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Country Development Strategy Statement

FY 1985

BEST AVAILABLE

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USAID/MALI - CDSS FY 1985

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EXECUTIVE SUMMARY

Perhaps more than any other country in the Sahel, Mali possesses the natural resources which make it possible to envision a future of food security and self-sustaining development. This is so despite the natural disasters and devastating development experiences of the last two decades. The soil, rainfall, and river water resources of different regions in Mali, combined with the strengths of Malian society, indicate the capacity to make substantial progress over the next twenty years providing external aid is available to fund a major share of the development budget. This CDSS proposes how the A.I.D. can contribute meaningfully to this effort.

Mali has been subject to many constraints over which it has no control--climatic fluctuations, export price declines, high transport costs, and the small internal markets of a landlocked economy far from international ports. In addition to these difficulties, the pattern of governmental decision-making until recently has prevented both rural and urban dwellers from making the kinds of contributions to their own and their country's welfare of which they are capable. Agricultural and commercial production, productivity and incomes have suffered.

These constraints and their effects can only be met if a number of fundamental changes occur. Basic policy reversals have to take place, first to favor rural producers over urban consumers, second to help the private sector take the lead from the public sector as the engine for growth and employment generation, and third, to reduce the burden placed on the economy by an oversized public administration. At the same time, research must be intensified to help address agriculture's two major constraints: insufficient and erratic rainfall, and seasonal labor shortages. Drought resistant, higher yielding cereal varieties need to be bred, and viable, cost-effective and labor-saving dryland and irrigation

technologies must be discovered. In the livestock area, effective health delivery systems and the provision of secure water and feed supplies are the main prerequisites to increased production. Moreover, extension systems will require improved organizational and administrative systems; and trained agriculturalists and managers will be needed to work on the above problems.

Fortunately, the outlook for progress on these matters has improved. Malian leadership since 1980 has become increasingly aware of the need for change and despite the attendant political risks, has undertaken a broad program of reform with the help of the major donors. Some basic steps have already been taken in a number of fields; and more are in preparation. It is fair to say that top political and professional managers have reached a reasonable consensus on the nature of the problems; and that the discussion now centers on the operational issues of the practicality and timing of particular moves, and the pace of change which it is politically possible to pursue.

In this context, and taking into account the respective roles and comparative advantages of larger donors, it was decided to formulate the principal broad objective of U.S. assistance as the enhancement of rural household productivity and incomes. It is from this productive base that the greatest potential for a self-sustaining economy will emerge in the future.

The Mission then shaped its strategy by assessing what investments would best attack the essential production constraints, what would complement other donor efforts, which approaches fit in with Malian plans, recurrent cost outlooks and absorptive capacity, and which would make the best use of the limited financial and staff resources of AID, and the comparative advantage of U.S. society and institutions.

The Mission strategy has a number of levels and components. Basically, it is to concentrate its limited resources on the agricultural sector, in particular agro-ecological zones, focus on a limited number of the principal constraints

noted earlier, and restrict its management support requirements.

In practice, the concentration strategy means that the USAID will devote a large part of its assistance to supporting Malian efforts in three principal realms. They are those which:

Accelerate Policy Reform
- to raise crop prices
- to improve agricultural organization management
- to release constraints on private sector activities

Improve Management and Planning
- through management training
- better use of technical assistance
- and realigned organization structures and functions

Strengthen the Research, Extension, Training, Farmer Network
- by improving the extension and input delivery systems in production project areas
- through expansion of farming systems approaches to research and extension activities, along with general institutional support of food crops research
- by providing higher quality manpower to accomplish the above.

A balance has been struck among short, medium, and longer term efforts. In the short term, every effort will be made to achieve incremental progress in food crop, livestock, and forestry production, while awaiting the development of new technologies. A strong, action-oriented, on-farm approach will be taken within the farming systems framework.

In the medium term, efforts to change the policy environment and management skills levels will be undertaken to increase production incentives and organizational capacities. Concerted effort over five years will be necessary to bring the dialogue to fruition in concrete ways; and management competencies take some years to mature.

The long term investments are in the institutional development of the agricultural research and education systems. Human resource development investments will make it possible for agricultural research and extension systems to increase their relevance to farmer problems in the field, and to evolve practicable technologies with which to address the fundamental obstacles to development.

CURRENCY EQUIVALENTS

US $1 = MF 672
MF 100 = US $0.149

WEIGHTS AND MEASURES

1 kilometer (km) = 0.6215 miles
1 hectare (ha) = 2.47 acres
1 kilogram (kg) = 2.205 pounds
1 metric ton (t) = 2.205 pounds

COMMONLY USED ABBREVIATIONS

ADF	African Development Bank
CCCD	Combatting Childhood Communicable Disease
CILSS	Sahelian Intergovernment Drought Committee
CMDT	Malian Company for the Development of Textiles
FAO	Food and Agriculture Organization
FED	European Development Fund
FSR	Farming Systems Research
GDP	Gross Domestic Product
ICRISAT	International Center for Research in Semi-Arid Tropics
IDA	International Development Association
IFRP	International Fertility Research Program
IMF	International Monetary Fund
INTRAH	International Training in Health
IPAVS	International Project Association for Voluntary Sterilization
JHPIEGO	Johns Hopkins Program for International Education in Gynecology
MCH/FP	Maternal Child Health/Family Planning
OECD	Organization for Economic Cooperation and Development
OHV	Opération Haute Vallée
OMVS/IDP	Senegal River Valley Authority/Integrated Development Program
OPAM	Malian Office for the Marketing of Agricultural Products
OPEC	Organization of Petroleum Exporting Countries
RDO	Rural Development Organization
SDR	Special Drawing Rights
SOMIEX	Malian Company for Imports and Exports
UDPM	Democratic Union of the Malian People
UMOA	West African Monetary Union
UNDP	United Nations Development Program

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I. DEVELOPMENT ANALYSIS

Despite being one of the poorest countries in the world as evidenced by its dismal socioeconomic indicators, Mali is generally thought to have sufficient underutilized resources to allow substantial improvement. The purpose of this analysis is to highlight Mali's potential, its constraints and its development performance so far. The analysis covers in particular the Malian government's efforts at policy reform, and offers an assessment of its prospects.

A. Physical Resources and Constraints

Agriculture (crops, livestock, fishing and forestry) accounts for nearly all of Mali's exports, for over 40 percent of Gross Domestic Product (GDP), and engages about 75 percent of its active population. It therefore is appropriate to take a separate look at agriculture before turning to other sectors.

1. Agriculture

Compared with the other seven Sahelian countries, and despite a difficult environment, Mali is among those better endowed both in cultivable land with sufficient rainfall and in irrigation potential. FAO[1] estimates that only about 13 percent of arable land is being cropped in any given year in Mali against 19 percent in the Sahel and an "ideal" proportion of 30 percent. According to the same study Mali contains about two thirds of the Sahel's irrigable land.

Corresponding to differing climatic and natural conditions, a great diversity of agricultural production systems coexist in Mali. It is therefore useful to distinguish between three main climatic zones in which production occurs. As indicated by the annexed map, these zones have a west-northwest to east-southeast orientation.

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[1] FAO. Etude Prospective pour le Développement Agricole des Pays de la Zone Sahélienne 1975-1990. 1976

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a) The Arid Sahelian Zone (less than 400 mm annual rainfall). This zone encompasses a substantial portion of the northern part of the country. Apart from what is provided by limited residual moisture cultivation of rice and wheat along the banks of the Niger, and by growing floating rice in the river itself, this thinly populated area derives nearly all its foods and income from either nomadic or transhumant pastoralism with cattle, sheep, and goats. In the rainy season Moor, Peul, and Touareg herders drive their animals to uninhabited pastures in the true Sahel where natural depressions collect water. In the dry season, they reverse the direction of their treks to reenter the natural pastures uncovered by the receding Niger or settled agricultural areas where crop residues, pasturage reserved for the dry season, and permanent water points are available.

In years of poor rainfall, rainy season pastures and surface water resources are quickly exhausted, the reverse trek begins much earlier, and competition for limited dry season feed and water resources is intense; herd penetration to the south is limited by tse tse infestation, to the east by the lack of water, and everywhere by the needs of the sedentary population probably likewise affected by insufficient or poorly distributed precipitation.

In 1982 once again, after the herds had barely recovered from the 1972-74 drought, this zone has been afflicted by abnormally low rainfall, and animal losses are expected to be severe before the onset of the next rainy season.

b) The Sahelo-Soudanic Zone (400-1000 mm annual rainfall). Immediately to the south of the Arid Sahelian zone lies the Sahelo-Soudanic belt, characterized by a mixed agricultural production system of cropping and livestock raising. Although the risk of complete crop failure, particularly in the southern extremes, is considerably less than in the Arid Sahelian zone, the entire zone is still highly vulnerable to drought. An exception

to this situation is the inland delta of the Niger, a natural floodplain where rice is grown under irrigation, dry season pasture is plentiful, and fish are available in abundance as a source of income and food.

The need to guard against the occurrence of drought thus dominates the sophisticated farming strategies in the zone, except in the few large irrigation developments. While cropping assumes progressively greater importance in the higher rainfall areas of the south, livestock production, both transhumant and sedentary, remains an important source of income and food and plays a valuable role as a source of both animal traction power and organic fertilizer. Towards the east in the relatively populated Seno plains, the crops mostly found are drought-resistant millet and sorghum varieties. The western part of the zone is agriculturally more diversified and farmers have traditionally grown groundnuts as their mainstay. However, the fall of international prices for groundnuts is forcing a reconversion of the area.

A few large irrigation projects on the Niger and its tributaries form a distinctive subsystem where farmers cultivate rice, most of the time with oxen and traction implements. The Office du Niger system irrigates about 40,000 hectares of rice and sugarcane under full water control. Infamous in the past for the harsh discipline and heavy taxes imposed on the peasants and once thought to have a one million hectares potential, it is now struggling with aging infrastructure and declining yields. Two other rice irrigation projects near Segou and Mopti[1] cover another 50,000 hectares, but are dependant on rainfall for preparing the seedlings and then on the flooding level of the Niger to inundate the fields, either of which sometimes fails to materialize.

c) <u>The Soudano-Guinean Zone</u> (over 1,000 mm annual rainfall). Lying at the southern extremes of the western third of the country, this zone constitutes the area of Mali's most important and reliable agricultural

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[1] Operation Riz Mopti and Operation Riz Segou.

production. Cotton is the engine of the region's economy, the only major crop showing consistent yield and acreage increases over the last fifteen years, and Mali's main success story. Under the aegis of the Malian Company for the Development of Textiles (CMDT), a mixed ownership corporation with private French participation and substantial donor financing, farmers in the region have over the years come to be among those most receptive to change and improved technology in the Sahel, using more animal traction and more cash inputs than in any other area. The main crops grown in rotation with cotton are sorghum/millet, which benefit from the residual effect of fertilizer applications for cotton, and maize, which is proving responsive to technical packages extended by CMDT. Livestock is a secondary source of income but plays an important part in farm systems and technological change. Tse tse infestation, however, significantly inhibits livestock activities in the western half of the zone.

Environmental issues loom large in the three zones described above. Desertification affects areas surrounding water points in the Arid Sahelian zone, due to overgrazing. The fertility of Mali's fragile soils is declining because of water and wind erosion and because fallow periods are being shortened in areas affected by population pressure. The demand for fuelwood of the rapidly growing urban population centers is also causing increasing deforestation. In other areas, bushfires frequently ravage the vegetation cover, considerably weakening natural protection against erosion.

d) Performance and Main Development Issues. Despite its comparatively good endowment in agricultural resources, Mali does not escape the general trend in Sub-Saharan Africa of declining food production per capita, specifically by an estimated 12 percent between 1969-71 and 1977-79.[1] Yields and acreages have stagnated for most major crops, have actually declined for groundnuts,

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[1] World Bank, Accelerated Development in Sub-Saharan Africa: An Agenda for Action, 1981 (p. 143).

and have increased only for cotton. Most recently it appears that even cotton may have lost its forward momentum because of declining producer terms of trade. The table below displays production figures for major crops over the last 10 years.

Table 1: Crop Production - Major Crops

(000 metric tons)

Year	Millet/Sorghum	Maize	Paddy	Seed Cotton	Groundnuts
1971/72	691	87	171	70	131
1972/73	624	44	116	72	109
1973/74	660	63	130	55	100
1974/75	800	100	250	71	151
1975/76	800	70	218	105	145
1976/77	900	80	237	133	160
1977/78	799	50	199	114	128
1978/79	1,000	55	251	133	126
1979/80	943	64	165	151	116
1980/81	654	73	165	110	92

Source: Ministry of Agriculture. These data are considered to be the best available, but various sources differ widely and the figures should only be used as orders of magnitude.

One of the most striking features of these statistics is their extreme variability from one year to the next, reflecting the preponderant impact of random factors on the outcome of the growing season. Critical among those is rainfall and related factors: quantity of rainfall, beginning and ending dates of the rains, evapotranspiration rates, intensity of rains, run-off versus absorption, and the length of dry periods between rains. When to plant is a hit or miss decision for the farmer who may have to plant up to three or even four times before the rains become regular enough to

sustain plant growth. An ideal rainfall pattern (early and steady rains for dry land crops and crops grown under partial water control, lasting long enough to accommodate crop cycles, and a dry season without moisture so grains can be pounded and stored without special protection) is a rare occurrence in the Sahel.

The 1972-1974 drought had few lasting effects on crop production but may have permanently affected livestock activities, causing a shift southwards of the national cattle herd out of the Arid Sahelian zone. Thus, some herders are having to adjust to a new environment dictating different production systems. The vast majority, however, manage their livestock according to production systems which were evolved over the centuries; contrary to earlier conventional wisdom, it is now widely accepted that these traditional systems make remarkably efficient use of existing natural resources in a high-risk environment. The main constraints to higher livestock productivity are: (i) a lack of year round water in areas of good forage potential; (ii) a limited supply of forage in areas with sufficient water resources; (iii) the incidence of animal diseases, combined with insufficient veterinary extension services; and (iv) a complex and cumbersome array of taxes and regulations which affect exports in particular. Increased meat production in Mali, in addition to helping increase domestic consumption, would help boost exports to the Ivory Coast which offers an accessible and growing market with a strong taste preference for Sahelian meat. Livestock official exports currently rank second behind cotton, but it is generally estimated that livestock would rank first if unrecorded exports were included.

