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Country Development Strategy Statement

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SAHEL

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Agency for International Development
Washington, D.C. 20523

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THE SAHEL DEVELOPMENT STRATEGY STATEMENT

Executive Summary

The multi-donor Sahel Development Program (SDP) encompasses the combined efforts of much of the world's donor community in eight countries: Chad, Niger, Mali, Upper Volta, Senegal, The Gambia, Mauritania and Cape Verde. It was initiated in 1976, following several years of emergency drought relief and reconstruction in the Sahel. In 1978 Congress formally created A.I.D.'s contribution and commitment to the Program with the proviso that U.S. participation be limited to ten percent of the total annual donor committment. The goals of the SDP are food self-reliance under conditions of sustained economic growth in a restored and stabilized environment. At that time, the program as termed "a Contract for a Generation," acknowledging a 20 - 30 year time frame for the participants to achieve their goals. While A.I.D. is committed to these same objectives, the U.S. committment is subject to continuous review.

The economies of the Sahel countries which border on the Sahara Desert are based predominantly upon subsistence, dry-land agriculture. The fundamental obstacles to the development of this region lie in the determination and implementation of the necessary technical means needed to increase per capita agricultural production. To achieve this goal in the primitive conditions of the Sahel it is necessary to develop its physical, human and institutional infrastructure. Most of the thirty-five million people in these eight countries are illiterate, widely dispersed, and

dependent upon low-yielding agriculture and pastoralism. There is as yet no available alternative technology which could be applied to rapidly improve food production.

Between 1976 and 1982, the Western and OPEC aid donors committed approximately $8 billion to rehabilitation, budget and balance of payments support, food aid and development investment in the Sahel. (An appreciable quantity of Eastern Bloc resources, mostly for military purposes, was also contributed.) For its part, A.I.D. committed $600 million in Development Assistance plus $300 million in P.L. 480 food and $10 million in Economic Stabilization Funds (ESF).

During this interval, cereals and livestock production regained their pre-drought levels and the average quantity of cereals output modestly increased. Yet rainfall has continued to be markedly less than the annual averages experienced during the pre-drought decade of the 1960's. The absolute drought has persisted in certain places (Cape Verde and Mauritania) and returned periodically in others. In certain respects, the region's dependency is actually worse given the high-rate of population growth (2.5 - 3.0 percent annually) and the major disruptions, e.g., the oil shocks and world recession, within the global economy.

The net effect of the experience of 1976-82 has been, at best, very slow growth of average individual incomes, declining per capita production and a net deterioration in the financial condition and short term economic prospects of the Sahel countries. Sahelian external debt and annual debt service have increased, export earnings have declined, fiscal imbalances exacerbated and the overall dependency of these countries upon external, concessional resources has dramatically increased.

To cope with the harsh natural conditions of the Sahel combined with the distressing international economy of recent years has been an Olympian requirement; to have recovered from the devastation of the initial drought, to have developed the capacity to withstand continuing drought, to have achieved real per capita improvement, however limited, and to have undertaken substantial basic measures for development and future improved production are the achievements of the Sahel states and the donor effort to date. Much of the multi-donor aid to the Sahel has been directed toward current consumption and economic stabilization. This type of aid will probably be required for several years. But the focus of the development effort has been to address the Sahelian production systems, some of the most primitive in the world and which are exacerbated by an exceptionally harsh environment extremely lacking in natural advantages.

A.I.D.'s development effort initially had little information and understanding of the physical, institutional and policy environment in which economic improvement was to take place. The acquisition of data was painful, costly and time-consuming. However, systems were set up within the program to provide a continuous and increasing flow of data and to accumulate it as efficiently as possible. At the same time, A.I.D. mounted pilot investment initiatives to assure the availability of the variety of resources needed to achieve the program goals. It also began efforts to establish conducive official policies and public and private institutions, to provide training ranging from general literacy through all types of relevant technical specialities, to construct infrastructure and to supply equipment.

The idea of the coordinated Sahel Program is to maximize the effect of all donor and indigenous efforts in development by first agreeing upon

priority objectives and then seeing to the most advantageous application of all available resources. By organizing in a variety of ways under the auspices of the cooperative institutions established to implement the Program, i.e., the CILSS (committee of the Sahelian states) and the Club (organization of the donors), the efficiencies of coordination in the Sahel are being realized. It has worked to provide information and research, to share institutional resources and scarce personnel, to mount parallel actions where individual efforts would have been inadequate, to resolve issues which threatened the success of everyone's effort and to minimize contradictions and redundancies. Thus, while this cooperation is far from perfect, it has yielded tangible and substantial benefits.

