

(c) For forestry the plan strategy is to construct surveys and studies and to encourage self help groups. This report, similarily, would support this forestry strategy, but at a modest level.

(d) for fisheries, the plan strategy is to improve infrastructure maintanance, storage and refrigeration; to improve the supply of spare parts, and to encourage private sector activity and market prices while preventing foreign exploitation of the resources. This report places greater stress on organizational simplification and pilot programs and places much less emphasis on infrastructure, storage, refrigeration and spare parts, unless self-generated by the private sector.

PIP expenditures and the Planning Process

4.45 With the exception of the above noted differences, most funded PIP expenditures are not inconsistent with the strategy of this report, but additional investments have been identified and substantially agreed, and others will be identified each year in negotiations between donors and government outside the PIP process. From a macro viewpoint this causes alarm, in that it invalidates already shakey financial estimates. But the main concern from a management and planning point of view is whether these additional projects conform reasonably well to a rational agricultural strategy.

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4.46 Some of the more important non PIP projects that appear to be going forward are the following:

(1) Jowhar Sugar Rehabilitation
(2) Urea project balancing investment
(3) Trawler fleet rehabilitation
(4) Agricultural Inputs Credits (and agricultural portions of commodity Imports Programs)
(5) Agricultural research grants
(6) Management assistance to Agricultural Ministries
(7) Dairy and dairy product processing programs.

4.47 Cumulatively this project list, which is by no means exhaustive, is large enough to substantially alter the apparent strategy of the plan and the PIP. Individually, some of these projects lack technical and strategic merit and are inconsistent with this strategy and with the new direction of government policy, particularly the first three and the last.

A New Approach to Sectoral Planning and Donor Coordination

4.48 A new process is required, but the mechanism is by no means obvious in the short run. In the longer run, strenghtening of the operating ministries, and continual attention to strategic considerations within the ministries, can produce strong Somalia strategic leadership, with the donors financing sections of a program that meet their own institutional needs. For the present the following procedure is suggested:

(i) A series of meetings between operating ministries and local donor representatives to first identify and then critique, from a strategic view point, the actual investment program;

(ii) Communication between local donor representatives (usually not the decision makers in their institutions) and their home offices on the substance of these meetings, seeking donor agency support of an agreed strategy. It is potentially impossible for the World Bank or the EEC, for example, to have an agriculture support strategy for Somalia without consideration of the overall activities in the sector and other donors' activities. If a strategic approach can be agreed, project amendments, and in the longer run new projects can support that strategy; and

(iii) Because this report is a first attempt to evaluate the sector as a whole, and is based on many substantial inputs from most donors and the operating ministeries, an initial donor-government process such as that suggested above, should be convened in the next 1-2 months to focus on this report as a basis for future operations and the evolution of a progressively more precise and mutually agreed on strategy.

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Chapter V: Proposed Strategy by Sub-Sector

A. Livestock

Strategy

5.01 The livestock sub-sector is and will continue to be the major contributor to GDP, employment and exports in Somalia, but there appear to be limits to the rate at which output can increase in the future. A 2-3% average growth rate would seem the upper limit. Within the livestock task force a concensus was not reached on all issues, but there was general agreement that:

(a) the capacity of the range to sustain additional numbers of animals was at or near its limit;

(b) possibilities for increasing the feed supply obtained from the range appear limited; studies for a number of range management/development projects should throw more light on this over the next few years;

(c) the emphasis for range management initiatives will be conservation, and the need to maintain the current productive levels, in the face of increased degradation as a result of (i) increased human and livestock populations, and (ii) increased shifting agriculture activities in areas with marginally higher rainfall and better soils;

(d) the problem of balancing livestock numbers and feed supplies on the range will be a long-term process requiring social and economic adjustments by pastoralists;

(e) a critical near-term problem needing attention, and the major source of growth in livestock output, is the export marketing situation and system and related facilities -- holding facilities, quarrantine, supplemental feeding;

(f) animal health services to support additional offtake for export and expanded domestic marketing and consumption are a second near-term priority; and

(g) there are possibilities for government to divest itself of a number of unproductive activities and enterprises in the livestock sector while strengthening the critical services provided by the Ministry of Livestock, Forestry and Range.

Background

5.02 Sixty-nine percent of Somalia's land area is currently being grazed by an estimated 4.3 million cattle, 6.2 million camels, 16.3 million goats and 11.8 million sheep. Each livestock type has separate markets, differing watering periods, different tastes in forage and tends to specialize in different parts of the rangelands. Cattle need water

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every two days, so that 90% of the population is found along and between the two rivers. Camels can survive 20 days without water and are distributed over most of the rangelands. Goats and sheep predominate in the north, goats in the Central region and the Shebelli River area.

5.03 Exports are dominated by goats and sheep, both in value and number. Over the 1970-1984 period, small ruminants comprised over 93% of livestock exports. A decade or so ago, live animals were marketed in nine countries, but by 1982 the market was totally dominated by Saudi Arabia, when that country banned first all livestock imports from Somalia and later only cattle. Some diversification is currently taking place with the export of cattle to Egypt and Kenya, but over-reliance on the Saudi market was a source of major instability, with disastrous effects on GDP and foreign exchange earnings.

5.04 An important characteristic of the industry is the dichotomy between the country's need to maximize GDP and export earnings, and the nomads' traditional objective of subsistence and survival as family groups over long cyclical periods of drought and regeneration, which involves the build-up of herds while forage is available, with heavy emphasis on female stock, in the knowledge that a substantial proportion will die in the drought part of the cycle.

5.05 This pattern does not contribute to optimization of output from the range nor consistent export supplies. As the human population increases, each new family requires a basic stock of animals on which to survive. Consequently overstocking and overgrazing occurs and the range deteriorates. In the long term, droughts kill off substantial numbers of animals (and sometimes people), giving the range a chance to partially recover. This is an untenable situation for the future but not easy to change.

5.06 The period 1983-1985 represents the culmination of a long build-up in numbers, and much of the range is now overgrazed. There is a difference of opinion on the extent of overgrazing, which varies from area to area, but irreversible damage is felt to have occurred in the north and along parts of the Kenyan border, but this may not be recent. Important long term damage also occurs through the replacement of palatable species by unpalatable, so although there is still vegetation, the carrying capacity is reduced.

5.07 The industry is therefore subject to two forms of major instability: drought and reliance on a narrow market.

Implications for Exports

5.08 During most recent years, livestock has provided over 90% of Somalia's export income, but foreign exchange earnings dropped from a high of $123 million in 1982 to a low of $ 47 million in 1984, with a partial recovery reported in 1985. It is essential that this experience not be repeated. While Somalia's debt problems cannot be solved by the livestock sector alone, the present foreign exchange and debt situation wouuld be much less precarious had Somalia been in a position to export from its presently large herds.

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5.09 The problem lends itself to a two-pronged attack by:

(a) expansion and diversification of marketing into new areas and new products; and

(b) range management and improved animal health that facilitates offtake and exports.

5.10 In the longer term other improvements are feasible:

(a) supplemental feeding and improved holding facilities to improve export quality;

(b) developing pastoralist associations to control grazing, water points and other communal resources, and limit range degradation; and

(c) introduction of improved practices to limit the effect of shifting cultivation.

Marketing

5.11 Aggressive exploration of alternative markets for live animals in such countries as Iraq, Jordan, Oman, South Yemen and Kuwait, as well as in countries already receiving Somali animals, forms an important part of the strategy. Markets should be explored for beef and lamb in countries such as Egypt, Saudi Arabia, Kuwait and UAE. Markets for lower grade tinned meat might may be found in Western Europe, Eastern Europe and perhaps in Asia, the internal workings of the livestock export pipeline need also to be investigated in depth and urgently.

5.12 An initial thrust using a strong consultant firm should be followed up by a permanent market intelligence unit, and a vigorous marketing presence in Somali embassies in the countries concerned.

5.13 Further development of export quarrantine facilities and better provision at ports for livestock holding and movement are also likely to be needed. Joint ventures may be needed to establish processing facilities for new product types.

5.14 The output of the range at present is dependent on the quantity of palatable fodder, which varies between wet and dry seasons and between wet and dry years. The situation is likely to continue for sometime. Systematic marketing needs to take account of these fluctuations, with the main offtake occurring at the end of the wet season, leaving the dry season forage largely for breeding herds. In the second year of cyclical drought, even the less productive breeding animals may need to be taken off.

5.15 This 'lumpy' offtake pattern complicates marketing. It suggests a need for holding facilities in the marketing system to obtain the best prices and to improve the condition of animals. But these facilities are likely to be developed only in the medium term. The urgent need is to

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gear the marketing system to the conditions that exist. Aggressive marketing, even at low prices, during cyclical peaks of animal numbers would be superior to present large death losses, and might serve to open new markets.

Livestock and Agriculture

5.16 Holding requirements and improved finishing may become the main point of contact between the livestock and the crops sub-sectors. It is more economical to breed and raise animals on the range, and it seems unlikely that intensive animal production on expensive irrigated land would be competitive with crop production. But the production of high yielding, high value fodder crops on irrigated land, for sale to holding grounds and feed lots, should prove attractive to farmers, particularly in the southern rangelands. The large areas of wild Sorghum verticalis grass and other crop residues, if cut and made into hay or silage, might also be a profitable adjunct to rainfed and irrigated farming. Livestock owners appear to be enclosing and cultivating on a shifting basis large portions of those areas within the Central Rangelands where rainfall is highest. Development of agronomic practices which increase yield, prevent wind erosion and maintain soil fertility will be crucial in preventing potential degradation of enclosures.

Range Management

5.17 On the range itself, carrying capacity and hence offtake and the sub-sector's contribution to exports, would probably be increased in the long run by improving the balance between palatable and unpalatable species and between animals and feed supply. But this requires a much more detailed understanding of range ecology and the response and motivations of pastoralists. Studies of these issues are being carried out through the Central Rangelands Project and should continue. Offtake is a function not only of animal prices and demand, but also the desire to sell. Pastoralists have objectives which may not be entirely congruent with that of maximizing offtake. As explained previously, nomads structure their herds in order to minimize the effect of a drought, and maximize the recovery. Herds are therefore as large as possible, and composed mainly of females. In addition, pastoralist cash requirements are small, reducing the desire to sell. Cash is also a less desirable asset to hold, in an inflationery environment. And herd size is an element of prestige in pastoralist society.

5.18 Further infrastructural development on the rangelands should be undertaken only where essential to the success of marketing and range management programmes. In particular, additional permanent stock water points should be related to the potential carrying capacity of the range, and the capacity of the local community to control stocking levels. The focus should shift to the maintenance of a productive resource, which, although in "fair" and mostly "stable" condition, is liable to rapid degradation should the number of animals on the range increase too rapidly, or should the enclosure and shifting cultivation practice expand dramatically.