Among the principal causes for agriculture's failure to keep pace with population growth (other than climatic factors), some are not within Mali's power to correct. Mali's landlocked position and internal distances represent a considerable obstacle to trade, both internal and international, a costly burden added on to imports and a threat to the competitiveness of Malian exports. For instance, transportation costs alone absorb about 34 and 26 percent of the

proceeds of cotton and livestock exports, respectively.[1] These losses have to be made up through lower labor costs or higher productivity. The recent slump of groundnut production also goes to show how uncontrollable adverse external developments (international prices in this instance) can affect traditional production systems quick to react to changing price signals.

In other ways, agriculture's shortfalls in Mali also reflect the general failure to replicate in Africa what the Green Revolution achieved in Asia.[2] For various reasons, agricultural research has not yet uncovered "miracle strains" for food crops. Principally because of technical and organizational failures, costly rice irrigation schemes have fallen short of production targets. In addition, as farm systems research is beginning to demonstrate, the task of improving on the traditional farmers' ingenuity in dealing with a harsh and unpredictable environment has been considerably underestimated.

Nevertheless, among the most important factors accounting for the poor record of the agricultural sector are the flawed price and marketing policies followed in the past and the organizational failures of the rural development organizations. These are described in Section I.D.3, in the context of the government's recently engaged program of reform.

Any strategy aimed at increasing agriculture's contribution to economic growth in the most cost effective way would have to take the following main considerations into account: first, at the risk of stating the obvious, insufficient and unreliable rainfall is the most important constraint to increased agricultural production; second, another critical constraint is a seasonal labor shortage, mainly at weeding time, although rural labor is underemployed during much of the

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[1] TAMS report for Land Use Inventory project, advance copy, undated; and World Bank, Mali: Special Economic Study: Planning Institutions and the 1974-78 Plan, June 30, 1981.

[2] See USDA, Food Problems and Prospects in Sub-Saharan Africa, the Decade of the 1980s, 1980.

rest of the season and there is no overall labor shortage. Third, there is a relative abundance of cultivable land; and fourth, there are few, if any, examples in Mali of large, publicly managed investments in agriculture with acceptable economic returns, while there is much evidence of the rationality and ingenuity of Malian farmers. From this last consideration stems the conclusion that an effective approach to increasing agricultural production would have to be tailored to farm households[1] as the main decision-makers. The eventual success of such an approach will hinge on the few following issues: (i) whether proper production incentives can be restored and rural household incomes boosted through the planned liberalization of price and marketing policies (see Section I.C.3). This would help households finance labor-saving and yield-boosting investments and inputs, which are the keys to increased productivity; (ii) whether agricultural research can help first improve labor productivity and therefore relieve labor bottlenecks, and second, breed drought-resistant, short-cycle food crop strains; (iii) whether effective agricultural credit and input delivery systems can be developed; and (iv) whether rural development organizations can effectively provide technical assistance to the farmers without burdening the rural economy.

2. Other Productive Sectors

a) Energy. By far, wood is the source of energy having the greatest impact on Mali's households in their daily activities, with the exception of animal traction in the Sudano-Guinean zone. The quest for wood can occupy long hours in the day of rural women, and the purchase of wood and charcoal can account for up to 30 percent of family budgets of the poorest in Bamako. Fuelwood for Bamako is transported from as far away as 200 miles. While deforestation has not reached the critical proportions of other Sahelian countries (Niger, Upper Volta), it

[1] Farm households are a more relevant decision-making unit than farmers or farms: farm labor is shared within the household, farms may change from year to year within traditional land tenure systems, and off-farm occupations play an important role in household economic strategies.

seems clear that natural regeneration and forestry plantations are not making up for the depletion of forests due to fuelwood collection, land clearing for agriculture, bushfires, and overgrazing.

The largest conventional energy source available to Mali is the considerable hydroelectric potential of the Niger. Installed capacity currently amounts to 53 MW, of which 48 MW comes from the Selingué Dam outside of Bamako which has been producing power since mid-1981. Construction presently underway of the Manantali Dam in western Mali could eventually expand this potential about fourfold. However, because of the small size of the market for power in Mali and the remoteness of Selingué and Manantali from consumption centers, less than half of current capacity is being utilized and full capacity utilization is a long-term prospect.

For the balance of its conventional energy needs, Mali depends entirely on fuel imports, most of which are used in transportation for which there is no substitute. Exxon and Elf Aquitaine have begun exploring for oil in the Taoudeni Basin in the far northeast, but there are no signs yet of a discovery.

Non-conventional energy sources other than wood (solar, wind, biomass, etc.) are not expected to have other than a local and marginal impact in the medium term.

b) Minerals. Despite the presence of mineral resources, some perhaps in important quantities, mining is not currently expected to make an important contribution to the Malian economy, because of the costs associated with Mali's long internal distances and landlocked position. While exploration is being carried out for gold (U.S. interests) and uranium (Japan), the only firm prospects for production are a relatively small gold mine to be exploited in Kalana in the south of the circle of Yanfolila with Soviet assistance, and phosphate production near Bourem in the east with West German assistance.

B. Socioeconomic Analysis

1. Poverty

Although according to the World Bank Mali is the twelfth poorest country in the world and the fourth poorest in Africa in terms of GDP/capita,[1] these comparisons are deceptive. Malians in general are not worse off than the people of those African countries whose higher income levels rest on a powerful enclave-type export sector (mostly mineral or oil based) with few benefits accruing to the vast majority. Except in years of severe drought, starvation is rare in any part of Mali. While average caloric intake is low, many Malians consume adequate levels of protein. Mali also benefits from a relative abundance of productive land, the absence of an oppressive land tenure system, and a basically egalitarian society. Family ties and solidarity considerably mitigate the effect of income disparity.

Table 2: Basic Indicators

	1960	1970	1980
Population (millions)	4.1	5.1	6.9
Growth rate (percent)	2.1	2.4	2.6
Gross National Product per Capita (1980 dollars)	144	..	190
Adult Literacy Rate (percent)	3	..	10 (1976)
Life Expectancy at Birth (years)	37	40	43

Sources: World Bank, World Development Report 1982; USAID, Alldata report, 1982.

The greatest number of the poor in absolute and relative terms are to be found in rural areas, where the World Bank estimates that about 48 percent live in absolute poverty (incomes of less than $60 per capita/year including subsistence

[1] World Bank, World Development Report, 1982. Chad, Somalia and Ethiopia rank below Mali in Africa.

production).[1] The most vulnerable groups are those whose primary source of income depends on the vagaries of rainfall, such as the dwellers on marginal cropping land. The drought in the early seventies seems to have brought about some durable shifts in the pattern of activities, but population in a large part of the north and the east remains high in relation to limited natural resources. In the west, opportunities for migration to neighboring countries mitigate the harshness of local conditions. In the south, larger and better land resources with reliable rainfall provide a better basis for diversified economic activity and a stable income.

Urban dwellers are generally somewhat better off. Their main activities are trade, public sector employment and the small crafts. About 27 percent are estimated to live below the World Bank's absolute poverty urban threshhold of $98 per capita/year.[1] In the city too, family ties substantially mitigate the hardship incurred by the most vulnerable groups, such as recent migrants.

2. Basic Needs

a) Nutrition. There is no authoritative study on nutrition levels in Mali. There is not even general agreement on minimum satisfactory nutritional requirements.[2] There is however fragmentary but consistent evidence of malnutrition, particularly among pregnant and lactating women and among infants and small children, aggravated by a high incidence of parasitic and infectious diseases. As with poverty, malnutrition is more pronounced in rural than in urban areas, particularly in the months immediately preceding harvest time.

b) Health. Health is one of the areas in which the effects of Mali's vicious poverty cycle are most apparent. Low income leading to low food consumption leading to susceptibility to disease in an unhygienic environment where

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[1] World Bank, Social Indicators Data Sheet, May 1981. These figures have to be taken as orders of magnitude. The quality of existing statistics does not allow more than rough estimates.

[2] See UNICEF, La Situation Alimentaire et Nutritionelle au Mali, M. Autret, undated 1982.

safe water and adequate sanitation are mostly absent all combine into one of the highest infant mortality rates in the world (154/thousand) and one of the lowest life expectancies (43 years). Although data are imprecise, by all accounts the health situation is grim.

Malaria is the principal cause of death, affecting both sexes and all age groups although children under the age of five, particularly infants, are the most vulnerable. The main killer of small children is however measles; almost all children contract measles before the age of three, and mortality rates vary from 5 to 30 percent from region to region and from year to year. Along with malaria, bacillary dysentery and amoebic dysentery are probably the primary causes of loss of time for work among adults. Guinea worm is a particularly pernicious disease which can incapacitate farmers for months. Onchocerciasis is by far the leading cause of blindness, the incidence of which is high. The Malian government requested an extension of the Onchocerciasis Control Program into the western half of Mali, but the Expert Committee has concluded that such an extension would have to be preceded by additional research and further planning.

Health care programs are sorely inadequate. Mali lacks the personnel, facilities, equipment and medicines to provide more than minimal preventive or curative care even to the urban elite. In the rural areas there are often no formal health services. Because of the government's low capacity to finance the recurrent costs of health coverage, it is however not likely that Mali's health statistics will improve quickly.

c) Water Supply. With health, water ranks as one of the highest priorities of much of Mali's rural population. Only about 25 percent of the rural population is estimated to be served by safe wells. Many villages have no adequate well nearby, forcing women to carry water over long distances for several hours every day. While a few of the larger towns have modern water supply systems, these systems reach but a small part of the population. The lack of safe water as well as of adequate sanitation is an important contributing cause of poor

health.

d) Education. Basic education and technical skill deficiencies of the population impede the implementation of new techniques to increase agricultural production and improve family health, income and well-being. About 90 percent of the rural population is illiterate and has received no basic education in reading, writing and arithmetic. Although Mali has considerably increased school enrollment since independence and now devotes about 30 percent of its budget to education, primary and secondary enrollment rates remain low at 28 and 9 percent, respectively. Female enrollment rates are even lower at 20 (primary) and 2 percent (secondary). Annual repeater and drop out rates in grades 1 through 4 respectively average 25 and 8 percent, suggesting considerable system inefficiency. To increase educational effectiveness and efficiency the GRM has begun using national languages instead of French at the primary level, is "ruralizing" the school curriculum, is encouraging self-help school construction programs using local materials, and is improving education administration practices. To increase adult literacy, facilitate agricultural innovation and encourage the development of monetary rather than subsistence agriculture, USAID and other donors are supporting GRM efforts to provide functional literacy and numeracy skills in national languages. Despite these efforts, financial constraints and family demands for child labor continue to limit progress in basic education.

3. Population Factors

In part, Mali's failure to provide basic education to more than a minority reflects the difficulty of increasing public service expenditures at the pace dictated by population growth. Despite Mali's extremely high death rate of 21 per thousand, population is increasing at about 2.6 percent per annum. The prospect for the medium term is actually that this rate will increase as progress in the health sector, albeit slow, is still likely to bring the mortality rate down faster than birth rates can be expected to decline. Although the consequences might seem distant, unless measures are taken soon it has been estimated that left

to its natural trends Mali could reach a population of 41 million before stabilizing some time in the 22nd century,[1] a figure ludicrously out of proportion with the country's resource base.

While not yet a national problem, population pressure is already being felt in a few of the poorest areas. Internal migration is taking place from rural to urban areas at an annual rate of 0.6% of the rural population, yielding urban population growth of about 5.6% per year. Bamako itself is growing by about 10% a year. Migration from the arid zones in the east and west has been given a new impetus by the drought. Finally, external migration to the Ivory Coast (about 364,000), Senegal (12,000) and France (35,000) has been the natural response of enterprising people to the lack of local economic opportunities, and labor remittances constitute a significant source of foreign exchange.[2] Recent events in Nigeria however demonstrate that this may not be sustainable over the long term.

C. Economic Policies and Performance

As is the case for all developing countries, Malian economic performance has to be appreciated in the context of a "seamless web of political, technical and structural constraints" which can only be understood in historical perspective.[3] Before analyzing the economic problems of contemporary Mali, therefore, it is indispensable to step back and briefly examine the main policies followed by Mali immediately after independence.[4]

1. Policies and Performance in the 1960's

Except for Guinea, Mali's break with its colonial past was the sharpest in

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[1]World Bank, World Development Report, 1982.

[2]Colvin, L. et al., The Uprooted of the Western Sahel, Praeger, N.Y.; 1981, pp 262-64.

[3]See Carl K. Eicher, Facing Up to Africa's Food Crisis, in Foreign Affairs, Fall 1982.

[4]See William I. Jones, Planning and Economic Policy: Socialist Mali and its Neighbors. Three Continents Press. 1976.

West Africa. The ambition of its first leaders was to put Malian society and the economy through a socialist transformation which was seen as the surest way to rapid growth and economic independence. The state was to occupy the commanding heights of the economy. The monopoly of external trade was vested in SOMIEX, one of the first public companies. With few exceptions, the state assumed banking activities and took over privately operated industries of any significant size. With the surpluses generated by public sector companies and taxes levied on the rural economy, the state hoped to finance rapid urban based industrialization.

At the same time, it was assumed that traditional agriculture, spurred by taxation and under the directives of state sponsored extension efforts, would break out of its subsistence mold and undergo a technological transformation. The rural economy was to feed urban areas at low prices in order to hold down industrial wages. It was also to produce export crops which would generate the foreign exchange needed for capital imports, and to contribute substantial taxes while requiring few resources from government. State interventions to achieve these goals included the creation of state marketing monopolies for cereals (OPAM) and export crops (SOMIEX), involving a system of fixed producer and consumer prices. There was also an attempt at collectivizing agriculture on the premise that collective agriculture was the original and most productive African form.