In early 1984 development in the Sahel is in its early stages. Economic transformation of this region will only be realized over an extended period and then only if systematic and deliberate support is assured. In 1982-1983 and extending into 1984, A.I.D., the Club, the CILSS and individual Sahelian countries carried out a number of assessments, audits and evaluations in order to identify progress, problems and required adjustments. These have led to and will continue to yield improvements, for A.I.D., in the type and extent of A.I.D. initiatives; for the program, in coordination and focus; and, for CILSS, in the efficient use of resources. This introspection has revealed that the Program has achieved recovery and prevented the recurreance of disaster and has made some progress toward intermediate development targets. But there have also been a number of false starts and some tactical approaches have had to be revised. It has become clear that the Sahelian governments, because of limited financial resources (the recurrent cost

problem), are not able to contribute as much to development as had been expected. Moreover, many of the initial development actions were too diverse or not consistent with the program priorities that shortages of indigenous skills were undercutting all initiatives.

A number of corrective measures have already been taken to address these issues, most importantly, the community has come to understand that hopes for rapid improvement in production and incomes based upon implementation of better technologies are not realistic at this time because effective techniques in the Sahelian environment are not known or are too costly. In addition, we have found that we are obliged to assist to a much greater extent than anticipated with current consumption, economic stabilization, policy reform and human capital formation.

The Strategy for the A.I.D. Program

We assume a continuing annual aggregate of donor assistance to the Sahel, in 1983 terms, of about $1.5 billion and an A.I.D. program of about $90-100 million in Development Assistance (1983 dollars) plus PL 480 commodities and some Economic Support Funds (ESF). We will have to help with the immediate problem at sustaining current consumption levels and financial and economic stability by applying some of our resources to help with balance of payments, budgetary support and food imports. The economic stabilization measures will be used to affect substantial reform in official policies, institutions and practices where such adjustments are determined to be required for effective implementation of economic development. We will use local currencies generated from stabilization aid and food sales to finance local costs associated with improved production.

Given A.I.D.'s own institutional priorities and strengths, we will focus our overall Sahel program and individual country programs in a few selected areas, consistent with our management capabilities. Priorities will be agricultural research and production, policy reform, health and family planning, training, infrastructure, conservation and environmental protection. Not all of these initiatives need be undertaken in each Sahel country because of funding and management limitations.

Given the agriculture production priority, A.I.D. will devote a preponderant share of its resources to dryland and irrigated food cultivation and animal husbandry. Regarding the latter, livestock are a very important resource for the Sahel. After extended research and trial interventions, we have become convinced that traditional practices of pastoralism are well adapted to the Sahelian circumstances. However, there are significant opportunities for services and investments which will help improve the efficiency and aggregate output of livestock products. Animal health services can be improved through known technology and veterinary techniques. The pastoralists have proven their willingness to purchase these benefits when they are available. In addition, surveys have revealed substantial areas of underused range and fodder because of the absence of nearby water points. Hence, A.I.D.'s interventions in the pastoral areas of the Sahel will focus on health delivery and water points development, as well as on assisting the institutions which provide these services and training. In the agriculture areas, A.I.D. encourages mixed farming and animal traction and will undertake selective research into the cultivation of fodder particularly in conjunction with farm management and crop rotation.

After many trials of a variety of technical interventions, we still do not know enough about alternative varieties, technologies or systems of production to implement any broad-scale reform in rain-fed food cultivation in the Sahel. It is true that there have been limited successes with innovations such as animal traction, special varieties of cereals, and new crops, e.g. maize and water management. These adaptations are implemented when they appear to be appropriate. In addition, there will be continuing attention given to paced training and expansion of extension services, food crop protection, supply of production inputs, improvement of marketing and distribution and policy reform. However, because the knowledge required to improve agricultural production adequately to achieve the program goals is not yet available, the first priority must be agricultural research. This research will require training, close collaboration with the farmers themselves and intensive biological and technical investigation of promising alternatives of varieties, techniques, fertilizers and farming systems. Concurrently, we will undertake to develop training institutions, the agricultural infrastructure already installed, and that enabling infrastructure needed to open up production possibilities.