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5.19 For purposes of administration, the Somalia rangelands have been divided into zones: Northern, Central and the Southern. The Northern Rangelands are reported to be the most seriously degraded because of their steeper topography, proximity to major ports for livestock export and maybe a declining trend in annual rainfall. The Northern Rangelands have been studied in greater detail than the others and there is general agreement that as much as 50% of this land is severely eroded.

5.20 The Central Rangelands, which are presently being studied seem to have only 2-10% of their surface classified as degraded and these are areas around villages and permanent water. The Central Rangelands have the lowest rainfall, the least number of permanent water points, less vegetation and are located further from traditional livestock export centers. They have fewer livestock and a lower nomad population per ha. These factors may explain the better condition of the range in this area. Efforts should be made to maintain this productive resource at current levels, and prevent further degradation.

5.21 The Southern Rangelands has been studied the least and probably has the greatest overall potential. There are some areas in the Upper Juba and in the Bay Region where range degradation has occurred. But the tall grasses and water supply in the Lower Juba and the Shebelli Valley suggest a greater potential for livestock production when tsetse and trypanosomiasis are eliminated, but may also have the greatest conflicts unless clear water and land use rights are developed. While the abortive Trans-Juba Livestock Project does not inspire confidence, elements of that project may well show the way to a more integrated crop-livestock export marketing system in the future. In the Southern Rangelands, particularly along the Shebelli and Lower Juba, the nomadic pastoralist and the sedentary rainfed and irrigated farmer are most likely to develop interactive feed-livestock systems.

Financial Viability of Subsectoral Activities

5.22 The MLFR's main roles are to monitor the livestock and forest industries; to assist producers through experimental work, pilot trials and extension in range management, fodder production and feeding regimes; to undertake special purpose breeding work, such as for dairying; to control epidemic diseases and assist producers to maintain the health of their animals; to administer health controls at livestock export points and at slaughter houses; and to train junior staff to carry out these tasks. These are appropriate functions which MLFR is not able to carry out.

5.23 With many of these functions there is no great scope for cost recovery. In time, charges might be raised for some of the work done at the Veterinary Laboratories and for some of the vaccines produced at the Vaccine Institute; exports of surplus production by the latter may be possible. However, it is not practicable to charge nomads for services for which they have not asked, though nationally they may be important. Veterinary drugs can usually be sold at full cost, once the effect of the drugs has been shown. It may be necessary to supply them at subsidized prices in special cases, where users do not yet appreciate their importance. The cost of health inspections may be recoverable through fees paid by exporters and abattoirs.

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5.24 The costs of water supplies ought to be met by producers, which would best be achieved by a levy on all users through the National Range Agency, rather than individual watering points. Alternatively, in those areas where pastoralist associations have been formed, these groups could assure responsibility for maintenance and management of the water points (permanent or seasonal) within their grazing area, charging an appropriate fee to support this activity. Since the Artificial Insemination Service mainly benefits commercial producers, its costs may be recovered by appropriate charges.

5.25 A number of public enterprises in the sector need to be made financially self-supporting; the Afgoi Dairy Farm, the Corioley Fodder Production Farm, the Km 7 Fattening Unit, the Warman Range Holding Grounds, the Assura Sheep Farm, the two Mogadishu Municipal Dairy Farms, and the Poultry Farms at Km 13 and 15. The Romsoma project should be subjected to careful technical, economic and financial analysis, in light of this strategy and of the severe balance of payments and debt constraint.

5.26 The new, EDF financed, Mogadishu Milk Plant (under Ministry of Commerce and Industry) is in a different category. It will produce reconstituted milk, using imported milk powder and butter oil, with a capacity of 40,000 litres per day. To operate commercially, it will need to use a large proportion of its capacity and keep its prices down. It will benefit consumers by providing a low cost product, but may hinder the development of local dairy production. Since milk product imports have exceeded Somalia's banana exports in value in some years; this could be a step in the wrong direction. This potential needs to be maintained carefully.

Development of the Private Sector

5.27 The Mogadishu Milk Plant illustrates how Government involvement in the commercial sector, even when financially viable, may interfere with the development of the private sector. Some or most of the enterprises listed in paragraph 4.25 above should be privatized, but the Ministry may need a small pilot presence in some of these developing activities, as a base for experimentation and extension work. The cases need individual examination. The Geed Deeble Dairy and Poultry Farm at Hargeisa, could well be sold, as it now has no stock.

5.28 There is a scope for private sector development in the animal health sub-sector, with encouragement to private veterinary surgeons to practice on their own, and gradually to take over the veterinary clinical and field services. Import and distribution of veterinary drugs could now be opened up to the private sector, licences being issued to veterinarians or companies employing professional veterinary staff. This would relieve the Government of the need to find foreign exchange for drug imports.

5.29 There are differences of opinion both in the degree and rapidity of the privatization of the veterinary services. Most agree that serum and vaccine production should remain a function of the public sector. Also there is agreement that the regulatory services such as quarrantine, animal and meat inspections should also be a function of MLFR. The

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in-field vaccination services will largely continue as they are now, but private veterinarians are seeking to administer vaccinations for fees and import drugs and obtained vaccines from the Serum and Vaccine Institute. There is some disagreement on the importing and sales of veterinary drugs. The MLFR would like to control imports and prices, but the veterinarians argue that private practice should allow them liberal access to imported drugs and that their professional ethics will govern their use and fees or sales.

5.30 If privatization is handled correctly animal health services could be expanded at nominal cost governed by competitive services by the many veterinarians and drug outlets. However if privatized too liberally and too quickly, veterinary services can be less efficient, more costly, and even become a hazard. Probably the best pathway for privatization is opening the dairy and poultry industry to licensed veterinarians for preventative and therapeutic practice. Drugs could be imported by the public and private sector, but private sector imports should be approved by a panel of senior governmental veterinarians. Distribution within the country could be through chemists shops and for the dangerous drugs only through public and licensed veterinarians. Except in the case of major diseases and epidemics, government health services should be at full cost recovery prizes.

Livestock Production and Prospects

5.31 Possibilities for increasing livestock production are limited because:

(a) livestock numbers, according to available data and wisdom, are trending moderately upward with pronounced variations associated with weather and available feed;

(b) ranges are at or near the limits of carrying capacity;

(c) the longer-run growth trend for cattle is around 1.0 percent per year and for goats and sheep around 2 percent;

(d) output in general is increasing around 2 percent per year with large variations;

(e) domestic demand appears relatively low and is increasing at around 2.5 percent per year for goats and sheep and 1.3 percent for cattle. Demand has increased less than population and per capita consumption has declined to the mid 1980's;

(f) exports will take time to regain lost markets, but will be the main source of future growth, along with domestic demand;

5.32 Prospective growth in output is considered under two alternative asumptions.

(a) assumes continued growth in human population and trend changes for livestock population, birth rates and death rates;

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(b) assumes a more favorable set of assumptions with:

(i) population holding around 6.5 million;

(ii) livestock populations levelling off due to direct policy measures to limit stocking or to physical limitations now underway on the range; but

(iii) birth rate trends are assumed to accelerate about a tenth due to better inputs for control of diseases and insects as well as better feed and cultural practices. For the same reasons mortality rates trend down by around 15 percent.

5.33 The results (Table 5.1) show that:

(a) even under the "trend appraisal" for Alternative A, larger export availability is indicated with slow annual increases in domestic demand for meats and milk. This suggests that export markets may continue critical, especially in the next 5 years;

(b) limiting livestock numbers on the range, along with improved export oriented health controls, would substantially increase numbers available for off-take for the domestic market and export;

(c) improved off-take is possible even with restricted use of the range.

Table 5.1

Projected Livestock Production

Livestock ('000 HD)	Aug 1982 1/	1990 Projected	
		Alt. A	Alt. B
Cattle	4,468	4,630	4,430
Camel	6,015	6,590	6,200
Goat	18,000	20,000	18,470
Sheep	10,983	12,400	11,400
Output ('000 HD)			
Cattle	434	581	679
Camel	208	186	263
Goat	4,160	4,916	5,474
Sheep	2,849	3,440	3,693

1/ 3 year average.

B. Crop Production Strategy

Strategy

5.34 Crop production has a priority in Somalia's future agricultural growth strategy that greatly exceeds its present relative significance. While the value of livestock output is three times that of crops (SoSh. 600 million compared with over SoSh 2,000 millions for livestock), there are limits to the rate of future livestock growth (see above).

5.35 Crop production, by contrast, is poised on the brink of major future increases as a result of:

(a) the new incentives that are stimulating cereals production;

(b) the large on-going investments in irrigation rehabilitation on the Shebelli, and the projected new investment in the construction of the Bardhera dam, which will open up irrigation possibilities on the Juba; and

(c) the promising results of the semi-mechanized rainfed production pilot project.

5.36 Investments in the crop sector at $40-45 million in 1984 and 1985 were already two and one half times those in the livestock sector. In the PIP crop sector investments are expected to rise to $105 million in 1986 and $164 million by 1988 -- six times those in the livestock sector. Thus government and donors are committing between 40 and 50% of total Somali development investment to the crop production sector.

5.37 With such large resources/commitments there are three main objectives for crop production:

(a) import substitution primarily for cereals imports;

(b) increased and diversified crop exports; and

(c) ultimately the provision of additional feed supplies to sustain and enhance livestock exports and increase domestic supplies of meat, milk and eggs.

5.38 To achieve these objectives and make these investments worthwhile, a number of critical constraints must be overcome:

(a) the incentive structure for producers must be maintained;

(b) further improvements are needed in the marketing system to improve efficiency, stabilize prices, and reduce the margins between producer and consumer prices;

(c) the place of food aid as it relates to the above two issues must be rationalized;

(d) an efficient system of input supply must be developed; and

(e) the relationship between public sector enterprises in the agricultural sector and the emerging role of the private sector must be sorted out.

5.39 The above are more economic policy than crop production issues and are considered in Chapter IV.

5.40 Within the crop sub-sector itself there are five critical elements of a strategy:

(a) the urgent need for targeted, adaptive research to capitalize on improved incentives and raise yields, followed in the medium term by the development of a sound Somali research capacity;

(b) further improvement in the extension service which is underway and should incorporate adaptive research for the time being;

(c) development of water use and drainage management systems along with the rehabilitation of Shebelli irrigation project, which can be utilized on the Juba as the Bardhera Dam comes on stream;

(d) development of an equitable and efficient system of land tenure rights, land taxes and lease fees, and appropriate charges for major infrastructure works -- irrigation, drainage and land improvements (see Chapter IV);

(e) the ongoing trials in semi-mechanized long fallow rainfed farming should be continued and expanded as the validity and financial viability of these techniques becomes clear.

Production-Oriented Research

5.41 Although some progress in the research system has been attained since the reorganization and strengthening of CARS during 1982/83, major improvements are needed. In the near term high priority should be given to production-oriented research with short and medium-term prospects. The entire farming community has need for findings to guide them in the increased use of chemical inputs and water.