The combination of these policies resulted in costly failures. Unwilling to abide by the monetary policy strictures of the West African Monetary Union, Mali withdrew and detached its currency from the French franc in 1962. Management of public enterprises proved beyond the capabilities of the limited pool of trained cadres, and the forecast surpluses never materialized. Having overestimated the potential for technological improvement in agriculture and underestimated the negative impact on production of low producer prices, the government was faced with declining food production per capita, decreasing agricultural exports, a growing need for food imports and a shrinking share of cereal production marketed

through the official monopoly. As a result Mali began experiencing a growing shortage of foreign exchange leading to strict import rationing, and a festering fiscal crisis. Faced with growing inflation, the disruption of trade, and approaching the limits of expedients to finance the budget deficit, the government signed a monetary agreement with France in late 1967, restoring the convertibility of the Malian franc after a 50 percent devaluation and reinstating a measure of monetary and credit discipline. This did not however prevent the overthrow of Mali's only civilian president, Modibo Kéita, on November 19, 1968.

2. Policies and Performance in the 1970's

In 1969 the new government started critically reappraising the policies inherited from its predecessors. It renounced the socialism of the 60's, but did not chart a firm new course of policy. Attempts at pragmatic reform, such as increases in agricultural producer prices, were overtaken by a series of unforeseeable shocks to the economy, the worst being the 1972-1974 drought. While crop production had recovered starting in 1974/75, it is only very recently that the livestock herd has been reconstituted to near pre-drought levels. Overall economic performance was therefore checkered, policy reform was delayed, and towards the end of the decade fiscal and balance of payments disequilibria had reached a critical point.

a) Growth Performance. Despite abrupt fluctuations from year to year because of the importance and the irregularity of weather conditions, and with due regard to the poor quality of official statistics, overall economic growth in the seventies was significant and outpaced population increases. Unfortunately, much of this growth was not self-generated but was only made possible through high levels of external financial support, notably from France.

The evolution of the respective relative shares in GDP of the primary (agriculture, forestry, fisheries), secondary (industry) and tertiary (trade, transportation, services, government) sectors is displayed in the table below.

The stagnation of the share of agriculture, the decline of industry and the growth of government and services are worth noting.

Table 3: GDP by Sector

1972 Constant Prices

	1970 Billion MF	%	1980 Billion MF	%	Average Growth Rate 1970-80 %
Primary Sector	77.2	45	110	42	3.7
Secondary Sector	24.4	14	29.6	11	2.0
Tertiary Sector	70.2	41	122.4	47	5.7
GDP	171.8	100	262.0	100	4.3

Source: World Bank, Economic Memorandum on Mali, June 30, 1981.

Ignoring exceptional years, the performance of agriculture can be characterized as follows: no discernible long term trend for food crops, therefore a decline of food production per capita, and a clear increase in cash crops where erratic fluctuations of groundnut production are overshadowed by cotton's good performance as noted earlier. Statistics on livestock production are too unreliable and the drought too recent to hazard a long term trend.

An important part of the limited industrial sector consists of processing agricultural products, such as cotton ginning, rice milling, groundnut oil extraction and sugar refining. The output in these industries obviously depends on agricultural performance, which adds to the economic fluctuations caused by weather changes. Other branches like handicrafts and energy display a more stable pattern of growth, while construction and public works depend to a large extent on public investment activity and therefore (given negative domestic savings) on the level of foreign assistance. The industrial sector is largely dominated by public enterprises, the performance of which is described later in this section.

Finally, the growth of the tertiary sector reflects the importance and the buoyancy of the trade sector in Mali, and the excessive growth of government,

the effects of which are also analyzed later in this section.

b) Balance of Payments and Trade. Trade balance movements provide a vivid picture of many of the constraints affecting Mali: first its vulnerability to climatic instability, which affects both imports and exports; second the fluctuations in Mali's terms of trade: the rising price of oil imports, the declining price for groundnut exports, and the fluctuations in the price for cotton exports; third the heavy burden of transportation costs, and fourth, Mali's reliance on foreign aid.

Table 4: External Trade

(Billion MF)

	1972	1978	1979	1980
Exports (f.o.b.)	23.3	50.1	62.7	86.6
of which:				
cotton	7.9	24.9	37.9	43.6
livestock	4.7	14.7	15.1	25.1
Imports (c.i.f.)	43.3	128.6	148.0	189.5
of which:				
foodstuffs	11.4	23.6	20.4	33.3
oil	4.1	19.7	23.6	35.0

Source: IMF

Cereal imports are the mirror image of food production which itself rises or falls with good or bad rainfall: in a good year, such as 1977, imports were nil; in a bad year like 1974, imports were as much as $73 million. Food aid, however, particularly since the drought, has considerably reduced Mali's corresponding financial burden. As a proportion of total imports fuel doubled during the decade, and now accounts for about one fifth. Other imports for consumption have proportionately decreased, reflecting the gradual onset of austerity. Finally, imports of capital goods have risen with the influx of external aid for investment which followed the drought.

Exports in the seventies came to be gradually dominated by cotton which climbed from a third of exports in 1972 to about half. This came at the expense of

groundnuts for which Mali, like its neighbors, was no longer competitive because of a fall in international prices,[1] and of a reduction in livestock exports, whose continued growth was sharply set back by the drought. Fruits and vegetables and tree crops are small but rapidly growing exports.

While total exports grew satisfactorily in the seventies (about 11 percent in 1972-1979), imports grew faster still (about 16 percent). Much, but not all of the resulting deficit, roughly equivalent to 15 percent of GDP on average, has been financed by concessional aid.

Mali has been successful in obtaining moratoria and the rescheduling of part of its external debt and maintained a manageable debt service. However, it has not been able to contain its drawings from the clearing account which has been set up with France under the 1968 monetary agreement (for which there was however no ceiling until 1977).

c) The Public Sector. As has been described earlier, Mali's current regime inherited a high budget deficit and a burgeoning sector of grossly inefficient public enterprises. This situation was not reversed in the seventies and its effects on the Malian economy have been disastrous: a large deficit, petty corruption, low efficiency in the administration, misallocation of resources, inflation, a disruption of the financial system, a tax structure and pricing policies encouraging tax evasion and discouraging production, and a high balance of payments deficit.

The budget deficit has fluctuated between 15 and 20 percent of total expenditures. If one root cause for Mali's ongoing fiscal crisis had to be singled out, it would probably have to be the longstanding policy of guaranteed employment in the public sector to all secondary and higher level graduates, an issue which

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[1] 1974-1981 prices per ton (shelled, CIF Europe) in constant 1981 $: 1,080; 702; 647; 775; 734; 600; 476; 636; (Source: World Bank, Price Prospects for Major Primary Commodities, July 1982).

donors have brought out repeatedly in policy discussions with the government.[1] Because under its monetary agreement with France strict limits were set on the amount of the budget deficit that could be financed by the Central Bank of Mali, the Government had to resort to other expedients, the consequences of which on the economy are difficult to overstate. The government was inefficient and resources were poorly allocated, as meeting the payroll took precedence over high priority recurrent costs. Thus, public hospitals went without supplies, schools were deprived of teaching materials and roads were not maintained. Pay and morale in the administration were low and the temptation for corruption was high while opportunities were rife because of pervasive regulations. Taxation levels in many areas reached the point of negative returns as the rewards for tax evasion increased and incentives for work decreased. The effect on the rural sector was particularly damaging: the government mandated low producer prices for cereals to subsidize the consumption of urban civil servants and for cotton to add to SOMIEX profits and generate tax revenue. The principal channel for financial transactions, the Postal Checking System, was paralyzed as the Treasury drew down the system's working balances in its desperate search for liquidity. Finally, the Treasury accumulated arrears, both external and internal. Towards the end of the 70's, public payrolls were met with delays of up to three months.

Public enterprises account for 70 percent of industrial output and a large share of trade and transportation activities. By any measure, their performance has

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[1] A recent IMF study (Alan Tait and Peter S. Heller, International Comparisons of Government Expenditures, Staff Occasional Paper No. 10, April 1982) found that Mali spends 79% more on government wages and salaries than might be expected with regard to such factors as its income level and economic structure. By comparison, Upper Volta and Niger spend respectively 26 and 10% less than expected. As for expenditures on other goods and services, the same study indicated that the Malian government spends 41% less than expected. Capital expenditures never exceeded 5% of the budget. With regard to the level of taxation, tax rates are extremely high but because of exemptions and tax evasion, taxes effectively collected in proportion of GNP are normal considering Mali's income level and economic structure, according to another IMF study (Tait et al., International Comparison of Taxation for Developing Countries, 1972-76, IMF Staff Papers, Vol. 26, No. 1, March 1979).

been extraordinarily poor. Because of a host of factors such as overstaffing, poor management, bad investments, inadequate or antiquated technology, heavy taxation, rigid price regulations, as well as the de facto bankruptcy of the state, public enterprises incurred enormous losses throughout the seventies. Faced with a continuous liquidity crisis due to their losses and their inability to collect many of their claims, public enterprises survived by drawing heavily on short term bank credit rediscounted by the Central Bank. The effect was highly inflationary. Short-term credits were rescheduled indefinitely and the resulting increases in money supply did not correspond to an increase in production. The result was also to starve the private sector of credit. At the same time, the contribution to GDP of value added by public companies was small, somewhat above 5 percent; much of it did not correspond to production or services and was at the expense of cotton farmers, whose artificially low producer prices boosted the value added by SOMIEX, which itself accounted for a large part of the total.

In some areas, problems fed on each other in a spiral. For example, the state accumulated arrears with public enterprises which in turn accumulated arrears with each other and with the state. In the final analysis, however, the ultimate effect was felt in the balance of payments, because so many unproductive (or low productivity) workers were paid salaries, contributed little to production (and therefore to import substitution or exports) and spent part of their income on imports.

c) Reaching an Impasse. By the end of 1980, economic imbalances had reached critical proportions: the central government deficit amounted to one third of revenues; losses of public enterprises had reached about 20% of sales; the balance of payments deficit on current account (excluding official transfers) represented 19% of GDP, and the public payroll was met with increasing delay.

At the same time, the Malian economy had lost most of its room for maneuver. First, in 1977 a new monetary agreement was signed with France setting limits to

Mali's cumulative negative position in the Operations Account (the clearing account with the French Central Bank) beyond which convertibility of the Malian franc could be suspended. These limits were rapidly approaching. Second, the Malian Government had exhausted all avenues short of radical reform for financing the budget deficit and reducing the losses of public enterprises. Public financial needs were increasing, the tax base was stagnating, and the limits of fiscal pressure and of expedients for financing the deficit had been reached. The need for policy reform became pressing.

3. Policy Reform: Issues and Efforts

Starting in 1980, the Malian Government began to formulate a comprehensive plan for economic reform designed to remedy the acute problems faced by the economy and allow the resumption of balanced growth. The basic thrust of these efforts was to stimulate production, improve the efficiency of the economy and increase domestic savings. The main areas targeted for reform were those most donors, including the U.S., had identified as the root causes of Mali's disappointing economic performance: public finances, the financial system, the respective roles of public and private enterprise, and agriculture. The help of the IMF, the World Bank and food aid donors (including the U.S.) was enlisted to help formulate and carry out the program.

In May 1982 after extended discussions, the IMF granted Mali a one-year Standby loan for SDR 30.375 million (about $34 million), on the basis of measures already taken by the government and of a series of undertakings to be carried out over the year to April 1983. Quantified monitorable performance criteria were established governing the release of Standby funds in four quarterly installments. Following missions by the IMF, the three first installments were released as scheduled, as Mali had broadly satisfied the criteria.

After equally extensive discussions with food aid donors and a landmark

report by the FAO,[1] agreement was reached in early 1982 on the gradual restructuring over 5 years of cereal marketing and pricing policies, to be eased by the proceeds of the sale of food aid.

In late 1982, the World Bank approved an IDA credit to finance a broad program of technical assistance and studies, concerning in particular public enterprises and rural development organizations, to pave the road for extensive reform, probably in the context of a future structural adjustment credit.

Finally, Mali has been holding discussions to rejoin the Western African Monetary Union (UMOA) which it had left in 1962. These discussions are expected to end successfully in 1983 with Malian reentry.

The remainder of this section is devoted to an analysis of the main efforts for reform, a description of specific measures taken so far, and an assessment of what can realistically be expected in the coming months and years.

a) Public Finances. As a result of the Standby Program, the government deficit was reduced to an estimated MF 10 million in 1982 from 14 billion in 1981 and 17 billion in 1980.[2] To contain expenditures, the government has abandoned its longstanding policy of automatically hiring secondary and higher level graduates. This was confirmed by President Moussa Traoré in a policy statement to the country's political party in January 1983. Measures were also taken to curtail once-generous educational scholarship expenditures (11% of the budget in 1979), and to restrain public sector wages (60% of the budget in 1979). On the revenue side various tax increases took place and tax collection improvements were introduced. During the 9 months to September 30, 1982, the Treasury reduced domestic arrears by about MF 5.1 billion (from 20.6 billion) and external arrears by MF 6.4 billion (from 8 billion). Further progress was anticipated in the fourth quarter.

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[1] H. de Meel, La Politique Céréalière au Mali. FAO 1978.

[2] Provisional numbers subject to revision, although the pattern is expected to remain similar.

b) The Financial System. The revitalization of the financial system was one of the main objectives of the Standby Program. Total credit expansion in 1982 was limited to 11.7% and at the same time, the banking system ceased to provide credit covering the operating losses of public enterprises, thus freeing credit for productive purposes. The main achievement in this area is however the restoration of liquidity to the Postal Checking System: while intra-government accounts are still frozen, private depositors are now able to withdraw deposits and the external arrears of the system have been cleared.

Another major achievement of the Program in 1982 was the reduction in the overall balance of payments deficit from MF 19 billion in 1981 to about MF 8 billion. USAID believes that the progress achieved so far is very encouraging and could constitute a turning point for the economy. However, original disequilibria were such that the effort needs to be extended over several years. It is therefore crucially important that, as is now expected, a new Program supported by the IMF be put in place in 1983.

c) Agriculture. Overhauling cereals marketing and pricing policies is perhaps the single measure likely to have the biggest impact on agricultural production and food self-sufficiency. Up to recently, the system operated as follows:

- OPAM had a marketing monopoly, and private marketing was forbidden by law, although the law was not always strictly enforced.
- Villages were assigned production quotas which they were to deliver to OPAM at fixed prices which were lower than would have resulted from a free market.
- OPAM sold cereals, mainly in urban areas, to cooperatives and civil servants (including the military) at fixed prices which were equal in all regions.