Our investigations have convinced us that the most likely evolution of rain-fed agricultural production will not yield the output goals and schedule we have set for the program. This production will inevitably be hostage to periodic severe drought. It is therefore advisable and necessary to undertake a major effort in irrigation development to exploit the considerable volumes of river water which now pass through the Sahel unused. While much irrigation is currently practiced, only about ten percent of the

potential is being exploited. A.I.D. and others have hesitated to undertake major efforts in irrigation because of the expensive infrastructure required, the technical sophistication involved in the operation, and the dismal experiences with many initiatives to date. Yet, irrigation development is required to realize the region's production potential and assure food security and we are convinced that these problems can be overcome. We propose to proceed deliberately, to acquire the necessary knowledge in selected pilot investments, to rehabilitate infrastructure in place and to gradually expand the activity as our competence improves.

Development of human resources is sine qua non for economic improvement. Overall literacy in the region does not exceed twenty percent. Unfortunately A.I.D. has neither the expertise (for this predominantly traditional French system) nor the resources to address the overall education requirement. But we do foresee devoting an order of 15-20 percent of our resources to a variety of training initiatives which will assure the expertise required by our own development activities improve the capability of those who work with our and the overall development program, provide the knowledge required by the farmers and other target beneficiaries of our program and, selectively, contribute to general educational planning and education.

Activities in public health and the integration of family planning services into the public health systems contribute to the productive capability of the populace. They are also necessary humanitarian measures in a truly threatening and unhealthy environment and address the demand side of the food sufficiency objective. The most effective interventions will be those which exploit the investment already made in institutions and personnel

by helping organize the system better and by providing basic implements, medicines, contraceptives, infrastructure and financial resources. The efficiency of purchase and distribution of pharmaceuticals will have pervasive systemic importance. Assistance and training to provide better planning and information in the health ministries will also have broad beneficial impact. The major service delivery interventions will be in the improvement or creation of maternal/child health clinics, the provision of services for oral rehydration (ORT) and immunization against childhood diseases and the implementation of rural health systems (pilot rural health worker projects). All the foregoing may include research and surveillance components. A.I.D.'s health and family planning activities in any one country will comprise only one or a few of the above because of our limitations of personnel and resources.

Our contributions to environmental stabilization and energy conservation are through forest management, protection of the woodlands, reduction of fuelwood consumption, plus erosion control and soil conservation. There is continuing and accelerating degradation which stems principally from the cutting of trees and brush for fuel. There is yet no accessible solution to the fuelwood problem. Consequently, we are forced to employ measures which are useful in themselves but will only slow and not reverse deforestation. These actions include (a) reform of official practices in management and regulation of the woodlands, (b) research to discover a means to appropriately counteract degradation, (c) training of researchers, teachers and forest managers, (d) development and popularization of fuel conserving wood stoves (a process which has very promising near-term possibilities), (e)

scientific management of natural forests and (f) soil conservation and water management. While during the planning period there will be a constraint of limited absorption capacity in this sector, A.I.D. will press interventions to the optimum considering the fundamental importance of success in reversing environmental degradation.

A Balanced Program

The variety of actions required for a competent program of agricultural production must be implemented as a coherent whole. First, we will have to identify and help bring about the necessary official policy and institutional environment to enable development to proceed. Training and education will be implemented as components of projects or will be designed to generate those talents required for the success of the production program. Public health interventions will occasionally be linked to agricultural initiatives or be located in those areas in which A.I.D. has undertaken other activities. Livestock and conservation activities are frequently integral to crop cultivation, etc. A.I.D. has learned in the Sahel to focus its efforts physically and sectorally to ease management and to exploit complementarities.

Comprehensive and coordinated agricultural development will be achieved through the coordination of all donor and Sahelian programs. This is accomplished through a system (still in evolution) of frequent discussion of activities, collaborative research, and information exchange at all levels through the Club/CILSS coordination efforts.