5.42 It is envisaged that two types of research should proceed concurrently:

(a) adaptive research, undertaken in the context of particular area projects (AFMET, CRDP, Bay Region, North West and major irrigation rehabilitation projects) would focus on solving immediate problems which are holding back production increases. A "system" approach should be introduced to identify those aspects of the production system where improvements would have greatest impact. Trials (in farmers' fields) which yielded "usable" results would be replicated and extended through the area, without waiting for full documentation of results. Profitability of the proposed innovation would be a prime criteria for deciding

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on their dissemination. Close linkages with the extension service (due to their participation in the same project) would ensure quick feedback from farmers on usefulness of proposals, and needs for further research/investigation. Aspects to be tested include:

(i) for agriculture: determination of optimal fertilizer dosages; selection/screening of potentially higher yielding or more drought resistant varieties; profitability and usefulness of different types of mechanization; determination of optimal pump size, water use parameters;

(ii) for rangelands: determination of range condition and trend; carrying capacity by type of livestock; range regenerative capacity by site; possible enclosure and control methods; famine reserve requirements; methods for productivity maintenance; or palatability enhancement of the range; methods for reducing the degradation effect of shifting cultivation practices.

(b) long term research, centered at CARS, should bring together the results of the adaptive efforts in various projects, and provide strong backup support for these efforts, as well as lead in the analysis of long term improvements in agricultural technology. The focus should be broadened to include range as well as crop production issues. Points to be focussed on with highest priority include:

(i) establishing a new overall structure for agricultural research including the Faculty of Agriculture, AFMET, CARS, NRA and other related institutions. This entity would coordinate research activities, and formulate national research programmes;

(ii) establishing a service unit for analyses of soil samples and plant materials, which would provide much needed support to project level research efforts;

(iii) strengthening of linkages with international research institutions, and testing and screening new technology available internationally, for use in Somalia;

(iv) introduction of annual research conferences for presentation and discussion of findings;

(v) concentrating long term trials at CARS and related institutes on screening of varieties from local and international sources, use of fertilizers and agro-chemicals and plant protection;

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(vi) concentrating short-term results-oriented research at AFMET for small farmer technology (mechanization, fertilizer use, etc.) and at NRA (or CRDP) for range oriented investigtion;

In order to achieve the above objectives, the following aspects should be considered:

(vii) establishing of a soil-plant-water laboratory to improve water management (trials on consumptive water use, salinity, drainage, water logging etc.);

(viii) upgrading of research facilities and research laboratories;

(ix) arranging for long-term manpower technical assistance from abroad;

These elements are included in Somalia's Agricultural Research Program (October 1984), but the scale and cost of the proposed program exceeds Somalia's need and financial capabilities at this stage of its development. A more modest undertaking should be supported.

Strengthening the Extension Service

5.43 The extension service has recently shown promising progress but needs further strengthening. There are a number of underutilized staff at the Regional and District level. The effectiveness of extension mainly depends on the transfer of suitable messages with an economic impact. These create the necessary basis of confidence and credibility which is still missing. These issues are being considered in the second phase of the Extension (AFMET) project.

5.44 Farming systems in Somalia are varied. Most farmers have kept animals probably before they grew crops. Yet crop production is usually treated as an independent enterprise without considering the associated livestock component. Having separate Ministries of Agriculture and Livestock is probably appropriate for the rangelands, but will be less useful as crop-livestock systems develop, particularly in the irrigated and interriverine and Bay Regions, and as the value of crop residues becomes more important.

5.45 Most Somali farmers are involved in a farming system rather than a cropping system. Traditionally their capital has been in animals and land was not considered as wealth. The vagaries of rainfall and its immediate effect on crops is softened by keeping animals. An unharvested crop which failed to produce a grain yield does not mean disaster if the farmer has livestock to consume that unharvested crop. While the close interaction of crops and animals will undoubtedly change as irrigation and crop specialization expand, this farming system will continue to apply to a large number of Somali farmers.

5.46 In the Shebelli Valley, settled, small holding, irrigated farmers keep up to three livestock units and do not move with their animals to the rangeland, but they graze nearby grass. Farmers do not

normally breed animals but prefer to purchase young females for subsequent milk and meat production. A survey in Shebelli and Juba indicated that cattle and goats were the preferred species but many farmers owned camels which were not kept on the farm.

5.47 The low crop yields in the Shebelli have been a limit to the animal population that can be supported. Even in a rural environment with most of the land planted to maize, which would have 2 or 3 times as much stover as grain, there is less than two months supply of roughage. A detailed survey of maize farmers in the Merca District of the Shebelli in 1983, by the Central Statistics Department of the Ministry of National Planning, and a subsequent AFMET survey with "Contact Farmers", demonstrated that even with substantially higher yields, farmer demand for crop residues exceeds supply.

Improvement of Irrigation, Drainage and Water Management

5.48 Rainfed crop production will continue to be the traditional farming system with low input levels. Major sources of surplus crop production will mainly depend on improved irrigated farming. But the benefits from inputs like improved seeds and fertilizers can only be achieved if poor irrigation practices and unorganized water management are eliminated. Water is a precious commodity for crop production in Somalia, but the quantity is limited and quality is variable for irrigation.

5.49 In order to improve irrigation and water management the following measures have to be undertaken:

(a) completion of the Water Master Plan for Shebelli and Juba rivers;

(b) registration of all irrigated farms within a rationalized cadastral system;

(c) allocation of legal water rights, and management of the water allocation system;

(d) regulations eventually leading to water charges;

(e) gradual transfer of the responsibility for networks of irrigation canals and costs of maintenance to the holders of water rights;

(f) incentives for the maintenance of irrigation and drainage systems;

(g) training of field extension agents in irrigation technology and water management; and

(h) assistance to promote joint initiatives of farmers to organize and establish adequate local water management structures.

5.50 Flood control on the Shebelli river will be possible with the completion of a the reservoir at Duduble, but water availability will still be limited by quantity and salinity during certain periods of the year. Drainage might contribute to higher salinity levels further downstream unless outfall drains to the ocean are constructed.

5.51 The maximum area of controlled irrigation on the Shebelli appears to be approximately 50,000 ha, if irrigation efficiency can be improved to 50%. Calculations have to be made to maximize production by the diversification of existing cropping patterns. High water consuming crops should be eliminated in favour of those that are more productive as far as water-consumption is concerned. Appropriate water charges would ensure that this is accomplished by farmer decisions. The sugarcane area at Jowhar Sugar Estate is a particular case in point. Whether the land should be replanted and the factory rehabilitated or other crops grown and the factory be closed should be carefully analyzed. Rice cultivation may be limited to small-scale farmers who can afford high manpower input.

5.52 Long Fallow Semi-Mechanized Rainfed Farming. This project, started in 1980, has introduced into Somalia techniques of arid zone farming which are successfully practiced in Australia and the USA. These involve rotational cultivation, maintaining a weedless fallow period of two or three seasons. Moisture is then used in combination with one of the rainy seasons, to achieve substantial increases in the yields of safflower, sunflower and maize. Land preparation is fully mechanized. Crop husbandry, weeding and harvesting are done by hand. It has shown that these techniques are applicable in Somalia and can give a good return on investment in a good season.

5.53 Conclusions from the pilot phase are not yet definitive because:

(a) there have been bad crop seasons, in which the returns were poor; it has to be established over a longer period that the good seasons outweigh the bad, on average; the model should probably be assessed at least over a five year period;

(b) one of the two farms will shortly reach full development, which would allow full utilization of the capacity of the machinery invested ;

(c) in several seasons there have been supply problems which have reduced the return even when rainfall has been favorable. A stronger, independent organization, with authority to import fuel, agro-chemicals and other requisites as needed by the farms, could ensure that these problems are eliminated;

(d) although an effective cost recovery system has been introduced, the impact of the additional costs arising from the purchase of foreign exchange, at the market rate, in order to import annual consumables and cover depreciation, still needs assessment;

(e) plant nutrient problems have emerged in some areas, and [illegible] thought possible if these are corrected.

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5.54 There is sufficient reason to believe that the experiment will prove successful enough for the existing farms to be maintained. And more farm managers have been trained than needed on these farms, providing a basis for extending the system.

5.55 Expanding the semi-mechanized system would spread the overheads of the central agency as well as enabling the effectiveness of the techniques to be assessed under different organizational arrangements. These might include, in addition to settlement projects, individual large scale farms. A pilot operation in an already settled area (Bay Region), where tractors are not advisable but the system of land preparation, planting and fallow maintenance could be done by small farmers with simpler tools may also be considered.

Future Growth Possibilities for Crop Production

5.56 Projections of the long-term demand and supply of food crops, and the potential growth in output for non-food crops, were undertaken to determine:

(a) production levels that could reasonably be attained over the next 5, 10 and 20 years;

(b) how far this would go towards satisfying the country's food requirements; and

(c) how different assumptions about yield development, rainfed vs irrigated crops development, and changes in consumption patterns (towards increased consumption of local products) would affect the overall pattern of production and the country's dependance on imports.

5.57 Objectives. The attainment of a reasonable degree of food self sufficiency and the reduction of food imports was an explicit objective because:

(a) Somalia is relying to an ever greater extent on imported foodstuffs to the detriment of its agricultural sector;

(b) it would be desirable if local tastes could return to a pattern which can be more fully satisfied from local resources, so as to generate domestic employment and conserve foreign exchange;

(c) there is a need to improve incentives for the production of food locally, since crop production will represent an increasingly important source of employment and economic activity;

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5.58 Results. Increases in output are projected to 1995, to reflect medium term prospects, where the development of the Shebelli valley, currently underway, and expansion of rainfed production will be the major sources of growth. Output is also projected to the year 2005, to reflect the early impact of the Baardhere Dam on the development of the Juba Valley, and the long term implications of the current population growth rate.

5.59 The results of these projections are summarized below and discussed in detail in Annex 9. From a base year of 1982 (around which a 5 year average is taken) the following developments are possible:

(a) agricultural output could grow at 4.0% per annum to 2005 based on an area increase of 2% per annum with the remainder coming from increases in yields. Growth in output during the first period, to 1995, is 5.4% per annum, decreasing to 2.3% per annum between 1995 and 2005;

(b) food grain output could grow somewhat faster, at 6.6% per annum and 2.2%/annum over the same periods, with the same rate of increase in area;

(c) total area under cultivation would increase from a 1982 level of 900,000 ha (with 55,000 ha under controlled irrigation and 150,000 ha under flood irrigation) to 1,226,000 ha in 1995 (84,000 ha under controlled and 70,000 ha under flood irrigation), to 1,400,000 ha in 2005 (with 130,000 ha under controlled and 30,000 ha under flood irrigation);

(d) yield increases for foodgrains in the early years are substantial, based on a shift of production methods from flood into much higher input/higher output controlled irrigation methods, as the Shebelli valley is rehabilitated;

(e) complete food selfsufficiency can not be reached, but foodgrain imports could be reduced from 50% of total grain use in 1982, to around 15% in 1995, and 2005.