The failure of the system was patent. Farmers saw production quotas as taxes and sought to minimize their deliveries to OPAM. A flourishing parallel market developed with higher than official prices. Clandestine cereal exports took place to neighboring countries where higher prices prevailed. OPAM's share of the market remained low, at most a third, and it could not meet its customers' needs. Also, squeezed between fixed buying and selling prices, OPAM was incurring large and mounting losses. Besides being costly and inefficient, the system was detrimental to production: farmers selling to OPAM were getting unremunerative prices and traders were kept guessing about how seriously the Government intended to enforce OPAM's monopoly, therefore discouraging the establishment of efficient private marketing channels.

The agreement reached in early 1982 between the government and food aid donors, including the U.S., involves the following ultimate objectives:

(i) abolition of OPAM's marketing monopoly, and licensing of private traders;

(ii) curtailment of OPAM's size and functions; OPAM would be restricted to limited purchases and sales of grain, respectively when producer prices dip below an established floor, and when consumer prices exceed an established ceiling. In addition, OPAM would serve remote regions and hold security stocks to be released in drought years; and

(iii) floor and ceiling prices would be raised progressively to market levels.

The fundamental purpose of the scheme is to restore farmer incentives by reestablishing a free market for cereals with a safety valve against excessive price fluctuations. Another objective is to reduce OPAM's financial losses. The food aid contribution would help effect the transition progressively. It will avoid a politically unacceptable abrupt increase in consumer prices, by

covering OPAM's losses during the five-year transition period until prices reach market levels.

Significant progress has been accomplished since discussions began and particularly over the past year when the scheme began to function.

(i) Official producer prices for millet/sorghum were increased by 80 percent over the last three years, and consumer prices by 62 percent (see table below);

(ii) OPAM's monopoly in coarse grains was effectively abolished and OPAM has begun to operate as a market regulator instead. Private traders played an active role in the market and have begun to form associations; and

(iii) OPAM has taken a series of measures to reduce its unit costs, such as selling off 75 percent of its heavy trucks and relying instead on private truckers, and reducing personnel by 5 percent as a first step.

Table 5: Official Cereal Prices 1976-1983

MF/kg

Year	Millet/Sorghum		Rice (RM 40)	
	Producer	Consumer	Producer (Paddy)	Consumer
1976/77	32	52	40	112
1977/78	36	57	45	137
1978/79	40	65	50	150
1979/80	50	77	62.5	180
1980/81	70	85	75	200
1981/82	85	116	100	230
1982/83	90	125	110	250

Source: Bilan et Evaluation de la Campagne Céréalière, X. Rouillard, November 1982.

The maximum difference between official and market prices was reduced by about 2/3 between 1981 and 1982. Despite the increases in official producer and consumer prices, the actual market price of coarse grains hardly varied between January 1982 and January 1983. OPAM expects to have reduced its losses by about half in its 1982/1983 fiscal year.

All in all, very substantial progress has been made and the project is on its way to achieving its objectives. The donor group and USAID will be monitoring further progress particularly in the following areas:

(i) continuing price increases, at least until prices reach the levels of neighboring countries; the increases in 1982 were markedly lower than in the two preceding years;

(ii) extending marketing liberalization to rice, which is not currently included in the scheme;

(iii) clarifying the freedom of private traders to set their selling price. Traders are still formally bound to sell below a maximum price, although the legislation is not enforced;

(iv) adjusting the price formulae, to take into account transportation costs and seasonal variations; and

(v) continued reorganization of OPAM along agreed lines.

A second important issue in the agricultural sector is the performance of the rural development organizations (RDO's). Most RDO's were established over the last fifteen years with area responsibilities (and sometimes functional, such as livestock development), to provide extension services to farmers, deliver inputs and credit, and in general to manage agricultural development projects and channel donor financing. With a few notable exceptions, such as CMDT in the cotton zone, RDO's are in various degrees unable to establish relations of trust with the farmers, are poorly managed, inefficient, and lack financial and managerial accountability. The Government in the last year has shown increasing recognition of these shortcomings, although reform in this area is not as advanced as in the

areas mentioned above. At its request, a study is being financed by the World Bank, the object of which is to help introduce fundamental changes in the RDO's and address their major shortcomings. A first draft of the first phase of the report has recently been issued and the Government's reactions are expected shortly.

USAID considers that vigorous action in this area is of crucial importance to its continued involvement in agricultural production projects and will be monitoring developments very closely.

That the government is committed to reform in agriculture along the lines described above, was made particularly clear when it officially endorsed a Food Strategy in mid-1982, based on a document prepared with USAID-financed technical assistance. This document lays considerable stress on the need to ensure higher rural incomes and sufficient production incentives, and on the need to abandon the state's paternalistic approach of the past in favor of a grass roots approach with a much wider role for the private sector.

d) The Respective Roles of Private and Public Enterprises. The importance of addressing the grave problems of public enterprises does not need to be restated (see Section I.C.2). In this area too, a study has been commissioned under World Bank financing, a draft report has been produced and the government's reactions are expected shortly. In addition, certain measures have already been taken:

- SOMIEX's import-export monopoly has been restricted to 7 basic commodities and all but a handful of its retail outlets closed.
- The banking system no longer finances operating losses.

In a most recent address to the Party's National Council in January 1983, President Moussa Traoré stated that "recovery of the public sector demands that the State turn over to the private sector those activities where public ownership and management have failed or proven inefficient." It is expected that

restructuring of the public sector involving closures, sales of assets to the private sector and rehabilitation of a core of public companies will result in a much slimmer public sector leaving considerably more room for the private sector. The new emphasis on the latter is by now sufficiently credible that the country's only private bank has begun opening new branches for the first time since the 60's, and a second private bank will be opening a first branch in Mali in 1983. The government places great hopes in the revitalization of the private sector, thanks in part to a new Investment Code under preparation offering very liberal incentives to both foreign and domestic investors.

USAID is convinced that the private sector offers the best hopes for the strong growth and employment generation which Mali needs as it reduces the size of government and parastatals; but believes that realistically it will take long and persistent efforts to reverse the bureaucratic traditions of government, unshackle the private sector of cumbersome regulations, and wind down the operations of public sector enterprises which many Malians consider as the country's most tangible achievements since independence. USAID will be pressing for vigorous action in this area, but does not underestimate the obstacles to reform.

e) The Obstacles to Reform. There are many reasons to believe that reform, if pursued consistently, will prove an extremely arduous process involving considerable political risk to the Government. Students, civil servants and the employees of public enterprises have all been negatively affected by the measures taken so far, and stand to lose much more in the next stages of reform. Students rioted in 1979-80 when scholarships were cut for all but the neediest, and higher education establishments had to be closed. They no longer now have the guarantee they had until recently of secure employment and income with the state. Civil servants consider low prices for food staples to be part of their compensation package and will be hit hard by rising official prices brought about by cereal marketing reform. The military in particular, unless compensated, would be

adversely affected by liberalization of the market for rice. In addition, civil servants face the prospect of low salary increases over the next few years, as a result of fiscal restraint. Finally, the curtailment of public enterprises threatens about 20,000 jobs, something like 15 percent of total salaried employment in Mali.

Together with their dependants, those directly affected by reform number well over half a million. They also constitute probably about half the urban population, much more in Bamako, and account for nearly all Malians with a higher education. In a country like Mali with long distances, poor communications, few media extending out of Bamako and 90 percent illiteracy, these categories amount to a political force no Government in Mali can afford to antagonize.

There are, however, a few mitigating factors. First, as low as public sector salaries may seem (probably less than a tenth of what they are in industrial countries, at comparable qualifications) those groups most affected by reform are those most able to afford a reduction in their living standards, within Mali's very limited margin for belt-tightening. Second, for the time being there seems to be a consensus that there are few viable alternatives to reform in Mali's difficult fiscal predicament. The Government has been nurturing this consensus as reform was advanced, thanks to institutional measures introduced in 1979 providing for much greater participation in the process of government.

What this serves to demonstrate is that as painful reform measures are beginning to bite, the private sector must be encouraged in every way to provide for the growth in incomes and employment that Malians formerly expected from the public sector. Hopefully the revitalization of the agricultural sector will provide the momentum for this growth. No less important is the realization that progress in reform will be at best slow, checkered, and uneven, as well as fraught with political risk. While continuing to press for reform, therefore,

donors must be able to remain realistic in their expectations, flexible in their dialogue, and supportive of the Government's efforts. Ways must be found and financing mustered to attenuate the cost of reform and spread it over time. Otherwise, the political cost may seem prohibitive to the government and prospects jeopardized of a sustained effort over the long haul.

D. USAID and Other Donors

Before turning to the strategy for U.S. assistance to Mali, it is useful to briefly present the levels of assistance of major donors, in order to more fully describe the context in which U.S. assistance is taking place. The roles of some of these donors in policy reform was mentioned in the preceding section. The following table sets out aid commitments from non-communist countries over 1975-1981 accounting for about 90% of total Official Development Assistance (ODA) to Mali.[1]

Table 6: 1975-1981 ODA Commitments to Mali

	%	Million $
France	17	235
OPEC	16	220
Germany	14	191
FED	12	163
IDA	10	140
USAID	7	104
ADF	6	78
Canada	5	74
UNDP	4	56

Source: CILSS-OECD/Club du Sahel, ODA to CILSS Member Countries, November 1982.

[1] It is not possible to quote a comparable figure for communist countries. While accounting for small and declining shares of ODA for Mali, communist countries have provided larger amounts of assistance to Mali than to other Sahelian countries.

The IMF, which does not provide ODA strictly defined, is not mentioned in the table, but was Mali's second largest source of external financing in 1982, after France. Developments in 1982 point to an increase in the share of Canada (overtaking USAID), and a decrease in the shares of OPEC and USAID.

USAID therefore ranks 6th (7th starting in 1982) among Mali's 9 largest donors, a consideration which must be taken into account in the formulation of an appropriate strategy for U.S. assistance.

II. STRATEGY FOR U.S. ASSISTANCE TO MALI

A. U.S. Interests

The United States has an ongoing interest in Mali as an independent, politically and economically strong country, free of domination by outside powers. Development efforts directed toward a stable economy offer the best prospect that Mali will be able to achieve this. Contributions the U.S. makes to these efforts support the substantial commitments of other friendly countries to Mali's independence and stability.

The U.S. applauds Mali's efforts to carry out its stand-by program with the IMF, continue its grain marketing liberalization, enact a food sector strategy, open the economy to private sector initiatives, reduce the role of state enterprises, reexamine the effectiveness of government agricultural operations and implement more effective management of development programs. The U.S. believes these measures offer the greatest hope for a strong economy and that they should be supported by Mali's donor friends.

The U.S. believes that an economically strong Mali will promote regional stability, become a better trading partner, and offer greater opportunities for investment. At the same time, Mali's internal market is limited, which means that any prosperity will be limited until there is greater regional cooperation. The U.S. supports Mali's efforts to re-enter the West African Monetary Union (UMOA) as well as its active participation in the Economic

Community of West African States (ECOWAS), the West African Economic Community (CEAO), the Senegal River Valley Authority (OMVS), the Niger River Basin Authority (NBA), the Sahelian Intergovernment Drought Committee (CILSS), and the Organization of African Unity (OAU).

The U.S. commends the growing participation of the Malian people in their governing process through the activities of the UDPM and believes this process will lead to an increasingly stable, popular and responsive government.

The United States understands that Mali, as a recipient of important amounts of economic and military assistance from countries around the globe, desires to be a part of the non-aligned world and respects such a policy of non-alignment. The U.S. believes that a strengthened economy will give Mali increased influence in West African and international political affairs and enhance her independent role free of undue influence of any particular bloc, coalition or neighbor.

The United States shares the general international concern for the fragile Sahelian physical and economic environment and supports international donor cooperation with the Sahelian states in the development of a region-wide economic strategy to preserve its viability. Mali's central location, size and potential for food production give it a key role in any such regional strategy.

B. U.S. Assistance Objectives

The principal objective of U.S. assistance is the enhancement of rural household productivity and income through agricultural development. As the development analysis section indicated, most rural Malian households currently derive their livelihoods from rainfed crop production, livestock husbandry, and the gathering and processing of forest and agricultural commodities. In so doing they attempt to provide their own food security and generate the cash incomes needed for obtaining clothing, education, health services, transportation, and other basic needs. They also provide much of the food supply for urban dwellers, and a significant part of the tax base for government's recurrent revenues.

The success of rural peoples in these endeavors has been hampered by a number of factors described earlier as the principal constraints to Malian development. These include inappropriate price policies, heavy taxation, restrictions on private trade, poorly managed parastatals, and insufficient technological and human resources. The USAID will therefore seek to address those key constraints which the analysis has identified. The Mission's approach is consistent with the current policy directions of the GRM as they appear in the Five Year Plan (1981-85) and in the recently released Food Sector Strategy Policy. In particular, the latter stresses the importance of increasing farm productivity and of the need for appropriate incentives. Recent speeches by the President of Mali and resolutions of the national political party give clear indication that Mali is fully aware of the issues and is prepared to take hard decisions and accept the possible consequences in order to make progress in a systematic way.

In supporting the GRM in its efforts the USAID strategy is to concentrate investments in the agricultural sector (especially food crops), in specific agro-ecological zones, focus on a limited number of fundamental problems and reduce its management support requirements. A balance will be struck among short-term production efforts, medium-term policy and management improvement efforts, and investments in longer-term institutional development in the agricultural research and education systems.

This approach differs from the past in important respects. In previous years, drought conditions, agency policies, the state of professional thinking, and the funding outlook led to interventions across many sectors. From this broader approach, there are still some small and worthwhile projects in the Mali portfolio which respond to certain special needs, such as the training of rural women, provision of well water, assistance in aquaculture, equipment of a higher teacher training college, improvement of a regional road, village reforestation, and support for renewable energy research. Many of these were good targets of opportunity, have proven value, and should be supported until completed according to agreements. However, they have tended to diffuse the Mission's limited financial and management resources across several sectors and projects and our role will have to be reduced appropriately.