The emphasis on grain production and food self-sufficiency should be treated as a preliminary objective, to make the best use of available irrigable land. In the longer term the identification of markets for high value irrigated crops, and the return to be made from their cultivation will determine the actual pattern of land use in irrigated areas. Substantial allowance has been made for such high value crops however, under the "bananas" allocation.

5.60 The assumptions which underlie these conclusions are summarized below and explained in Annex 9. Although the exercise permits various relationships and trends to be identified and discussed, the actual numerical values should be treated with caution, as the information on area, production and yield in the country is very weak.

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5.61 Sources of Growth in the Shebelli Valley. In the next five years, the main increase in agricultural output would be due to the regulation of the waters of the Shebelli. This is based on construction of the Duduble reservoir and increased use of the Jowhar reservoir, which would enable the virtual elimination of seasonal floods and the assurance of reasonable year round water availability. Rehabilitation would permit improved cultivation techniques and yields could increase rapidly. Creation of a Valley Development Authority of some kind working with farmer organized and managed water management units, is essential to coordinate water use and enhance effective use of land. It appears that the availability of water in the Shebelli will permit intensive controlled irrigation on a maximum of 60,000 ha. This assumption can be verified as the rehabilitation and introduction of a water management system takes place.

5.62 As a result of increased water regulation and control, the 100,000 ha of maize and sesame under "flood irrigation" is sharply reduced on the Shebelli, although it continues at current levels for another 10 years on the Juba. The area under maize decreases, but is made up for by an increased maize yield to about 4 tons/ha by 1995. Although high, yields of this level are necessary to justify expensive irrigation rehabilitation, and reinforce the urgent need for research.

5.63 Within the Shebelli Valley, priority is given to the expansion of the area under rice, and less so, bananas. Sugar remains the same, and the remainder goes into maize. As a result, the final cropping pattern is 1995, could be:

Table 5.2

Cropping Pattern in Shebelli Valley
(ha)

Crop	1984	1995
Banana (or export crop) 1/	4,500	8,000
Sugar	3,000	3,000
Rice	2,000	15,000
Other (citrus)	1,000	1,000
Maize (controlled	29,000	35,000
Subtotal (controlled)	40,000	62,000
Maize (flood)	100,000	20,000
Total	140,000	82,000

1/ Represents alternate export crops: citrus, vegetables.

5.64 Juba Valley Development. The increase in the area under controlled irrigation made possible by the construction of the Bardhere dam is the most important source of growth in agricultural output after 1995. The effect on the utilization of the Juba Valley is similar to that on the Shebelli. The areas under flood irrigation (estimated at 50,000 ha of maize) would give way to a smaller, more productive area under controlled irrigation. The area under controlled irrigation could expand considerably, as could the total area irrigated. The emphasis again is on the production of maize, to substitute for grain imports.

5.65 With the inclusion of areas irrigated from the Baardhere Dam, rice output increases significantly. By increasing the area under rice to 15,000 ha in the Juba, the total area under cultivation goes up to 30,000 ha, which at 2.6 tons of milled rice per ha goes a long way towards satisfying the country's rice consumption requirements. Area under bananas (or other irrigated export crops) is also expanded to reach a combined total area of 10,000 ha in 1995, more than has ever been cultivated before, and more than enough to satisfy reasonable expectations of Somalia's share of the European and Middle East markets, which it is estimated can absorb up to 150,000 tons of bananas by 1995. Further increases in the area under bananas after 1995 represents production of additional export crops, identified as market potential and production possibilities are investigated.

Table 5.3

Cropping Pattern in Juba Valley
(ha)

Crop	1984	2005
Bananas (or export crop)	1,000	5,000
Sugar	6,800	10,000
Rice	2,500	15,000
Other	1,000	1,000
Maize (controlled)	3,000	35,000
Subtotal (controlled)	14,000	66,000
Maize (flood)	50,000	20,000
Total	64,300	86,000

5.66 Rainfed Agriculture. The principal crop is sorghum (450,000 ha in 1984) with rainfed maize second (estimated at 170,000 ha in 1984). Area under sorghum is expected to grow slowly (1%/annum) with gradual increases in yields as new varieties are imported, and improved cultivation techniques come available. Rainfed maize expands considerably however, with the introduction of semi-mechanized

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cultivation and fallowing techniques. This also causes the average yield on this crop to rise to 0.7 tons/ha over 10 years. The other rainfed crops, beans and sesame, whose area has expanded extremely rapidly at 6%/annum over the past years, have the rate of growth in area decrease gradually, with only marginal increases in yields occurring over the 20 year period.

5.67 Two of the most important crops to be considered in the expansion of grain production are rice and maize.

5.68 Rice Production. Rice production in the Juba and Shebelli Valleys at first appears a questionable enterprise because of high consumption of water and high labour demand. Between one and five thousand hectares of rice are planted annually and yields are about two tons of rice (paddy) per ha. These yields are not outstanding but they are sufficient to be encouraging. Somalia imports between 75-90,000 tons of rice annually, so there is a sufficient domestic market to absorb up to a ten fold increase in production.

5.69 The comparative costs of production between rice and maize are higher for rice primarily because of weeding costs. But the profit margin of rice is perhaps higher because paddy is locally valued at about 20 SoSh/kg and shelled maize at 18 SoSh/kg. By world market standards the price of rice should be even greater and with a realistic rice program in Somalia it will be.

5.70 In the medium term, rice production could be increased to 10,000 to 15,000 ha. Initially upland, direct seeded rice would be used, but the opportunity to grow two crops of transplanted rice is an option that can not be ignored for small holders in a larger cooperative rice scheme. Rice research should be increased and the Central Agricultural Research Institute needs to train three or four researchers/extension workers at the International Rice Research Institute's Rice Production Training Course. Long grain indica rice varieties that have early maturity should be screened for adoption in Somalia. Rice is a particularly good soil reclamation crop, which will be an important consideration in irrigation rehabilitation and new irrigation projects.

5.71 Maize Production. Between 1980 and 1984 the area planted with maize tripled and maize production has almost increased as much. Local production is expected to be about 280,000 tons in 1985. Domestic per capita consumption of maize has also increased, as part of the shift away from the traditional sorghum.

5.72 Maize has become a crop of choice by farmers in the small holder irrigated sector and the rainfed sector serviced by the Semi-Mechanized Pilot Project. The price of maize, the yield potential, and its protection from bird damage has made maize a very attractive alternative to sorghum. The Afgoi composite maize seed is perhaps one of the first and most successful products of the crop improvement selection program at the Central Research Station. The improved seed is moving farmer to farmer in a rather unstructured informal way. Regretfully rice and sorghum have not had similar varietal successes.

5.73 Maize seed is only one input in the package of improved practices. Fertilizer, insecticides, herbicides, plant populations, frequency of irrigation and post-harvest technology are also components that need to be included in order to have yields of three to five tons per hactre. The present yield of 800 kg per ha is only a fraction of the yield potential. With good crop husbandry the yields of irrigated maize should be three times the present average yield within six to seven years.

5.74 Land Use. The relative significance of irrigation and rainfed land in the present and future land uses is suggested in Table 5.4. The area, yield and production results by major crops are suggested in Table 5.5.

5.75 The most critical factor behind these growth rates is the rate at which the rehabilitated, fully controlled irrigated areas come into production, and the yield levels which are obtained from them. For these yield levels to be obtained, water has to be available at the appropriate time, as do inputs (fertilizer, pesticides, tractor services, etc) and improved seed. And farmgate prices have to be maintained at levels which make the use of a fairly high level of cash inputs profitable.

Demand for Grain

5.76. Domestic demand for grain was also estimated, to be able to judge the possibilities for satisfying demand from local sources and reduce the demand on scarce foreign exchange. Imports of grain have grown very rapidly since the late 1970's (17%/annum between 1977 and 1982), and totalled 360,000 tons in 1984. Of this, 43% was wheat (which is not produced in the country in significant quantities), and 29% was maize, which is one of the country's main agricultural outputs. Grain imports in recent years have been driven by stagnant production until 1980 and afterward by drought, refugee needs and because food aid is a source of financial support to Government. Food aid to refugees appears to be excessive, with the extra grain entering the domestic market. As a result, over the past few years Somalia has had more grain at its disposal than ever before. Grain prices have decreased relative to other food and grain consumption has increased: from 84 kg/capita in 1977, to 108 kg/capita in 1982, and to 126 kg/capita in 1984. Consumption of livestock products has declined over the same period, from 75 kg/capita in 1977 to 62 in 1982, to 58 in 1984, a surprising fact in a livestock dominated economy. There has been a shift in the consumption of grain, out of maize and sorghum and into rice and wheat and flour products. The Mogadishu household survey, run in 1977 and again 1984, shows rice wheat and maize consumption rising sharply relative to sorghum.

5.77 In projecting cereal consumption the following assumptions were made:

(a) policies would be in place to tax rice and wheat flour imports sufficiently to raise their local market prices relative to sorghum and maize to ratios comparable to those which prevail on the international market: a ratio of rice to sorghum prices of 2:1 (up from the current 1.4 in 1984), and a ratio of flour to sorghum prices of 1.8 (up from the 1.3 prevailing currently in the Mogadishu market).

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Table 5.4

Rainfed And Irrigated Area ('000 ha), 1984 actual, 2005 possible

	1984	%	2005	%
Total Area	980	100	1,404	100
Rainfed	780	79	1,240	89
Irrigated	200	21	160	11
Controlled	20	2	130	9
Semi-controlled	30	4	-	-
Flood	150	15	30	2

Area under cultivation grows at 2%/annum over the 1982-2005 period.

Table 5.5

Land use, Production and Growth 1982 to 2005

Crop			1982	2005	Growth %/Annum
Grain	Area	'000 ha	730	1,130	1.9%
	Yield	t/ha	.52	.96	2.7%
	Output	'000 t	380	1,090	4.7%
Oilseed	Area	'000 ha	100	150	1.8%
	Yield	t/ha	.57	.60	0.2%
	Output	'000 ha	57	90	2.0%
Bananas	Area	'000 ha	3.7	15	6.4%
	Yield	t/ha	21.2	23.3	0.4%
	Output		79	350	2.0%
Total	Area	'000 ha	900	1,400	2.0%
	Output	'000 t	800	2,000	4.0%

(b) The average price for cereals would be allowed to rise (by limiting imports) to levels compatible with international grain prices.

5.78 The effect of these policies would be to produce a partial shift in cereal consumption back to maize and sorghum and away from wheat (flour) and rice. In addition, average consumption of cereals per capita would return to the 110 kg/capita level which prevailed in 1982, which is believed to be adequate and sustainable. An increase in the consumption of locally produced livestock products would offset the decrease in cereals.

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5.79 The outcome of these policies on the pattern of consumption is shown in Table 5.6.

Table 5.6

Per Capita Consumption (Kg/capita)

Item	1975-79 Average	1980-84 Average	1984	%	2005	%
Livestock/Fish	75	62	58			
Grain	84	108	126	100%	10	100%
Maize	28	40	54	43%	52	48%
Sorghum	28	29	33	26%	36	33%
Wheat	18	23	24	19%	12	11%
Rice	11	15	14	12%	10	9%

Supply and Demand Balance

5.80 Juxtaposing the food grain requirements derived from the above population and per capita consumption projections and the production possibilities developed previously, grain import requirements were derived for the next 20 years. The most important results are summarized below:

Table 5.7

Food Grain Production, Use and Imports
('000 t)

Item	1977 1/	1982 1/	1995	2005
Grain Production	255	380	880	1,090
Grain Use	400	700	970	1,300
Grain Imports	160	345	120	210
Imports as % of Use	39%	49%	13%	16%

1/ Five year averages around these years.

Conclusions

5.81 The above projections can only be illustrative. Specific patterns of crop production -- types of crops, levels of yields, etc. -- will vary with changing circumstances. But they do demonstrate that it

would be possible to substantially reduce the level of food imports, and improve the consumption standards of the population, by 1995. After 1995 continued growth in agricultural output will have to keep pace with population growth if this low level of imports is to be maintained. The absolute level of grain imports, after declining sharply from the extremely high present levels, would however continue at the level of 120-150 thousand tons rising gradually over time. But these imports would remain a small fraction of total supply.

5.82 The process would be one of gradual substitution for imported food. Programmed levels of food imports and food aid should gradually be curtailed in order to permit this process to occur. Continued importation of high volumes of wheat flour and rice will undercut this undertaking. Shifting aid resources out of food and into financial or other types of assistance would permit improved investments in productive elements of agriculture.

C. Fisheries Strategy

5.83 Fisheries has suffered, over the past twenty years, from over capitalization in both shore facilities and ships. The time appears to have come to wind up unviable enterprises and to develop a new strategy based on:

(a) Assistance to artisanal fisheries in coastal communities largely concerned with improving communication supported by viable, relatively small, local private processing facilities and private transport links;

(b) selective fish resource assessments may be needed, but emphasis in the domestic system should be placed on linking fishermen with the local demand for fish;

(c) future possibilities to exploit the offshore potential for export linked to artisanal fishing are being studied under existing projects, and further development in this area should build on the results of these projects.

Background

5.84 Somalia has over 3,300 km of coastline and an estimated potential fisheries yield of around 180,000 tons a year. Due to the extreme remoteness of scattered fishing communities and poor road communications less than 1% of this estimated resource is exploited.

5.85 Before 1960, only the small coastal communities were engaged in fishing for local subsistence or trade with neighbouring countries, mainly in the form of dried, salted fish. After 1964 the Government endeavoured to increase the fish catch by providing large central preservation and storage facilities, such as the Laskoreh Canning Factory and Bolimog Cold Store. Both had a capacity much in excess of likely supplies, consistently made financial losses, and are no longer in production.

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5.86 In 1974, Government attempted to exploit the offshore fisheries in association with the Soviet Union, with a fleet of ten freezer trawlers, which operated well below economic catch rates. Subsequently the Government acquired 14 boats, but non were appropriate to the sea and fishing conditions of Somalia, and most are now out of use.

5.87 There has thus been a strong emphasis on capital intensive projects involving high investment in plant and vessels, with insufficient consideration given to marketing systems, pricing structures, catches of sufficient size and technical and managerial capabilities to ensure the expected benefit from the investments.

5.88 The basis for fisheries development in the foreseeable future should focus on artisanal fisheries, reinforcing those aspects neglected in the past. The possibilities for offshore development should be considered when the results of existing projects are available and justify establishment of viable ventures.

Implications for the Major Sectoral Problems

5.89 The subsector provides under 2% of GDP and 1% of exports. Exports are unlikely to increase in the near or mid-term, and the sector should concentrate on minimizing any foreign exchange expenditure which will not clearly result in future foreign exchange earnings.

5.90 Overseas market intelligence could pay dividends in the future, since both quantity and quality of fish products will be needed if export markets are to be found and retained for off-shore ventures.

Financial Viability of Subsectoral Activities

5.91 Development efforts in the fisheries sector over the last 10 to 15 years have been characterized by a strong emphasis on modernization, with the expectation that introduction of more advanced technologies would in themselves result in an increase in fish supplies to domestic and export markets. A review of past projects suggests that most have been heavily capitalized without a realistic consideration of financial benefits. In most cases anticipated increase in catch rates, utilization of vessels and throughput of shore plant have not been realized. This resulted either from price policy constraints, lack of community market outlets, or incorrect assumptions regarding the resource. Lack of fishermen's incentives coupled with an inability to adopt, operate and maintain vessels of more advanced design (in the artisanal and offshore sectors) also contributed. There has been a shortage of trained people at all levels and projects have suffered from unacceptably high management and administrative costs. As elsewhere emphasis was placed on public management and control, which limited private development.

5.92 High capital and operating costs in themselves would have been acceptable, had the overall objectives of increasing supplies to the domestic and export market been achieved, coupled with improved job opportunities and earnings. Unfortunately they have not. As a result Government has been left with a debt repayment burden of unacceptable size without commensurate benefits.

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5.93 The future development strategy should stress a more critical commercial approach to projects. Costs and benefits, including community benefits, should be carefully assessed. Private efforts should be encouraged and the willingness of fishermen to participate should be assured.

5.94 In the meantime, nearly all the Ministry of Fisheries enterprises and ships are making a loss, which is a continuing drain on recurrent funds. Many need to be closed or disposed of, but the Ministry may require technical assistance to decide how this should be done, case by case. Each case can then be decided on its merits.

Development of the Private Sector

5.95 Private sector undertakings are now encouraged by the MFNR. Priority is to be given to developing the artisanal fisheries, based on the coastal communities, and stimulated by the establishment of local markets offering competitive prices to fishermen and provision of viable collection and marketing services. To the extent government is involved, it would provide supplies, spare parts and maintenance services at commercial prices, and offer training, lines of credit and support designed to make the communities self-sufficient.

5.96 As a result of past experience, future strategy should emphasize the gradual introduction of improved boat design and fishing gear in harmony with the ability, both financial and technical, of the users.

5.97 In the offshore sector, the aim is to provide resource and catch data essential to the preparation of a sound investment prospects for offshore fishing ventures. Until such data are available, efforts to safeguard Somalia's fish resources until Somalia can benefit from their exploitation are needed.

ANNEX
Table 1

SOMALIA

AGRICULTURAL SECTOR SURVEY

Balance of Payments

	1979	1980	1981	1982	1983	1984 (Prelim. Actual)
	(Million US $)					
Merchandise Exports (f.o.b.)	106	133	114	137	100	58
Merchandise Imports (c.i.f.) 1/	-394	-461	-422	-484	-450	-408
Trade Balance	-288	-328	-308	-347	-350	-350
Non-sector services and factor income, net	-12	-8	-1	9	4	-43
Private transfers, net	36	57	64	11	19	62
Current Account Balance	-264	-279	-245	-327	-327	-331
Direct Investment	-	-	-	-	-	-
Official Grant Aid	58	143	150	157	148	177
Private, net	4	4	-	-	-	-
Official, net	84	87	79	123	100	46
Use of IMF Credit	-	4	30	34	44	-4
Errors and Omissions	19	21	3	3	-14	10
Overall Balance	-99	-24	17	-10	-49	-102
Memo Items:						
Gross Official Reserves (in weeks of cash imports)	-	-	10.7	3.7	4.4	1.9
MLT debt outstanding	597	714	972	1,078	1,149	1,400
Debt service ratio 2/	2	8	14	12	17	50
Arrears in debt service	8	28	60	m/a	30	95

1/ Import data for 1979-81 and 1984 include Franco Valuta imports.

2/ Based on actual payments which are lower than obligations. Total obligations excluding arrears) would raise the ratio to around 50 percent in 1982 and 1983.

SOURCE: International Monetary Fund.

ANNEX
Table 2

SOMALIA

AGRICULTURAL SECTOR SURVEY

Central Government Budget Operations
(in millions of shillings)

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
Total revenue	636.0	716.0	890.0	1,419.6	1,526.0	1,421.4	2,347.3	2,629.0	3,733.0	3,576.0
Tax	494.0	529.0	648.0	1,154.2	1,314.3	1,192.6	2,068.6	2,275.8	3,385.0	2,972.0
Non-tax	142.0	187.0	242.0	265.4	211.2	228.8	278.7	353.2	348.0	604.0
Total expenditures	600.4	672.9	801.8	1,361.4	1,573.1	1,684.4	2,795.2	4,276.0	5,198.0	6,662.8
General services	357.1	380.6	463.4	978.0	1,140.8	1,187.6	2,232.6	3,598.7	4,287.0	5,676.0
(of which debt service)			(23.3)	(29.9)	(26.2)	(101.2)	(276.4)	(295.8)	(427.8)	(181.3)
Economic services	115.2	131.9	139.8	149.6	174.6	208.4	203.2	250.8	385.0	410.7
Social services	128.1	160.4	198.6	233.8	257.7	288.4	359.4	426.5	516.0	576.1
Ordinary budget balance	35.6	43.1	88.2	58.2	-47.1	-263.0	-447.9	-1,547.0	1,455.0	-3,086.8
Development expeditures (PIP)	527.0	692.0	1,061.4	1,670.0	1,189.0	1,185.0	1,462.0	1,693.0	3,040.1	3,454.4
Domestic component	113.3	165.4	211.4	186.9	224.2	162.0	285.8	347.4	498.0	661.5
Foreign component	413.7	526.6	850.0	1,483.1	964.8	1,023.0	1,176.2	1,345.6	2,542.1	2,792.9
Overall budget deficit	-491.4	-648.9	-973.2	-1,611.8	-1,236.1	-1,448.0	-1,909.9	-3,340.0	-4,495.1	-6,541.2
Financing	491.4	648.9	972.8	1,611.8	1,141.9	1,448.0	1,909.9	3,340.0	4,496.1	6,541.2
Grants	631.0	250.0	666.0	175.0	365.6	8[illegible]7.8	800.0	1,751.7	2,339.3	3,885.2
Loans	396.0	358.2	577.9	528.6	546.6	5[illegible]2.0	625.0	1,716.0	1,561.3	2,322.3
Banking system	26.0	355.0	-222.2	408.9	920.3	671.0	347.2	-150.0	-295.0	2,573.0
Residual	561.6	-314.3	-48.9	499.3	-690.6	-732.8	137.7	22.3	890.5	-2,239.3

Source: National Development Strategy and Programme, Ministry of National Planning, Mogadishu. September 1985.