In today's context of limited resources, the Mission believes a more selective approach is called for. Although cognizant of the tragic manifestations of poverty, the Mission believes that emphasis should be placed first on supporting the production potentials that exist. Between a strategy emphasizing growth and one emphasizing basic needs, the Mission is convinced the former offers better hopes of bringing Mali closer to self-sustaining development. This would eventually enable it to attend to its social needs with its own means, and avoid perpetual dependency on external assistance. As to whether faster growth might breed greater inequality and greater deprivation of the most vulnerable sectors of society, the Mission believes that the strengths of Malian society and its egalitarian cultural values will ensure that the benefits of growth will be shared widely--especially if growth springs from increased productivity in rural households.

The current approach is different in other respects as well. In the past, it was assumed that technically and economically viable packages existed for farmers in many areas, and that direct assistance to farmer production through integrated rural development projects would be effective in raising food production. Time and experience have shown that such assumptions about the agricultural sector and its managerial capabilities are not tenable. This is not to deny the existence of specific technical innovations which would incrementally aid farmers in certain zones. However, there are unfortunately few breakthroughs of major proportions on the horizon.

Geographical and sectoral concentration has thus become essential not only to achieve effectiveness, but also to make the best use of the limited financial, technical, and managerial resources now available to both the USAID and the GRM. In FY 1983 and FY 1984, the Mali program will therefore continue to effect major changes in its direction and operating modes; and these will become especially evident in FY 1985. They are discussed in greater detail in the following section on program strategy.

C. Program Strategy

Within the agricultural sector, there will be five broad strategic thrusts designed to enhance rural household productivity and incomes. There are two overall emphases:

-- Policy Reform - In agricultural price policies, in the organization and administration of agricultural development activities, and the removal of constraints on the private sector

-- Management and Planning Improvement - To increase administrative and financial management skills and improve GRM planning, execution and evaluation systems

and three clusters of direct agricultural investments:

-- Agricultural Extension - To support implementation of viable crop, livestock, and forestry projects through strengthening extension delivery systems

-- Agricultural Technology Development - To expand the relevance, quality and quantity of research, and support institutional development in food crops, livestock, and forestry

-- Agricultural Education - To strengthen technical agricultural capabilities through improve curriculums, teaching methods, faculty development, participant training, and general institution building.

These are naturally interdependent efforts over the long run. Improvements in the policy environment and management realms are themes that cut across extension, technological and educational activities. An individual production project will also normally involve extension training, contribute data for researchers, experiment with better management systems, and provide opportunities for expanded private sector participation, as well as increase production. Agricultural education will not only strengthen teaching quality, learning, and extension work, but provide better researchers, planners, and administrators. Similarly, an improved research system will eventually be able to evolve viable technologies for extension workers in more areas of the country.

This clustering of investments attempts to provide coherent direction and guidelines to the USAID/Mali program for the foreseeable future. The programs and projects which emerge are in conformance with the Agency's policies, and are based on the comparative advantage of U.S. society and institutions to contribute in certain fields. Considerable effort has been made to ensure that individual elements do not add to recurrent costs, and should in fact reduce them. Lastly, the program complements and

supplements the efforts of other donors (such as the World Bank and the IMF) who are better positioned to assist the GRM with broad policy reform. More detailed descriptions of subsector strategies and programs are given below.

1. Agriculture

a. Policy Dialogue and Reform. The basic areas of reform were set out in Section I.C.3 of the Development Analysis. Thus, the principal policy reforms seek to produce an environment conducive to rural productivity, income and employment generation. In Mali, a useful dialogue and basis for reform has been established through candid exchanges of positions in documents such as the Aide Memoire of January 1982, CDSSs and various project evaluations; and through donor group negotiations on cereal prices, and the periodic discussions of the Ambassador and other Mission personnel with key Ministers. Particularly useful have been the joint discussions to resolve audit recommendations and to develop improvements in management of projects. Discussions of these specifics have made agreement on broader principles easier for both sides. The key subjects in this reform process are as follows:

(i) Cereal Grain Price Policies. One of the most effective examples of donor cooperation in Africa resulted from a multi-donor sponsored proposal to assist the GRM reforms in the liberalization of producer and consumer cereals prices in Mali. The U.S. played an active role in the conceptual stages of this program and our major instrument to encourage continued progress in the future will be the $10.0 million Cereals Market Restructuring project by which PL 480 grains will be provided. A dialogue will also be maintained on the rice price issue, which continues to be a significant problem.

(ii) Food Sector Strategy Development. In 1982, the USAID assisted the GRM's development of a food sector strategy policy by arranging for consultants from the U.S. Department of Agriculture to work with the Malian team. This strategy paper is a major landmark in the development of GRM thinking, and has laid a basis for donor consultation. We will continue this and are prepared to continue such assistance so that these early strategy directions can be given concrete meaning in the next few years.

(iii) Private Sector Initiatives. Three important studies have been done in the past year in Bamako. They dealt with the investment climate for foreign capital, a preliminary outline of constraints that operate on the private sector, and an exploratory pre-PID consultation which indicated useful directions for the future. The USAID will soon be proposing an Agricultural Enterprises Development (AED) project which will support a number of initiatives. The first phase would include studies to identify the specific laws, licenses, institutional structures, banking regulations, taxes, restrictive policies and practices which presently inhibit the private sector, after which proposals would be made to liberalize or remove these restraints.

The principal thrusts of the project will be to focus on specific private or mixed production and distribution enterprises which could handle inputs and marketing of outputs for USAID-supported agricultural production projects. The nearby Opération Haute Vallée (OHV) project area will provide the first testing ground, and progress on this front will be one of the principal criteria for future funding for the OHV. The same approach will be taken in the OMVS/Integrated Development Project (OMVS/IDP).

To support practical progress in these realms, the Agricultural Enterprises project will also seek to stimulate the development of commercial credit organizations, private farmer/herder cooperatives, training in business and cooperative management and accounting, and the exploration of other investment opportunities for domestic and foreign private funds.

(iv) Rural Development Operations (RDO) Reform. Closely related to the private sector initiatives is the improvement in the functioning of the rural development organizations. Both USAID evaluations and a World Bank funded study (1982) have reported critically on the well known inefficiency of various Opérations and Actions. The GRM is aware of and concerned about their shortcomings. The Mission will benefit from the findings of this study and its own evaluations and audits in the design and redesign of various USAID-supported agricultural production projects such as the OHV. The principal efforts will be aimed at elimination of the complexity of RDO undertakings,

the reduction of staffing and other costs, the restriction of functions to extension type efforts, the gradual elimination of credit and input-output marketing, and the reduction of user fees to the justifiable minimums.

(v) National Planning, Fiscal Reform, and State Enterprises. The Mission believes that funding levels are not sufficient to place USAID in a leadership position in these realms. The USAID will continue to support these major reform efforts being spearheaded by other donors, most notably the World Bank and IMF. For example, in the area of recurrent costs, it is possible that the USAID may help fund a CILSS-sponsored high level seminar in 1983.

(vi) Realities of Policy Reform. As noted earlier in this CDSS, any major policy shifts, even with the best of intentions, are subject to the practicality and timing of the particular moves proposed, and the pace of change with which it is politically and socially possible to pursue them. The reform process requires full awareness of its long-term nature, and the will and patience to endure periodic set-backs and disappointments.

b. Management and Planning Improvement. For addressing the management and organizational challenges, there are three broad strategic fronts along which the Mission will work.

(i) Use of Technical Assistance Personnel. The placement of appropriate technical assistance personnel into operating/executive positions under direct AID contracts is one approach to ensuring improved management. Following a Mission requested audit, progress has been made in this sphere in the OHV project, where the contractor's staff have been put in charge of financial management, vehicle maintenance and repair, and operational planning and control of the extension and credit activities. In the Livestock Sector project, a four-person management development and support team has been designed to work collaboratively within the Ministry. While it is planned that these will be short-term expedients while developing Malian administrative capabilities, they are considered essential to proper functioning of USAID-funded projects at this time. The GRM recognizes that unless there are marked improvements

in project management in the coming year, further support for many efforts could not be justified.

(ii) Management Training. The second front is provided by four training efforts. The existing Development Leadership Training Project will eventually yield 60 Masters degrees in business and public management and development planning for senior level civil servants and private sector personnel. This longer term involvement is complemented by the Regional Financial Management Project which will station two technical advisors in Bamako to concentrate on designing and installing proper financial management systems, and training personnel to operate them in existing projects. Collaboration is also taking place between the University of Pittsburgh and the National School of Administration in a management training course. Lastly, the new Sahel Manpower Development project will provide flexibility to send off other personnel on short-term participant training in particular fields; and to host educational seminars in Mali which will emphasize the policy and management themes so important to future progress.

(iii) Organization Structures and Functions. The third front is related in part to the policy reform strategy. The Mission has already begun and will continue to pursue organizational improvement through the support of national level services that can perform particular functions better than any rural development operation. For example, in the OHV and OMVS/Integrated Development Project areas, the project will move to turn over functional literacy, road building, health, and credit activities to those national institutions more qualified to perform them.

Activity Clusters for Direct Agricultural Investment. While policy reform and management improvement are two overall emphases, their basic rationale remains to support the principal development activities in the agricultural sector. The major areas of investment are extension, research and training in the livestock, crops, and forestry sub-sectors. The broad operative guidelines which have determined the mix among these are:

-- To research the physical, biological and socioeconomic unknowns in order to develop and pilot test improved technologies.

-- To provide trainin[illegible]portunities to Malian staff in the essential technical,

economic and management skills so that institutional capacities are enhanced; and

-- To enter into production efforts when there is a sound technical and economic package, and the administrative ability to deliver it.

c. Agricultural Extension

(i) Livestock. Investment in livestock production in Mali is an essential part of any commitment to raise rural productivity and incomes. It represents a field in which certain constraints can be easily relieved and major opportunities can be capitalized upon. These constraints are in the areas of veterinary health, in the quality control and distribution system for vaccines and medicines; and the opportunities are provided by the excellent markets for animals, and the expanded contributions which livestock can make to food and cash crop production. The livestock sub-sector strategy is based on these facts, and takes advantage of many other key factors described below.

The $17.5 million livestock project rests upon the comparative advantage of the Malian land/water resource base which is well suited to production of cattle and small stock. The livestock industry is almost completely in private sector hands, and is unfettered by price controls. The markets in surrounding coastal countries have proven to be very profitable. Livestock is the second largest export earner after cotton, and may be the leading export if all external sales could be recorded. Livestock are critically important in the daily lives of the 85% of the population who are rural, about 60% of whom own animals. Animals contribute in various ways to well being, including family nutrition, significant cash income, employment risk distribution, and as an inflation hedge.

Perhaps most importantly, livestock are intimately linked to the crop sector by providing animal traction, power, and manure for maintaining soil fertility. The linkages and interdependencies of farmers, farmer/livestock owners, and herders in daily economic life are extensive. The steady supply of oxen is a critical ingredient in overcoming peak season labor bottlenecks that are the major determinants of labor productivity and the absolute levels of food and cash crop production. Of equal importance is the routine exchange network by which farmers provide food grains,

seasonal pastures, and restocking calves to herders, while receiving from herders manure for maintaining soil fertility, meat for critical nutritional needs, and herding services during the growing season. Thus, the livestock industry is a crucial part of the economic life strategies of almost all farmers and herders. It is also a large contributor to the national economy through tax revenues.

The production activities funded by the USAID-supported project are threefold. The first is quality control of vaccine production to insure effectiveness of the medicines. This serves the whole country. The second is the strengthening of the veterinary vaccine and medicine extension delivery system to reach livestock owners. The third is the further encouragement of on-farm finish feeding which is practiced widely by mixed farmers. These investments were the interventions that proved to have excellent benefit: cost ratios, and well validated impacts of major proportions. Emphasis will be on the First and Second Regions of the country in the first five years of a twenty plus year effort. These regions are also where the OHV and OMVS/IDP crop projects are located.

By way of contrast, investments in livestock which have not been chosen at this moment are those concerning range management, water supplies, new extension agent training, and broad sectoral studies. There were various technical, managerial, social, recurrent cost and environmental degradation risks involved in these which are not yet sufficiently well known. The USAID project complements other donor livestock investments by the World Bank in the Fifth Region, as well as Saudi Arabia and the UNDP in the northern grazing areas of the First and Second Regions, and the European Development Fund in the Third Region (Mali Sud).

(ii) Crop Production. The cropping efforts are focused on two important food production cropping systems--that of rainfed sorghum/millet/cowpeas and that of smallholder irrigated rice perimeters. There are a number of strategic rationales for this. There is the well known need to accelerate food production and productivity to reverse the declining per capita production; but more importantly, the sorghum/millet/cowpea systems are typical of the Savannah/Sahel areas which have the largest proportion

of the country's population. Most of the OHV area in particular possesses reasonably good soils and rainfall reliability (1,000 to 1,300 mm), is close to Bamako for manageability, and there are some viable technologies available. The potential for replicability, increased food production, and improvement of the administration of extension, input marketing, and credit activities is significant. Most importantly, the production incentives for these coarse grains is improving due to the multi-donor cereal price policy effort which has already raised farm gate prices so significantly.

It is also appropriate that major emphasis should be given to dryland agriculture rather than large scale, capital intensive, centrally controlled irrigation schemes. Moreover, the GRM's current price policy for rice brings into question the wisdom and economic viability of any large and costly irrigation scheme investment at this time. (However, as noted further below, smallholder irrigated perimeters deserve considerable attention.)

The choice of dryland area concentration in the Second Region complements the livestock program, as animal traction is a major project component. Other aspects considered in the strategy are that other donors are concentrated already in the Third (Mali Sud) Region, and the inland delta (Fourth and Fifth Regions). Lastly, insufficient attention has been given to the sorghum/millet/cowpeas agro-ecological zones. This is unfortunate as they are those areas which require the greatest concentration of effort to reduce Mali's vulnerability to drought.