SOMALIA

AGRICULTURAL SECTOR SURVEY

Central Government Ordinary Budget Expenditures, 1972-1984
(in millions of shillings)

	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
Debt Service	12.4	30.5	22.3	24.5	18.2	23.3	29.9	26.1	50.9	276.4	295.8	435.8	181.3
Principal	7.6	25.1	15.2	16.5	12.7	15.7	21.8	19.9	14.2	188.9	210.2	335.3	57.1
Interest	4.8	5.4	7.1	8.0	5.5	7.6	8.1	6.2	36.7	87.5	85.6	100.5	124.2
General Services	240.2	255.2	315.9	332.6	352.4	440.1	948.2	1,114.9	1,136.7	1,922.8	3,303.7	3,818.1	5,435.7
Defence	92.0	101.0	135.0	145.2	165.4	199.7	512.5	552.5	588.4	823.6	845.7	1,323.8	1,830.8
Inter, police, gov rur dev.	49.2	48.4	54.3	57.2	60.7	69.3	127.8	110.7	115.3	163.8	149.6	204.5	233.3
Finance and central services	59.0	60.3	67.6	62.0	61.9	78.6	183.7	316.5	292.6	738.8	2,023.3	1,918.3	2,915.5
Foreign affairs	13.1	16.9	22.6	23.3	27.6	40.3	45.3	561.9	53.1	59.6	136.6	178	223.3
Justice & religious affairs	13.4	13.8	18.4	25.0	26.7	30.6	44.0	45.3	52.4	91.6	81.6	100.3	125.3
Presidency & gen administr.	12.6	13.9	17.0	19.9	20.1	21.6	32.0	34.3	31.1	34.7	38.9	26.9	35.1
Planning	0.9	0.9	1.0	-	-	-	2.9	3.7	3.8	3.7	6.9	5.6	7.1
Natl. assembly/youth/party	-	-	-	-	-	-	-	-	-	7.0	21.1	60.7	65.3
Economic Services	48.2	67.4	99.4	115.2	131.9	139.9	149.5	170.8	208.4	235.1	250.3	387.5	452.8
Transport & communication	18.5	21.5	35.0	42.1	45.2	57.3	64.8	70.8	67.6	85.5	100.0	117.3	136.7
Public works	12.2	24.1	19.2	17.6	20.0	24.2	22.8	21.0	23.0	26.1	26.0	26.3	52.6
Agriculture	4.5	6.0	21.7	24.6	29.5	24.4	26.9	27.2	27.9	31.1	52.3	96.5	101.7
Livestock & forestry	3.3	7.6	12.0	15.8	17.0	19.9	19.8	22.2	24.6	32.3	35.3	55.1	59.7
Mineral & water resources	8.0	6.0	6.0	9.6	9.2	6.6	7.9	16.8	32.7	17.2	23.6	49.6	53.7
Industry & commerce	1.7	2.2	3.2	3.3	7.0	4.1	4.3	6.4	4.0	5.6	6.4	8.7	11.2
Fisheries	-	-	2.3	2.2	4.0	3.4	3.0	6.1	6.9	3.9	5.0	30.0	32.8
Tourism	-	-	-	-	-	-	-	-	21.7	33.4	1.7	4.0	4.4
Social Services	51.9	65.6	93.6	128.1	160.4	199.7	233.8	261.3	288.4	360.8	426.2	547.6	593.0
Education	19.9	28.9	45.8	70.3	96.8	120.9	145.6	167.2	181.1	224.9	254.3	344.1	357.7
Health	24.5	27.9	35.3	41.3	45.6	57.8	63.8	62.2	74.5	98.4	109.9	129.8	149.8
Information	6.5	7.7	10.0	12.7	14.3	16.1	17.3	20.2	20.0	25.9	40.8	48.2	51.4
Labor, sports	1.0	1.1	2.5	3.8	3.7	3.9	6.1	11.7	12.8	11.7	21.2	25.5	34.1
TOTAL	352.7	418.7	531.2	600.4	672.9	802.0	1,361.4	1,573.1	1,684.4	2,795.1	4,276.0	5,189.0	6,662.8
Per cent of Total													
Debt service	3.5	7.3	4.2	4.1	2.7	2.9	2.2	1.7	3.0	9.9	6.9	8.4	2.7
General services	68.1	61.0	59.5	55.4	53.9	54.9	69.6	70.9	67.5	68.8	77.3	73.6	81.6
Economic services	13.7	16.1	18.7	19.2	19.6	17.4	11.0	10.9	12.4	8.4	5.9	7.5	6.8
Social services	14.7	15.7	17.6	21.3	23.8	24.8	17.2	16.6	17.1	12.9	10.0	10.6	8.9
Per cent of Total Excl. debt serv.													
General services	70.6	65.7	62.1	57.8	55.4	56.5	71.2	72.1	69.6	76.3	83.0	80.3	83.9
Economic services	14.2	17.4	19.5	20.0	20.1	18.0	11.2	11.0	12.8	9.3	6.3	8.2	7.0
Social services	15.3	16.9	18.4	22.2	24.5	25.5	17.6	16.9	17.7	14.3	10.7	11.5	9.1

ANNEX
Table 3

Source: National Development Strategy and Programme,
Ministry of National Planning, Mogadishu, September 1985

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SOMALIA

AGRICULTURAL SECTOR SURVEY

Gross Domestic Product By Industrial Origin, 1970-1984

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	Index of Value of Output 1982-84 1970-72	Annual growth rate 1982-84/ 1970-72 %/year
	Million So. Shillings at 1977 prices																
Livestock	1,832	1,791	1,808	1,197	1,183	1,830	1,898	2,007	2,156	1,590	1,813	2,192	2,354	1,403	1,996		
Crop Production	674	614	652	502	427	493	528	553	573	579	580	590	656	595	578		
Forestry	208	213	306	302	270	244	235	253	261	266	269	280	279	283	283		
Fisheries	10	11	9	11	14	24	23	21	17	17	25	28	25	32	42		
	2,724	2,629	2,775	2,012	1,894	2,591	2,684	2,834	3,007	2,459	2,687	3,090	3,314	2,313	2,899		
	INDEX (1970-72 = 100)																
Total Agriculture	101	97	102	74	70	96	99	105	111	91	99	114	122	85	107	105	0.4
Livestock	101	99	100	66	65	101	105	111	119	88	100	121	130	78	110	106	0.5
Crop Production	104	95	101	78	66	76	82	85	89	89	90	91	101	92	89	94	-0.3
Forestry	86	88	126	125	112	101	97	105	108	110	111	116	115	117	117	116	1.2
Fisheries	100	110	90	110	140	240	230	210	170	170	250	280	250	320	420	330	10.5

SOURCE: National Development Strategy and Performance, MNP.
Government of Somalia, September 1985 (INDEX calculated).

Table 4

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ANNEX
Table 5

SOMALIA

AGRICULTURAL SECTOR SURVEY

Production of Food and Non Food Crops 1970-1985

Year	ALL FOOD CROPS: Grain & Oilseeds	Sugar, Veg. and Fruits	Total	Non Food	Total Output	Output Index (1970=100)
	1,000 metric tons					
1970	342.2	376.6	719.2	1.3	720.5	100
1971	278.6	375.7	654.3	1.0	655.3	91
1972	323.4	377.3	700.7	1.2	701.9	97
1973	279.3	390.2	669.5	1.1	670.6	93
1974	274.2	379.2	653.4	1.0	654.4	91
1975	294.3	333.4	627.7	1.1	628.8	87
1976	305.7	333.2	638.9	1.2	640.1	89
1977	319.0	320.1	639.1	1.2	640.3	89
1978	313.1	327.8	640.9	1.2	642.1	89
1979	312.3	312.0	624.3	1.5	625.8	87
1980	315.9	316.8	637.2	1.5	634.2	88
1981	449.3	338.0	787.3	1.1	788.4	109
1982	478.1	349.4	827.5	1.8	829.3	115
1983	444.8	364.0	808.8	1.5	810.3	112
1984	563.7	394.4	958.1	1.5	959.6	133
1985E	634.0	398.9	1,032.9	1.5	1,034.4	144

SOURCE: Agricultural Sector Task Forces (based on data from respective ministries) Mogadishu, September 1985.

E = Estimate

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Table 6

SOMALIA

AGRICULTURAL SECTOR SURVEY

Area of Grains, Beans and Oilseeds 1970-1985

Year	Grains: Sorghum	Grains: Maize	Grains: Rice, Milled	Grains: Wheat	Grains: All Grain	Beans	Oilseeds: Sesame Seed	Oilseeds: Ground Nuts	Oilseeds: Cotton Seed	Oilseeds: Oil Seeds	Total Grains & Oilseeds
	1000 Hectares										
1970	290.0	133.0	1.3	0.9	425.2	21.9	73.0	3.3	12.0	88.3	535.4
1971	280.0	102.0	1.4	0.6	384.0	17.8	44.0	2.6	15.0	61.6	463.4
			2	0.8	509.0	20.8	57.0	3.3	9.0	69.3	599.1
			2	3.5	450.7	17.9	77.0	2.9	5.0	84.9	553.5
			4	3.5	433.9	17.6	84.0	2.0	4.0	90.8	542.3
									.0	72.3	602.2
1976	490.0	119.0	1.8	3.5	19.7	45.0	3.2	12.0	68.2	584.2	
1977	458.3	150.6	4.4	3.5	616.8	19.8	75.0	2.5	12.0	89.5	725.1
1978	420.1	148.7	9.0	3.5	581.3	21.8	75.0	1.0	28.9	632.0	
1979	460.8	147.5	4.8	3.5	616.6	15.6	80.0	2.4	12.0	94.4	727.6
1980	456.8	109.0	5.9	3.5	575.2	18.5	83.0	2.5	12.0	97.5	691.2
1981	517.0	157.0	5.7	3.5	723.2	25.9	90.0	2.6	12.0	104.6	948.7
1982	540.0	209.0	6.0	3.5	758.5	27.0	90.0	3.0	12.0	[illegible]	833.5
1983	475.0	300.0	1.0	3.6	779.6	27.0	91.0	3.0	12.0	106.0	912.6
1984	445.0	350.0	1.3	3.6	799.9	27.0	92.0	3.0	12.0	107.0	933.9
1985E	520.0	350.0	5.0	3.6	878.6	27.0	92.0	3.2	12.0	107.2	1012.8

SOURCE: Agricultural Sector Survey

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ANNEX
Table 7

SOMALIA

AGRICULTURAL SECTOR SURVEY

Crop Yields for Major Crops 1970-1985

Years	Grains	Beans	Oilseeds	Roots	Veg. Fresh	Sugar	Bananas	Citrus	Fruit, Fresh	All Food Crops
	(Kilograms per Hectare)									
1970	665	500	552	10,769	5,760	13,514	29,694	7,720	6,118	1,260
1971	599	498	645	10,741	5,200	13,057	26,596	7,727	6,127	1,310
1972	524	497	665	10,741	5,440	12,906	21,239	7,711	6,136	1,100
1973	512	493	10,738	5,318	12,333	23,704	7,707	6,236	1,133	
1974	522	498	429	10,712	5,00	10,613	23,507	7,740	6,369	1,127
1975	475	499	580	10,685	5,312	9,250	17,097	7,721	6,444	981
1976	411	496	784	10,993	5,468	8,805	18,226	7,721	6,448	873
1977	427	544	510	11,325	5,604	11,472	13,788	7,692	6,595	838
1978	444	468	504	10,990	7,361	9,314	17,118	7,703	6,526	880
1979	419	494	408	10,958	7,162	8,700	15,146	7,699	6,667	813
1980	456	503	452	10,926	6,974	6,045	22,231	7,686	6,737	863
1981	522	486	564	10,896	6,429	5,793	23,793	7,692	6,789	860
1982	527	556	605	10,867	6,512	5,977	25,714	7,690	6,837	885
1983	460	770	619	10,840	6,502	5,103	18,085	6,969	845	
1984	619	556	499	10,815	6,522	5,327	19,273	7,631	6,900	977
1985E	628	556	634	10,811	6,522	5,306	20,000	7,638	6,900	958

SOURCE: Agricultural Sector Survey

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SOMALIA

AGRICULTURAL SECTOR SURVEY

Production of Grains, Beans and Oilseeds 1970-1985

Year	Grains: Sorghum	Grains: Maize	Grains: Rice, Milled	Grains: Wheat	Grains: All Grain	Beans	Oilseeds: Sesame Seed	Oilseeds: Ground Nuts	Oilseeds: Cotton Seed	Oilseeds: Oil Seeds	Total Grains & Oilseeds
	(1000 Metric Tons)										
1970	158.1	122.1	2.0	0.7	282.9	10.9	43.4	3.0	2.3	48.8	342.6
1971	128.7	99.4	1.6	0.3	230.0	8.9	35.3	2.5	1.9	39.7	278.6
1972	149.1	114.9	2.3	0.6	266.9	10.3	41.0	2.9	2.		4
1973	128.4	98.9	2.3	1.0	230.6	8.9	35.4	2.5	1.9	39.8	279.3
1974	125.7	96.8	2.7	1.2	226.4	8.8	34.7	2.4	1.9	39.0	274.2
1975	134.7	103.8	3.3	1.2	243.0	9.4	37.3	2.6	2.0	41.9	294.3
1976	139.9	107.6	3.6	1.2	252.3	9.3	38.3	2.7	2.1	43.6	305.7
1977	145.1	111.3	5.6	1.2	263.2	10.2	40.6	2			.1
1979	140.0	108.2	8.7	1.2	258.1	8.2	40.5	2.8	2.7	46.1	312.3
1980	140.0	110.0	11.3	1.2	262.5	9.3	38.4	3.0	2.7	44	
1981	222.0	142.0	12.7	1.0	377.7	12.6	53.0	4.0	2.0	59.0	449.
1982	235.0	150.0	13.3	1.2	399.5	15.0	57.0	3.2	3.3	63.5	478 .1
1983	120.0	235.0	2.0	1.3	358.3	20.8	60.0	3.0	2.7	65.7	444.8
1984	221.2	270.0	2.8	1.0	495.3	15.0	46.0	4.7	2.7	53.4	563
1985E	260.0	280.0	10.0	1.3	551.3	15.0	60.0	5.0	2		

SOURCE: Agricultural Sector Task Forces

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ANNEX
Table 9

SOMALIA

AGRICULTURAL SECTOR SURVEY

Bananas and Sugarcane: Area Yield and Production 1970-1985

	Bananas				Sugarcane			
	Area				Area			
Year	Planted 1000 Ha	Harvested 1000 Ha	Yield Kg.	Output 1000 Tons	Planted 1000 Ha	Harvested 1000 Ha	Yield Kg.	Output 1000 Tons
1970	6.5	4.9	29,694	145.5	5.5	3.7	13,514	50.0
1971	7.6	5.7	26,456	150.8	5.5	3.5	13,057	45.7
1972	7.5	7.1	21,239	150.8	5.0	3.2	12,906	41.3
1973	9.5	7.1	23,704	168.3	5.0	3.0	12,333	37.0
1974	8.9	6.7	23,507	157.5	6.5	3.1	10,613	32.9
1975	8.3	6.2	17,097	106.0	7.0	3.6	9,250	33.3
1976	7.4	5.3	18,226	96.6	6.6	4.1	8,805	36.1
1977	7.1	5.2	13,788	71.7	6.9	3.6	11,472	41.3
1978	6.8	5.1	17,118	87.3	6.9	3.5	9,314	32.6
1979	6.0	4.8	15,146	72.7	6.7	3.0	8,700	26.1
1980	4.6	2.6	23,231	60.4	8.1	6.6	6,045	39.9
1981	3.6	2.9	23,793	69.0	10.2	8.2	5,793	47.5
1982	4.3	2.8	25,714	72.0	9.8	8.5	5,976	50.8
1983	6.2	4.7	18,085	85.0	10.0	9.3	5,108	47.5
1984	5.0	5.5	19,273	106.0	10.0	9.8	5,327	52.2
1985E	5.7	5.5	20,000	110.0	10.0	9.8	5,306	52.0

SOURCE: Compiled from reports of MOA and Banana Board (SOMALFRUIT).

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SOMALIA

AGRICULTURAL SECTOR SURVEY

Value of Exports FOB by Major Commodities

Item	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
	Millions of SoSh									
Bananas	81	88	53	59	73	51	40	114	103	6
Live Animals	359	302	300	570	474	640	1,002	1,517	122	514
Meat and Meat Products	59	37	32	1	7	7	3	-	3)	
Hides and Skins	21	44	24	30	56	42	19	56	21)	
Fish and Fish Products	17	23	21	4	3	2	10)	35	33)	298
Myrrh	14	11	12	15	24	62	29	51	90)	
Oil	-	-	-	-	-	61	-	59	43)	
Other	6	4	8	10	33	15	3	5	8)	
TOTAL SoSh (Millions)	558	510	419	639	667	879	1,104	1,836	1,423	818
US $ (Millions)	89	81	71	109	105	133	130	141	89	45
Exchange Rate SoSh = $1	6.3	6.3	6.3	6.3	6.3	6.3	8.5	13.0	16.0 1/	

SOURCE: Based on Foreign Exchange Record, Central Bank of Somalia
1/ From other table.

ANNEX
Table 10

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ANNEX
Table 11

SOMALIA

AGRICULTURAL SECTOR SURVEY

Value of Imports (CIF) by Major Commodities

Item	1977	1978	1979	1980	1981	1982	1983	1984
	Millions of SoSh							
Foreign Exchange Records								
Foodstuff	145	58	223	275	224	558	454	-
Bev. & Tobacco	44	63	62	48	16	58	112	-
Textiles/H. Goods	17	34	26	21	24	23	36	-
Medicines/Chem.	44	34	44	144	49	70	126	-
Mfg. Raw Materials	46	61	67	30	48	76	127	-
Agric. Inputs	2	3	23	31	8	1	20	-
Petroleum	101	15	281	410	452	992	882	-
Const. Material	41	29	5-	32	59	203	337	-
Machines & Parts	157	182	205	240	141	220	210	-
Transport & Parts	126	127	342	237	123	157	211	-
Farm Machine	6	7	231	143	7	13	7	-
Others	434	595	264	129	42	54	323	-
TOTAL [So.Sh. (millions)]	1,556	1,200	1,818	1,739	1,198	2,424	2,844	
Total Imports CIF 1/								
So. Sh. (millions)	1,296	1,732	2,431	2,905	2,631	5,824	6,571	10,715
US $ (millions)	206	275	393	461	315	448	411	429
Exchange Rate So.Sh.=$1	6.3	6.3	6.3	6.3	8.5	13.0	16.0	2/

1/ Includes Foreign Exchange Record above plus Franco Valuta, Grants In Kind and Commodity Loans.

2/ Converted at 18 for all normal exchange transactions, 60 for franco valuta imports and 2.5 for aid inflows including grants in kind, loans in kind, public transfers and official loan disbursements.

SOURCE: Central Bank of Somalia

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SOMALIA

AGRICULTURAL SECTOR SURVEY

Exports of Livestock by Type and Bananas 1970-1984

Year	LIVESTOCK										BANANAS
	SHEEP		GOATS		CATTLE		CAMELS		ALL ANIMALS		
	Total	Saudi	Total	Saudi	Total	Saudi	Total	Saudi	Total	Saudi	
	1,000 Head										--1,000 tons--
1970	546.0	462.0	605.0	441.0	45.0	42.0	26.0	25.0	1,222.0	970.0	99.7
1971	608.0	513.0	576.0	451.0	56.0	44.0	24.0	23.0	1,264.0	1,031.0	103.3
1972	789.0	691.0	828.0	664.0	77.0	66.0	21.0	21.0	1,715.0	1,442.0	103.3
1973	709.0	604.0	675.0	547.0	68.0	49.0	29.0	29.0	1,481.0	1,229.0	112.0
1974	635.0	520.0	623.0	496.0	25.0	22.0	24.0	24.0	1,307.0	1,062.0	103.3
1975	793.0	623.0	743.0	615.0	40.0	39.0	34.0	34.0	1,610.0	1,311.0	81.8
1976	374.0	331.0	374.0	330.0	74.0	68.0	37.0	37.0	859.0	766.0	72.8
1977	461.0	421.0	442.0	401.0	54.0	53.0	35.0	35.0	992.0	910.0	53.8
1978	728.0	678.0	723.0	669.0	73.0	73.0	21.0	21.0	1,545.0	1,441.0	48.7
1979	579.0	510.0	616.0	527.0	79.0	73.0	17.0	17.0	1,291.0	1,127.0	38.3
1980	829.0	739.0	951.0	815.0	85.0	80.0	21.0	21.0	1,886.0	1,655.0	50.0
1981	701.0	645.0	787.0	700.0	116.0	104.0	15.0	15.0	1,619.0	1,464.0	29.1
1982	730.0	-	719.0	-	157.0	-	15.0	-	1,621.0	-	20.4
1983	559.0	-	557.0	-	44.0	-	8.0	-	1,168.0	-	63.3
1984	340.0	-	336.0	-	7.7	-	4.0	-	687.7	-	47.8

SOURCE: For Livestock: MNP, CSD, Data for 1983-84 are preliminary compiled by the Livestock Marketing and Health project;
For Bananas: compiled from Banana Board, CSD, FAO.