Similarly, the OMVS/Integrated Development Project effort (in the First Region near Senegal) undertakes to explore the production possibilities of using the extensive but underexploited river water resource base. Tapping the river for irrigated food production is thought to provide another longer range strategic alternative to the food security problem in Mali, and regionally. As large scale, centrally controlled irrigation schemes have proven to date to be unsuccessful in terms of the immense capital costs and management burdens, much current thinking is directed to the potential of smallholder irrigated perimeters. The IDP fits into this important picture as an

essential investment in an area that has a significant concentration of people which will be increasing as the Manantali Dam and other OMVS activities occur over the next 10 to 15 years. It is also likely that this project will contribute in a major way to the Sahel region's food security situation through exports to Mauritania and eastern Senegal.

Another component of the IDP involvement is the provision of carefully monitored data on smallholder agriculture. Such information is essential to the multi-donor effort to have the GRM loosen and eventually remove price controls on rice. With concrete evidence of the potentialities for stimulating production, policy makers will be better assured of the wisdom in raising prices and allowing the private sector farmers to supply the nation's needs. As is well known, the demand for rice has and is continuing to increase at high rates due to its convenience, taste, and responsiveness to increases in income.

A former area of geographic concentration is the Fifth Region (Mopti and Koro). USAID's largest rural development project, Opération Mils-Mopti (OMM), was terminated in 1982 because of ineffective project design and mismanagement. The area still represents one of the most important dryland farming areas in Mali, and therefore must be considered in any long range agricultural development planning. For the present, USAID efforts will be restricted to the continuation of crop research, functional literacy, and forestry activities which can be conducted by existing national institutions. During the evaluation and resolution of the problems of OMM, the Mission will work with the GRM agencies towards future consideration of activities incorporating the necessary management improvements and the results of farming systems research in the region.

Because of project experiences and the necessity of concentrating its resources, the Mission has chosen not to continue with the irrigated wheat and recessional agricultural schemes of Action Blé-Diré, and Action Riz-Sorgho in the Sixth and Seventh Regions. Managerial control, economic viability and supply problems affected Diré; while the distance/time factor and Mission staff shortages were key elements in the Action Riz-Sorgho decision. AID involvement in both projects will be terminated

in 1983. The phase-out experience with private sector inputs and local cooperative organizations may lead to future PVO activity in the Diré region.

(iii) Forestry has been given an important place in the agriculture sector strategy. It contributes to household crop, livestock, nutritional, and environmental systems through various direct and indirect effects on production, income, and employment generation. Certain trees such as alcacia albida provide nitrogen fixation, others give leaf drop and cover for preserving soil moisture, retard wind and water erosion, are essentials for tool making, yield useful fibers and medicines, serve as animal forage at certain times, supply firewood, protect fields, and shelter people and beasts from the sun. Rural small scale industry and trade (especially for women) is often based on the collection, transformation, and sale of forest products such as locust bean species, ronier rafters, doum mats, and baskets. Private commercial business in these realms creates many jobs and cash incomes. This is especially so during the dry season, when they are the major off-farm activities for many low income earners. Tree crops also contribute importantly to good nutrition through fruit consumption. Lastly, they are the third or fourth major Malian export. Karite, kapok, gum arabic, palm products, and fruits follow cotton and livestock as recorded foreign exchange earners.

Because of the important role of forest and tree crops in Mali, the Mission strategy will be to fund certain activities of the national forest services in the areas where the major crop and livestock production efforts are located. This will avoid overloading the rural development operations, and build upon the already tested management capabilities of the forest service which have been established in an existing project. Other donors are not now contributing to forestry in the First and Second Regions. The situation is appropriate for strengthening the Ministry's extension efforts at the project level, and would be a useful point of entry into the policy development aspects as well. While the funds to be devoted are not extraordinary, the impacts are expected to be useful contributions to a balanced agricultural sector production strategy.

d. Agricultural Technology Development: Research in Crops, Livestock, Forestry, and Farm Household Energy Needs

[illegible]ased agricultural production which lend themselves to

solutions through research investments include: poor understanding of farmer/herder household constraints and strategies, slow rate of development of technically and economically viable packages, low level of investment in physical, biological and socioeconomic research relative to the scale of the problems, prevalence of research questions that are not based directly on farmer cash and labor constraints, insufficient on-farm micro-climate adaptive testing, weaknesses in farmer involvement in and linkages along the research-extension-training networks, an overemphasis on cash crops research, and a tendency to concentrate on breeding new varieties rather than improving existing ones. Moreover, there is a need for expanded research attention to cost effective solutions to the crucial issues of animal health, forage production, labor bottlenecks, irrigation technology, forestry products utilization, and rural household energy needs.

Given these constraints, and given the momentous challenges presented by the Sahel/Savannah climatic zones, it is likely that breakthroughs to food security (as elsewhere) will only come through continuous efforts in research. At the moment, the research groundwork has already been laid in the livestock sector project; and the USAID is contributing to a significant project in sorghum and millet breeding and agronomic inquiry. However, in light of the fundamental research needs and the comparative advantage of the U.S. in agricultural research, broader, more comprehensive, long-term programs of investments in institutional support are contemplated. These are described in greater detail below.

(i) Livestock Research. The Mission strategy for addressing constraints in the livestock research sector is part of the 20-year Livestock Sector project. The basic investment is keyed to animal health research. Animal health is one critical constraint (along with water, pasture, and range management) that has the greatest effect on the economic behavior of owners. With lowered mortality and increased fertility levels, owners are more secure and herd offtakes will generally rise. Constant epidemiological research on the nature of the disease and illness threats is required so that the development of vaccines and medicines can stay ahead of the problems. Tick

borne diseases are especially prevalent and will be further looked into by the U.S. Department of Agriculture team working with the Central Veterinary Laboratory. Similarly, the health research will continue to deal with the great difficulty of trypanosomiasis, which limits the pasturage available to herders in the southern dry season grazing areas of the country, and thus limits the potential size of the national herd.

A second focus in livestock research is that of on-farm forage production for mixed crop/livestock farmers. The finish feeding potential for many areas will be immeasurably enhanced by uncovering feasible methods of integrating forage crops into the farming systems presently followed. At the moment, the labor and cash constraints in doing forage crops make it difficult for many to benefit from mixed farming.

Resources are thus being concentrated in these two livestock areas, in which even minor improvements in the state of the art would have very beneficial results. In fact, the return to animal health research investigations is estimated to have a 1.4:1 benefit/cost ratio.

(ii) Crops Research. The present bilaterally, centrally, and regionally funded portfolio has been responding to the constraints listed earlier in very helpful and practical ways. The major effort to attack the sorghum and millet production problem has been through a grant to the International Center for Research in Semi-Arid Tropics (ICRISAT). ICRISAT has been working with the Ministry of Agriculture to carry out basic breeding and agronomic practice research. They are making good progress in their understanding of the physical and biological factors which influence yields and drought resistance, and are experimenting with both domestic and exotic varieties. ICRISAT cooperates closely with the regional Semi-Arid Food Grains Development project (SAFGRAD), which is examining the effect of rock phosphates, intercropping, crop rotations, and streyga weed control. In addition to these efforts, the USAID plays a minor role in a seminal Farming Systems Research venture, supports the work of the West African Rice Development Association (WARDA) on deep water rice, participates in the training and research activities of the Integrated Pest Management (IPM) and Regional

Food Crop Protection (RFCP) projects, helps to facilitate the contributions of various Collaborative Research Support Programs (CRSPs) in sorghum, tropical soils, and peanut evaluation, and cooperates with the International Fertilizer Development Center (IFDC) fertilizer trials. In general, research projects have been among the Mission's most successful investments. The soon to be completed Land Use Inventory project is a good example of an endeavor which provides an essential basis for planning further crop research and production efforts as well as a host of other rural development activities.

An examination of the crop research portfolio indicates that some constraints which seriously affect the potential for agricultural development are not adequately addressed. It is also true that the Ministry's resources are not presently adequate to make as rapid progress as they would like in the years ahead. It is fair to say that the extent of cooperation among extension, training and research communities is not always what it should be. Given this diagnosis, the time is appropriate to explore a major institutional support program for the crop research sector. The ultimate resolution of the Sahelian food production problem will most likely come from a decade long research effort which should begin as soon as possible. However, as cost effective incremental results become available, they will be prepared for extension and incorporated in current production practices. The outlines of such a program would include the following strategic elements.

-- Expanded Farming Systems Research (FSR). FSR would contribute a strong action-oriented on-farm research approach to the development of improved technologies. Farmers, researchers, and extension agents would work together to analyze the physical, biological, and economic facts under field conditions, devise and test out alternative production system changes, and evaluate and promote those elements which could be spread more widely. Such an approach would be one aspect of evolving technologies relevant to small farmers, in linking researchers, extensionists and farmers together, in feeding back results of tests to the research stations, and in suggesting more relevant research questions to on-station researchers.

-- Expanded Food Crops Research by agro-ecological zone. Both the quantity and

quality of inquiries of the existing research institutions could be enlarged from a variety of scientific perspectives. The principal fields might be in the sorghum, millet, maize, cowpeas, irrigated rice perimeters, along with fruits, vegetables, and edible tree crops. More work could be done on soils, animal traction, and other agricultural engineering aspects.

Any such expansion must anticipate a carefully prepared and realistically paced set of initiatives over a twenty-year period. There is no expectation of quick results, although certain elements could be implemented relatively quickly. It will be essential to plan how the existing network of international research efforts, the AID funded central and African regional activities, and the new OMVS/Agronomic Research II project will contribute their parts to the improvement of the GRM's institutional capabilities. Exactly how Mali can best draw upon all these resources will be the subject of detailed discussions between the GRM and the USAID.

What is reasonably clear is that a support package would likely be comprised of the following components: financial support for operating costs; physical facilities, equipment and supplies expansion; degree and non-degree participant training for existing staff requiring higher qualifications and specific skills; selected long and short-term technical assistance; conference and seminar support for information exchange, and cooperation within and among research, extension, and training organizations; and management support for USAID-funded financial, logistical, and personnel aspects.

The Mission believes that a crops research development program would assist the GRM to address certain crucial constraints over the long term, and capitalize more fully on the work accomplished to date. The cooperation of international institutions (such as the center for International Services to National Agricultural Research, ISNAR), and the U.S. agricultural university community will be sought.

(iii) Forestry Research. The applied research component of the projected forestry project will be directly focused on overcoming the major constraints to small-scale forestry production. Support will be provided to the newly created Institute for Forestry, Zoological and Hydrobiological Research. Applied work will be carried

out on optimum nursery techniques for promising indigenous species, the testing of selected exotic species in collaboration with the National Academy of Sciences (NAS), analysis of optimum planting techniques, and studies of natural forest production and management. In addition, several small studies of forestry policy and economics will assist the GRM in the reform of its forestry policies and practices, the use of Forestry generated revenues, and the role of the private sector. Lastly, forestry will be an integral part of the farming systems research program which will assess how forestry can contribute to the productivity and incomes of rural families.

(iv) Household Energy. Closely related to forestry are the firewood energy needs and the potential of wind power development for water lifting for irrigation and potable water supplies. These are serious constraints in the efficiency of labor-scarce farm families. This will relate the work already done in the renewable energy field to farming, environmental, and forestry concerns. Further work in energy aspects of rural life must await the detailed results of the USAID-funded rural energy survey presently under analysis, and the specification of the exact role to be played by the Regional Solar Energy Center (CRES), and its funding of national research and development efforts.

e. Agricultural Education. Educational efforts are designed to serve end-users in the farming, extension, research, and planning/management communities, as well as to produce future teachers. At the present moment, the Mission objective in making agricultural education investments is to raise the quality rather than quantity of agricultural personnel being supplied. The strategy for accomplishing this is to strengthen the formal, inservice, and on-the-job training institutions so they can perform more efficiently, and to forge and reinforce the farmer-extension-research-training networks. The quality problem occurs in all end user fields, from farmers who require training in animal traction, to extension workers lacking substantive knowledge as well as communication skills, to researchers, planners, and teachers whose statistical, analytic, or teaching methods require professional upgrading. These are the types of constraints in the agricultural sector for which education investments are appropriate and effective.

While a detailed study is still to be done, there appears to be no shortage of new personnel emerging from the Malian agricultural educational system at each level, except in certain technical specialty areas. It would in all likelihood be inappropriate to expand the middle and lower level cadres, as they are plentiful, already create a severe burden on recurrent costs, are often deficient in technical competence, and most often cannot be utilized to best advantage because they lack viable packages for farmers.

The main Mission approach to date has been through the Agricultural Officers Training Project which is being executed by a university consortium. This project is designed to transfer skills in curriculum development, instructional materials preparation, and pedagogy at three crops extension training institutes. This institutional development effort gives promise of making sustainable improvements in the system without causing higher recurrent costs. This project has also benefited from close coordination with a World Bank funded group of experts, whose work has been dovetailed with the AID-funded team since project inception.

The Mission has also supported very important and successful efforts in functional literacy in regions where agricultural projects are concentrated. Exceptionally fine results have been achieved to date, at very low cost.

Another vehicle for education and training in the sector has been the short and long-term participant training components of various production and research projects, and of the Sahel Manpower Development Project (SMDP).

The agricultural manpower gap seems to be most severe at the highest technical and planning levels. What would be needed is an investment specifically aimed at improvements in the quality of training, especially the practical training. The earlier discussion on constraints indicates increased research will have to be done to close the technology development gap in the 500 to 1,000 mm rainfall zone. The magnitude and relevance of research to be done will require more higher level trained personnel in agricultural research, policy planning, and technical program management. A number of agriculturalists occupying key positions in the research system (heads of research section, directors of regional stations and substations, heads of commodity research units) do

not have advanced degrees and lack both training and experience in research methods.

Another serious gap in technical expertise exists at the point of contact with farmers, both in research capability and ability to effectively communicate technical knowledge. Retraining of the already abundant extension agents to upgrade their skills, and to integrate them into newly created farming systems research/extension teams, would likely be a focus of training efforts.