ANNEX
Table 12

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ANNEX
Table 13

SOMALIA

AGRICULTURAL SECTOR SURVEY

Estimated Food Aid to Somalia and Refugees, 1980-1988
(in millions of dollars)

	1980	1981	1982	1983	1984	1985	1986	1987	1988
Total Food aid	65.9	104.7	91.5	88.9	85.3	89.3	98.0	100.7	103.4
WFP administrered	13.0	38.3	45.9	32.3	30.1	29.6	36.4	38.2	40.1
Donor direct	52.9	66.4	45.6	56.6	55.1	59.7	61.6	62.5	63.3
Total food aid	65.9	104.6	91.5	88.9	85.2	89.3	98.0	100.7	103.4
Refugees	59.2	58.7	57.7	35.6	33.5	44.3	53.0	55.7	58.4
Somalia	6.7	45.9	33.8	53.3	51.7	45.0	45.0	45.0	45.0
WFP administered food aid	13.0	38.3	45.9	32.3	30.1	29.6	36.4	38.2	40.1
WFP direct aid to refugees	4.8	9.4	23.6	19.6	19.8	18.7	22.5	23.6	24.8
WFP admin donor aid to refs	1.5	9.3	4.3	2.8	-	2.0	3.0	3.2	3.4
Rangeland devel & reforestatn	3.1	3.5	5.2	1.7	3.2	1.6	2.7	2.8	3.0
Resettlement projects	3.6	3.9	3.9	3.9	0.3	1.5	-	-	-
Institutional feeding	-	3	.8	2.2	1.0	2.7	3.5	3.6	3.6
		2	6.1	2.1	3.8	3.1	4.7	5.0	5.3
Direct donor food aid	52.9	85.4	45.6	56.6	55.1	59.7	61.6	62.5	63.
Refugees	52.9	39.9	29.8	13.2	13.7	23			
Somalia	-	26.5	15.8	43.4	41.				
Food aid to refugees	59.2	58.7	57.7	35.6	33.5	44.3	53.0	55.7	58.4
WFP direct	4.8	9.4	23.6	19.6	19.8	18.7	22.5	23.6	24.8
WFP administered	1.5	9.3	4.3	2.8	-	2.0	3.0	3.2	3.4
Donor direct	52.9	39.9	29.8	13.2	13.7	23.6	27.5	28.9	30.2
Food aid to Somalia	6.7	46.0	33.8	53.3	51.7	45.0	45.0	45.0	45.0
WFP	6.7	19.5	18.0	9.9	10.3	8.9	10.9	11.4	11.9
Donors	-	26.5	15.8	43.4	41.4	36.1	34.1	33.6	33.1

SOURCE: Ministry of National Planning, National Development Strategy, September 1985.

ANNEX
Table 14

SOMALIA

AGRICULTURAL SECTOR SURVEY

Land Base and Use Profile
(1000 Hectares)

	1970	1975	1980	1985E
TOTAL AREA	63,766	63,766	63,766	63,766
Land Area	62,734	62,734	62,734	62,734
Agricultural Area	29,872	29,905	29,916	29,927
Arable Land And Permanent Crops	1,022	1,055	1,066	1,077
Permanent Crops	12	15	16	17
Arable Land	1,010	1,040	1,050	1,060
Irrigated	162	165	165	165
Permanent Pasture	28,850	28,850	28,850	28,850
Forest and Woodland	9,390	9,130	8,850	8,590
Other Land	23,472	23,699	23,958	24,217

Source: Compiled from Data Bank of FAO

ANNEX
Table 15

SOMALIA

AGRICULTURAL SECTOR SURVEY

State Farms and Land Allocated

Region	Allocated Land 1/ (hectares)
Shebelli Valley	
Balad Irrigation Project	10,000
Afgoi-Mordinle Project	3,000
Janale-Bulo-Marcerto	4,000
Romsoma	10,000
Libsoma	7,000
Grapefruit Plantation	2,000
Development & Production Fruit Project	4,000
Rice Production (Afgoi)	450
Other Government Agencies Holdings	5,000 (Est.)
Sub-Total	45,450
Juba Valley	
Fanole Irrigation Project	8,200
Juba Sugar Project	7,700
Mogambo Rice Irrigation	6,000
Saakow Experimental Farm	60
Other Government Agencies Holdings	3,000
Total State Farms 2/	70,410
Other Identifiable Public Sector Type Farms	
Crash Program Farms 3/	20,000
Settlement Farms 4/	27,000

1/ Cultivated land is subtantially less.

2/ Some in process of conversion to tenant holdings.

3/ Transferred to small holdings.

4/ Small holdings.

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ANNEX
Table 16

SOMALIA

AGRICULTURAL SECTOR SURVEY

ADC Sources of Maize
(Thousand MT)

Year	Local Purchases	Commercial Imports	Food Aid	Total	Aid and Imports as % of Total
1971	55			55	
1972	60			50	
1973	37			37	
1974	33	11		44	25%
1975	20	49	40	109	82%
1976	30	37	42	109	72%
1977	21	28	6	55	62%
1978	31	-		31	-
1979	11	-	22	33	67%
1980	4	16	32	52	92%
1981	6	22	69	107	85%
1982	2	2	56	60	97%

Source: ADC

ANNEX
Table 17

SOMALIA

AGRICULTURAL SECTOR SURVEY

ADC Purchases of Maize and Sorghum and % of Total Production
(Thousand MT)

Calender Year	Maize	Sorghum	Total	Total production	ADC Share %
1971	55	29	84	228	36.8
1972	60	38	98	264	37.1
1973	37	15	52	227	22.9
1974	33	17	50	223	22.4
1975	20	13	33	239	13.8
1976	30	20	50	248	20.2
1977	21	52	73	256	28.5
1978	31	61	92	249	36.9
1979	11	56	67	248	27.0
1980	4	12	16	251	6.4
1981	6	23	29	364	8.0
1982	2	8	10	392	2.6
1983	4	9	13	376	3.5
1984	8	7	8	491	1.5

Source: Agricultural Development Corporation (ADC).

SOMALIA

AGRICULTURAL SECTOR SURVEY

Review of Margins and Farmgate Prices

Crop	Farming System	Yield	4/ Nov85 Margin	Farmgate Prices (SoSh/Kg) Nov85 Price	Break Even 1/	Minimum Return 2/	Import Parity 3/	ADC Purchase	Domestic Resource Use 6/ Ratio	7/ SoSh/US $
		Kg/ha	SSh/Ha							
Maize	Free Flood (current)	750	5,530	18.0	11.3	15.7	16.8	15.0	83%	70
Maize	Free Flood (proposed)	1,000	9,120	18.0	9.8	13.2	16.8	15.0	73%	62
Maize	Semi-Mech Controlled Irrigation	2,500	33,048	18.0	6.0	9.3	16.8	15.0	63%	54
Sorghum	Rainfed	450	3,240	16.0	9.5	13.5	11.6	13.0	97%	82
Rice	Smallholder Irrigated	1,300 5/	27,340	30.0	14.9	18.0	23.3	-	73%	62
Rice	Semi-Mech Irrigated Upland	2,100	30,915	30.0	15.3	19.5	23.3	-	79%	67
Sesame	Semi-Mech Irrigated	450	20,600	70.0	26.0	46.0	-	-	67%	57
Tomatoe	Semi-Mech Irrigated	10,000	51,145	8.0	3.0	4.0	-	-	8/	8/

1/ Margin = 0 (for Large Mechanized Farms)
Return/Manday = Market Wage Rate (for Smallholders)
2/ Margin = US$ 100 (for Large Mechanized Farms)
Margin = Wage Rate + 50% (for Smallholders)
3/ Farmgate Equivalent (CIF Mog less 4.5/kg transp. less 2.0/kg handling)
4/ After Payment for Family Labour at Market Wage
5/ Milled Rice
6/ Ratio of domestic resources used to international value added.
7/ Somali shillings (net) needed to generate one US dollar in international value added.
Should be compared with exchange rate of SoSh 85 = US$ 1.
8/ Tomatoes not traded, nor likely to be.

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SOMALIA

AGRICULTURAL SECTOR SURVEY

Import Parity Price Calculations

Item		Yellow Maize	White Maize	Sorghum	Rice	Wheat	Urea	DAP	TSP
FOB	US$/ton 4/	101.8		80.4	206.0	108.2	98.0	173.0	126.0
Transport	US$/ton	70.0		70.0	70.0	70.0	70.0	70.0	70.0
CIF Mogadishu	US$/ton	171.8	206.2	150.4	276.0	178.2	168.0	243.0	196.0
CIF Mogadishu (SoSh 85 = US$ 1)	SoSh/ton 6/	14.6	17.5	12.8	23.5	15.1	14.3	20.7	16.7
Port Handling	SoSh/ton 5/	1.5	1.8	1.3	2.3	1.5	1.4	2.1	1.7
In Store Mogadishu	SoSh/kg 1/	16.1	19.3	14.1	25.8	16.7	15.7	22.7	18.3
Transport (250 Km at SoSh 0.0018/kg/km)	SoSh/kg 3/		1.0	1.0	1.0	1.0	1.0	1.0	1.0
Handling (Transp + Intermediation)	2/ 3/		1.5	1.5	1.5	1.5	1.5	1.5	1.5
Farmgate Price			16.8	11.6	23.3	14.2	18.2	25.2	20.8

1/ Premium for white maize of 20% over yellow.
2/ Actual difference between Mogadishu and Farmgate much higher due to taxes and intermediation margins.
3/ Based on Jaffee review of marketing channels.
4/ Prices as of September, 1985. (World Bank Commodity Data Sheets)
5/ At 10% of FOB + Transport
6/ Market exchange rate.

SoSh/US$: 85

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SOMALIA

AGRICULTURAL SECTOR SURVEY

Industrial Production of Selected Commodities 1977-198

ITEMS	UNITS	1977	1978	1979	1980	1981	1982	1983	1984
Sugar	Thousand Tonnes	33.0	24.0	21.1	29.7	26.6	36.5	30.9	27.6
Pasta and Flour	Thousand Tonnes	8.4	8.1	5.8	7.5	5.9	2.1	8.8	12.6
Canned Meat	Million Cans	6.6	-	1.5	0.8	6.0	1.5	0.5	0.65
Milk	Million Litres	3.8	3.3	2.7	1.2	1.3	1.1	0.4	0
Vegetable Oil	Tonnes	-	90.0	190.0	40.0	90.0	396.0	265.0	0
Soft Drinks	Thousan Cases of 24 bottles	-	-	900.0	700.0	600.0	900.0	700.0	650.0
Cigarettes & Matches	Tonnes	-	266.0	352.0	586.0	502.0	511	352.0	270.0
Textile	Million Yards	12.9	13.8	9.5	13.3	10.1	10.7	6.8	5.2
Leather	Million Sq. Ft.	-	-	-	-	-	6.6	10.0	10.0
Leather Shoes	Thousand Pairs	-	-	-	-	-	-	28.5	40.0
Petroleum Products	Thousand Tonnes	-	-	-	231.3	263.5	179.4	220.0	143.0
Electricity	Million kwh	39.5	40.2	47.9	59.8	69.1	75.7	91.9	140.0

SOURCE: Agricultural Task Forces from Ministry of Industry and Commerce.

ANNEX
Table 20

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