The Mission will propose that a carefully delimited agricultural manpower analysis be done by a joint GRM/AID study team. This would determine the precise levels and fields in which existing and emerging staff are needed, identify the strengths and shortcomings of the present educational institutions, and suggest how U.S. institutions might be of assistance. It is expected that investment proposals for some combination of advanced degree participant training, faculty exchange and development, physical and laboratory facilities improvement, curriculum and instructional materials development, and operational budget assistance would be forthcoming. It is possible to envisage a 20-year expansion path beginning with overseas training and strengthening of existing domestic institutions (at the Bachelors level), through to establishment of graduate programs that might even serve Sahelian needs. Such matters cannot be prejudged and must await the result of careful empirical assessments. What is clear is that investments in human capital formation in the agricultural sciences need to begin sooner rather than later if significant progress in food production is to be made a reality.

2. Other Sectors - Health, Roads, Resettlement, Regionals

There are a few projects which do not fully fit the agricultural sector concentration strategy. These are the Maternal Child Health/Family Planning (MCH/FP), Kayes-Nioro Road, Manantali Resettlement projects, and the regional Sahel Institute work.

The MCH/FP project is justified on two grounds. First, it contributes to the long range objective of reducing population growth rates, which complements the agricultural production and research efforts. Mali supports family planning as a part of the effort to improve the health of mothers and children, and this project will increase policy level awareness of demographic factors, as well as spread acceptance of family planning

[illegible]

The second rationale is that improvements in health will eventually permit the application of more human labor to farming activities. At present, many person days are lost due to the endemic diseases which are exacerbated by the prevailing poor hygenic and nutrition practices. The project will work in the Family Health Division of the Ministry of Health to improve institutional management systems which presently do not deliver the needed services as well as the GRM would like.

The Mission chose this particular health intervention because of the comparative advantage of the U.S. in the family planning field, the absence of any other donors working in this area, and sound working relations with the Ministry in the past. Another major factor was the discovery of the unsustainable recurrent cost burden of even a volunteer village health worker based system. The Mission's earlier Rural Health Services project has provided a realistic base upon which to formulate this pilot investment. Along with the continued utilization of centrally-funded projects (INTRAH, JHPIEGO, IPAVS, IFAP, IPPF, CEDPA, CDC, RAPID), this project will establish the population program that Mali will increasingly need to make maximum gains in its development efforts.

The outlook for the Kayes-Nioro Road project remains unclear due to the partial fulfillment of a condition precedent. The project reflects a 1980 commitment, the road has a 13% internal rate of return, and its implementation would facilitate other donor monies being applied to road construction. At present, only about 50% of construction financing is firm. The project would relieve major seasonal isolation and be of significant assistance in reducing transport costs of agricultural produce being evacuated from the First Region area, and thus contribute directly to the well-being of farmers and herders there. It would also facilitate support of the Livestock Sector veterinary extension, Agronomic Research II, and IDP activities which are clustered in the Kayes and Nioro areas. Other donors, such as the Saudi Livestock and Canadian rural development projects would also reap the benefits. A proposal to utilize presently available funds for a less costly improvement and maintenance project is currently under study.

The Manantali Resettlement Project is part of the U.S. contribution to the OMVS effort. It has been a longstanding commitment. It is a necessary resettlement process in which the objective will be to minimize the devastating disruption to peoples' lives and to do all that is necessary to equitably help them reestablish livelihoods elsewhere at a level of well-being that is at least equivalent to what existed in their former homes. After the disruptive dam construction period passes, attention to downstream agricultural development will become possible to pursue. This southern part of the First Region is considered to be a high potential area for agricultural production. It has not received sufficient attention in the past due to health problems and lack of road links. A major World Bank Health project will be working on the former, and the dam's roads will help to alleviate the latter.

D. Criteria for Assessment of Performance and Results

While routine monitoring and evaluation will be conducted, there are a number of key indicators which will also be tracked by the Mission. This is because of the direct and indirect effects of many policy and management factors on progress towards program objectives. These are noted below at both macro-policy and project implementation levels.

1. Macro-economic/Policy Environment Indicators

a. Public Finances - Reaching a new agreement with the IMF in 1983.
- Meeting conditions for release of successive tranches.

b. Agriculture - Progress towards restructuring cereals marketing and pricing policies.
- Progress in adopting measures addressing shortcomings of Rural Development Organizations, and in their subsequent implementation.

c. Public Enterprises - Progress in scaling down public sector enterprises, including sales of some enterprises to private sector and closing down of unprofitable enterprises.

d. Private Sector - Changes in regulatory and policy environment of private enterprises, including opening up to private sector of areas previously the preserve of the public sector (particularly trade), credit policies attuned to private sector, removal of unnecessary bureaucratic controls and regulations hindering activity of private sector, adoption of liberalized Investment Code.

2. Project Implementation Management Indicators

a. Conformance with financial management and accounting requirements, incidence of problems, and degree of severity.

b. Lowering of operating costs by reducing staff and other expenditures.

c. Enforcement of and support for professional personnel management standards, and discipline in work places regarding recruitment, selection, job and task specifications, performance standards, and supervision and evaluation.

d. Implementation of improved budgetary, logistical, extension, and vehicle maintenance and repair planning and control systems.

e. Establishment of alternative private sector mechanisms for the supply and marketing of goods and services which are utilized by operations and actions.

f. Encouragement and support for private farmers/herders' cooperatives and associations.

g. Collection of quality baseline and progress reporting data for planning and evaluation purposes.

h. Establishing financial viability for agricultural development organizations.

i. Reduction of functions in agricultural development organizations to primarily extension.

III. ASSISTANCE PLANNING LEVELS

A. Funding Levels. If there is clear positive movement by the GRM in accordance with the performance indicators, the proposed strategy calls for a steadily rising long-term commitment to assist Mali's development. The assistance planning levels table demonstrates this trend. The table has been developed along functional lines, rather than the conventional broad sectoral breakdowns. In this way, the distribution of investments across the program portfolio can be more easily examined.

At present, a considerable pipeline of about $27.0 million exists. This occurred because of the slow draw-down against large technical assistance and construction contracts and the sharp cut in rate of local cost expenditures during the past two years. It was further compounded by the financial management problems encountered in

the projects, and the delays involved in the certification procedures. Financial standards have been set, proper monitoring and support has been established, and in FY 1983 and FY 1984, the pipeline will be drawn down considerably as the major crop and livestock projects move forward. FY 84-85 will reflect the coming on stream of the new generation of projects put forth in this CDSS.

B. Portfolio Management. A workload analysis indicates that FYs 1983 and 1984 will be concerned with phasing out many existing efforts, implementing a few new starts, and designing the major initiatives to begin in 1985. To handle the workloads expected, the Mission has devised various methods.

There will be two major approaches to the workload issue. The first is to design a management unit into each project as part of the technical assistance team. These personnel would handle the major implementation problem areas of the past--financial management, operational planning and control, procurement and maintenance. This is expensive, but it does have certain distinct advantages; and is not diversion of funds away from project purpose. (1) It helps to transfer practical management skills to Malian colleagues. (2) It takes the workload off Mission project officers who would otherwise have to concentrate on project inputs provision, rather than monitoring and guiding the key output and purpose achievement activities. (3) It reduces (but does not eliminate) the risks of interrupting the flow of funds to project activities due to management systems breakdowns, which in turn often creates misunderstanding and bad relations. (4) By providing supplementary support, it relieves the top GRM managers from many worries as to how their own already overburdened administrative systems will function.

The second approach to the implementation workload problem is to utilize contractors as assistants to Mission project officers. The Mission has been fortunate in being able to obtain the servides of a few French speaking, Africa experienced individuals whose contributions are most significant. This approach will be continued as necessary.

Table 7: Planning Levels ($ millions)

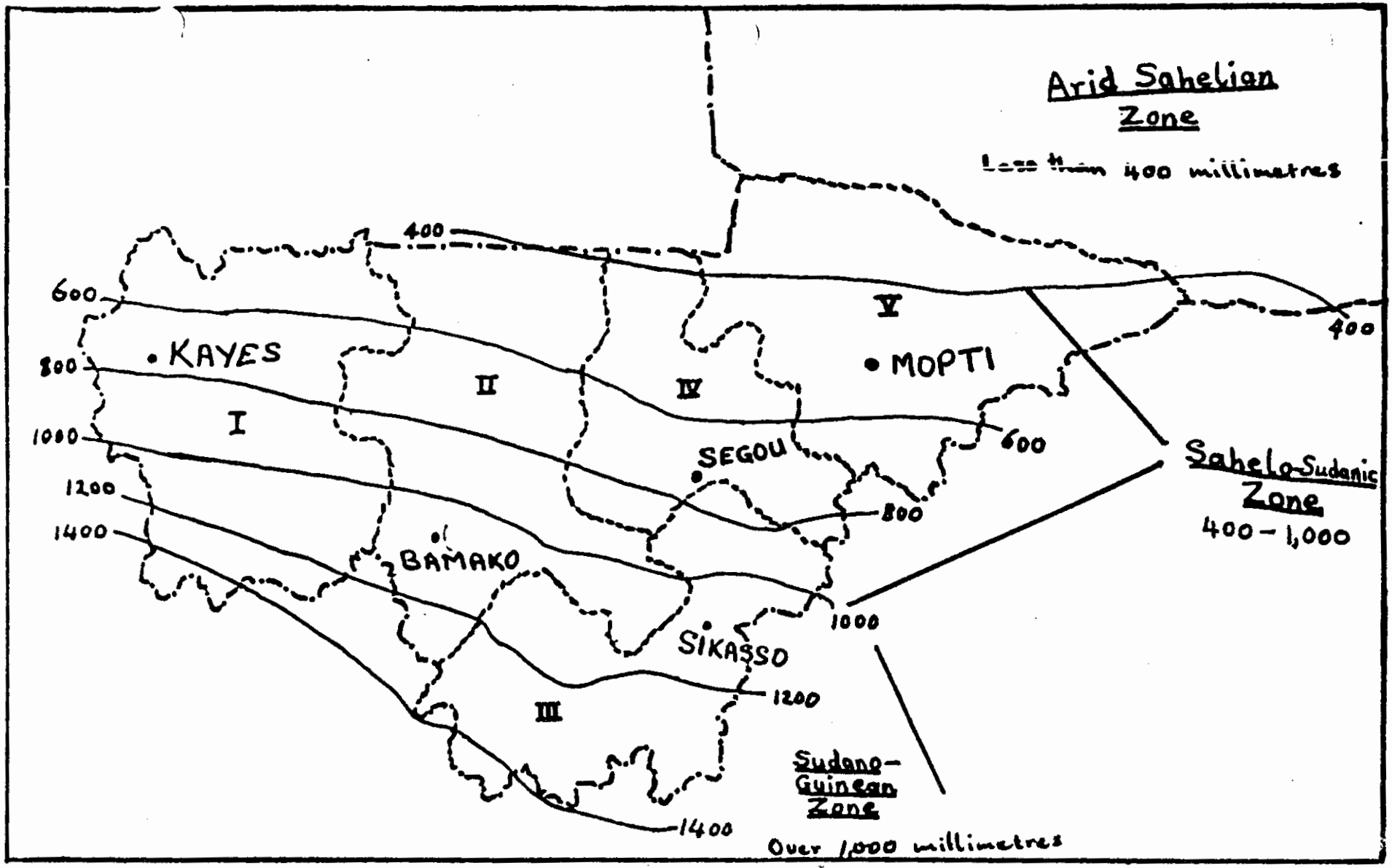
Fiscal Years	1984	1985	1986	1987	1988	1989
AGRICULTURE						
Policy Reform	0.8	1.0	1.0	1.0	1.0	1.0
Agricultural Enterprises Dev.	.820	1.0	1.0	1.0	1.0	1.0
(Cereals Market Restruc.-PL480)[1]	(2.0)	(2.0)	(2.0)	(2.0)	(2.0)	-
Management and Planning	1.7	2.0	0.4	1.5	1.5	1.5
Devel. Leadership Training	1.0	1.216	-	-	-	-
Management Development	-	-	-	1.0	1.0	1.0
Livestock Management Unit[2]	.696	.837	.464	.500	.500	.500
(Sahel Manpower Dev. II)[2]	(.274)	(.274)	(.274)	(.274)	(.300)	(.300)
(Sahel Regional Finance Mngt.)[4]	(-)	(-)	(-)	(-)	(-)	(-)
Agricultural Extension	3.3	3.5	3.5	3.2	3.2	3.2
Operation Haute Vallee I	2.0	2.0	.483	-	-	-
Operation Haute Vallee II	-	-	2.0	2.0	2.0	2.0
Livestock Veterinary Extension[2]	.537	.645	.358	.500	.500	.500
Livestock On-Farm Feeding[2]	.447	.537	.298	.400	.400	.400
Forestry Development[2]	.330	.330	.330	.330	.330	.330
(OMVS/Integ. Dev. Proj.)[3]	( )	( )	( )	( )	( )	( )
Agricultural Research	2.8	4.6	5.5	6.4	6.4	7.4
Livestock Animal Health Res.[2]	.840	1.009	.560	.900	.900	.900
Livestock Forage Prod. Res.[2]	.480	.577	.320	.400	.400	.400
ICRISAT	.820	-	-	-	-	-
Crops Research Dev.	-	2.0	2.5	3.0	3.0	4.0
Farming Systems Research/Extn.[6]	.700	1.0	2.0	2.0	2.0	2.0
Forestry Research[2]	-	.170	.170	.170	.170	.170
(OMVS/Agronomic Res. II)[3]	( )	( )	( )	( )	( )	( )
Agricultural Education	-	-	1.5	1.5	2.0	2.0
Agricultural Officers Training[4]	-	-				
Agriculture Education	-	-	1.5	1.5	2.0	2.0
GENERAL DEVELOPMENT	1.0	1.0	1.1	0.5	1.0	1.0
Health-MCH/FP	1.0	1.0	1.1	.5	1.0	1.0
Small Projects Assistance	.040	.040	.040	.040	.040	.040
Kayes-Nioro[4]	-	-	-	-	-	-
(Manantali Resettlement)	(1.9)	(3.0)	(3.0)	(2.1)	-	-
(Sahel Institute)	(0.4)	(0.250)	(0.3)	(0.3)	(0.3)	(0.3)
(Demographic Data Coll.)	(1.8)	(1.108)	(0.7)	-	-	-
TOTALS[5]	9.7	12.3	13.1	14.2	15.2	16.2
Non-add: (Regionals)[3]	( )	( )	( )	( )	( )	( )
(PL 480)	(2.0)	(2.0)	(2.0)	(2.0)	(2.0)	-

Notes:
1 Estimate only. Annual obligation will depend on evolving food situation.
2 Out-years are estimates only as follow-on projects are planned.
3 To be determined. Precise figures not yet available.
4 Projects are fully obligated. Listed here to note continuing implementation.
5 Totals are rounded.
6 FSR/E project will obviously fund extension work as well as research, but exact [illegible] between the two cannot be anticipated fully.

Four other factors also indicate that the workloads will be bearable. The Mission possesses on its staff a number of foreign national staff whose expertise has been growing; and they carry out the principal routine functions with minimal supervision. The Sahel Regional Financial Management Project (SRFM) is beginning in 1983 and will be providing two technical advisors to work with the Ministries which receive AID support. This will relieve the burden on the Controller's Office, which has been rendering much needed assistance to various Ministry accounting units. The types of projects being supported in the future are considerably less risky than the complex integrated rural development (IRD) efforts in the past. This is because the financial, logistical, political, and technical complexities of agricultural production projects are often very great. The institutional development and research projects now on the planning boards (while having their own set of unique problems), do not generally give rise to the types of grievous difficulties that have been experienced in the IRD investments. In addition, the increased geographical concentration of the portfolio in the First and Second Regions will alleviate much of the monitoring travel time problem which created management control issues in the past. Lastly, because of the planned eight to ten year life of project in the future, the amount of design work required after 1984 should decline considerably.

C. U.S. Direct Hire Staffing Levels. Direct hire staffing to support the program has been mainly determined by AID/W in light of general Agency staff reductions, and the ability to supply appropriate DH personnel. At present there are 27 DH positions of which 3 will be deleted in FY 1984. It is expected that two more positions will be assigned to handle the major OMVS projects, yielding 24 DH personnel for the bilateral program and 2 for the regional portfolio. The current planning figures indicate a continuation of the program with only gradual increases in funding levels. The Mission therefore foresees the maintenance of the same direct hire levels for the remainder of the plan period. It is possible that upon departure of some incumbents, the USAID may be able to relinquish certain other positions and realign the workload for contract

coverage. There are, of course, both practical and legal limitations on the use of contractors to assist direct hire officers in the performance of their duties. Thus, while there can be some trade-off between the two groups, care must be taken to provide adequate direct hire staff to provide the professional policy and management continuity so important to long-term development programs.



MALI: Administrative Regions and Climatic Zones

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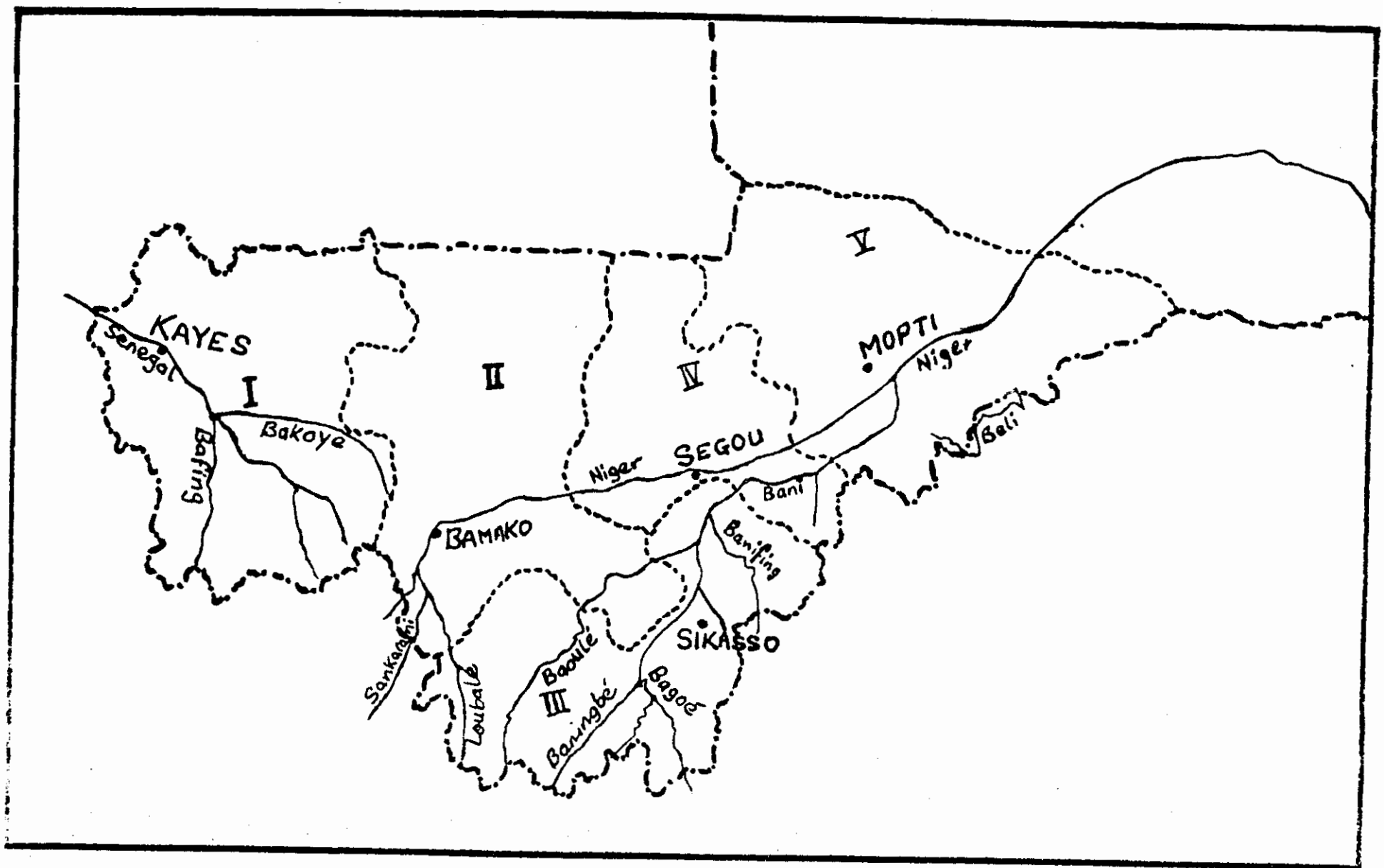

River Resources

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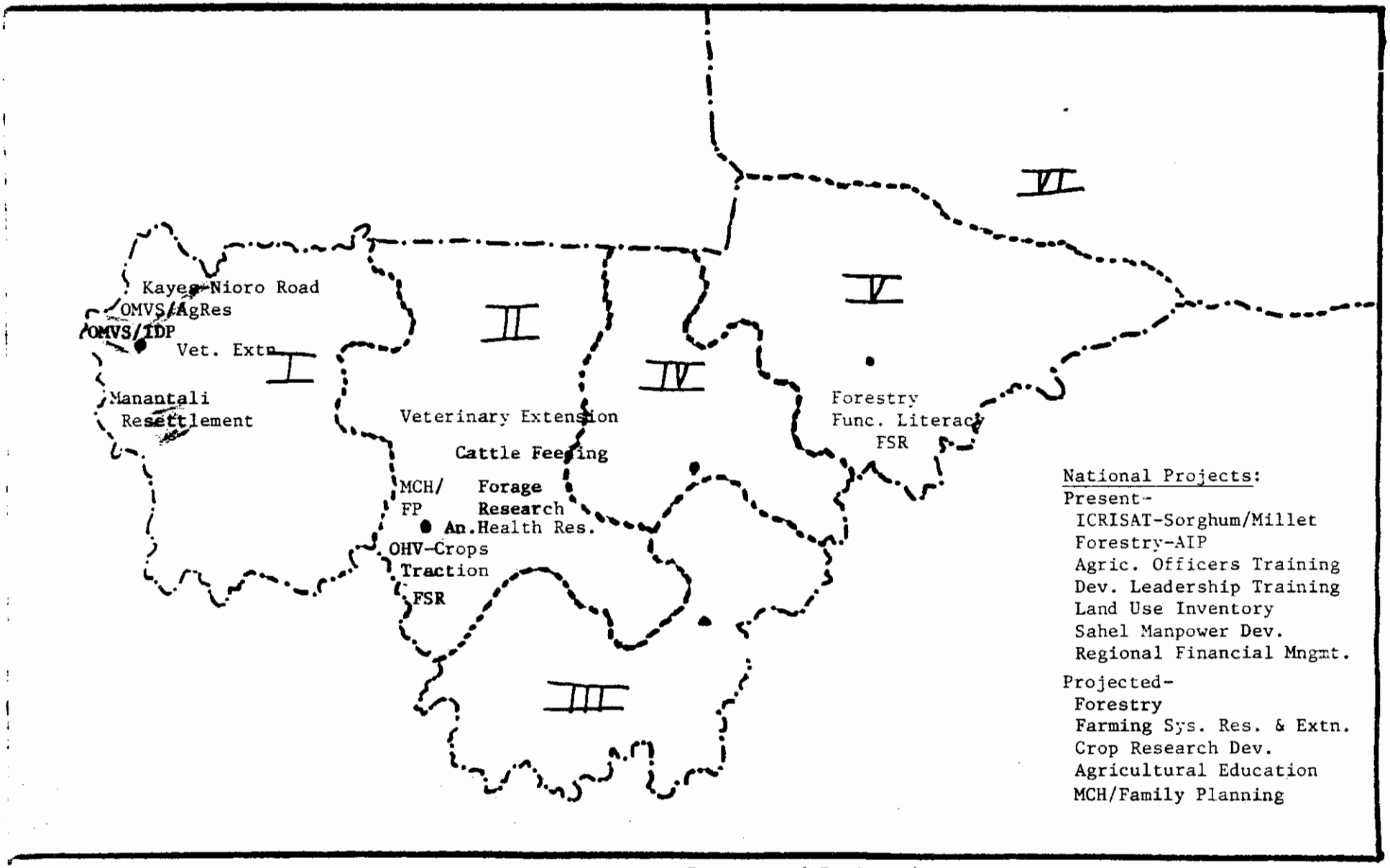

USAID Projects: Present and Projected

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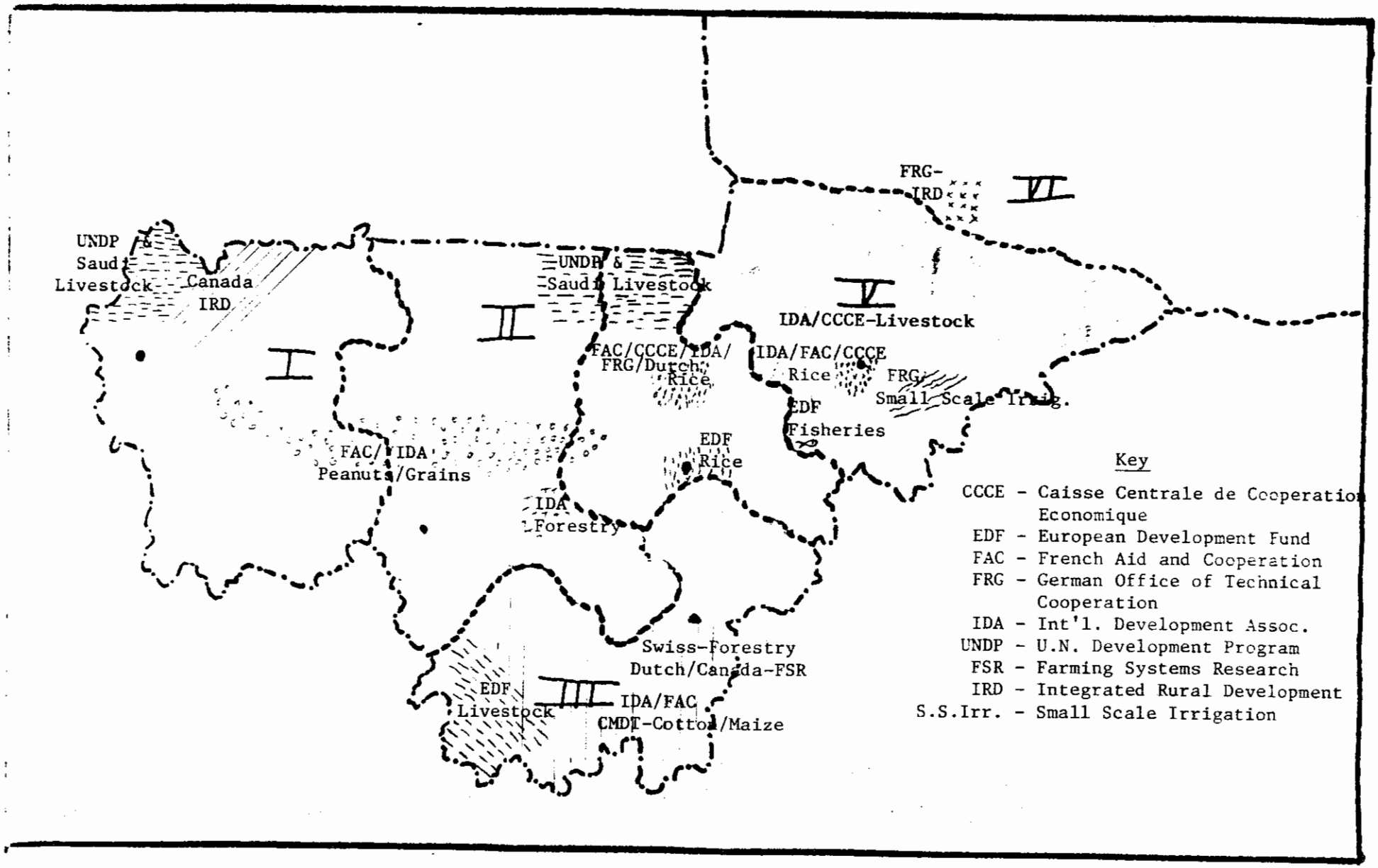

OTHER DONORS: Principal Projects in Agricultural Sector

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