INTRODUCTION

The Sahel consists of eight countries: Cape Verde, Chad, The Gambia, Mali, Mauritania, Niger, Senegal and Upper Volta. These countries are contiguous (except for the Cape Verde Islands) along the western two thirds of the southern Sahara Desert. As a group they became the focus of world relief, rehabilitation and development attention during the drought emergency of 1973. Although each country is distinct in its own way, they have in common similar geographical and physical endowments, economies and economic problems. It was the exigency of the drought which impelled the Sahel states in 1973, to organize their Comite Interetat pour la Lutte Contre la Secheresse du Sahel (CILSS) as a collective appeal for international aid. The donor community responded with relief assistance and, in 1976, with an informal organization, the Club des Amis du Sahel (Club) to coordinate the development effort. The United States has been an active participant in the cooperative program since the beginning (See Assessment of the Sahel Development Program, Annex I, A.I.D., March, 1983).

The CILSS/Club devised and adopted a plan (Strategy for Drought Control and Development in the Sahel, 1980 Revision) which the U.S. accepted and to which the various actions within A.I.D.'s program attempt to conform. The collective strategy has identified Sahelian food self-reliance in a rehabilitated and stabilized environment (the essential base for economic growth) as the priority goals. It consciously minimizes other aspects of economic development, if they can be by-passed without affecting the achievement of the primary goals. A.I.D. intreprets food self-reliance as the capacity of the region as a whole to meet its food consumption requirements through its own resources.

The Sahel Development Program (SDP) includes, in the broadest sense, all of the bilateral, multilateral, national and international development actions of the donors and Sahelian states working in the region. The CILSS/Club and their specialized organizations and activities are responsible for the coordinationof these efforts. Since there may be as many as forty or fifty donors, a multitude of PVO's, universities, host countrty entities, etc. operating in each country, coordination and coherence in inevitably a formidable problem. In order of magnitude, combined donor disbursements (not including the East Bloc for which only partial data are available) were $1.2 billion in 1980 and have continued at that approximate level, in real terms, to the present. A.I.D.'s development assistance participation in the SDP is limited by law to ten percent of the aggregate donor contribution and has, in fact, averaged about seven percent of the annual total. The same legislation is the basis for the singular nature of A.I.D.'s program in the Sahel.

In brief, A.I.D.'s Sahel Program consists of (a) the bilateral A.I.D. team and program in each of the eight CILSS countries, (b) a portfolio of regional and subregional projects which are characterized by a centrallmanagement component plus project activities in some or all of the Sahel states and (c) special organizational arrangements for planning and coordination (the Sahel Mission Directors' Council which meets periodically, a team for planning, one member of the Club Staff and the liaison with the FAO provided by the A.I.D. Attache in Rome).

Political Perspectives U.S. contact with the Sahel is compassionate but also pragmatic, the latter particularly with regard to Senegal, Niger and Chad where we have compelling political/security interests. U.S. political

concerns in these and other Sahel countries are inter-woven with numerous international and domestic factors, economic considerations and humanitarian interests. All have a bearing on the achievement of U.S. objectives in the Sahel and the Sahel Development Program has a key role to play in accomplishing these goals.

In the Sahel itself, there has been strife and political change. The fragility of African political systems is not new. They are all very young and have to develop their own national identities and modes of operation. This requires time and patience. There is also a North-South problem of a different nature within the region between the desert and mostly Islamic populations of the Sahel and Sudan and the sedentary, more-or-less non-moslems in the South.

With the uncertainty and the danger within and beyond the frontiers, there are signs that the politics are tending toward the liberal and the economies are as well. Moreover, given the nature of U.S. political interest and the Congressional Mandate for a Sahel Development Program we are now at a promising juncture. The reasoning is this: Most of these countries have suffered fifteen-twenty years of failure, dependency and frustration under the original and prevailing attempts at growth through central planning and administration. Officials and the people have had sobering experience with some types of approaches which do not work, i.e., the statist, and they are more willing to try alternatives, e.g., the free enterprise, liberalized market options. We are now witnessing tentative openings toward the center. These should be encouraged and deliberately paced with patience and resources to ease the transition, after which liberalization will have to prove itself. The U.S. and other donors should be there to help assure this, to

cushion transient reverses and to be on hand for emergencies.

As we shall see in the following analysis, success in Sahel development depends upon continued decentralization, functioning markets and individual initiative. Since the donors are providing most of the investment and stabilization resources, they can work collectively with the officials to induce the necessary reforms while providing assurance that we will stand to assist in case of additional trouble. The Sahelians, organized in CILSS and elsewhere, have participated in the analyses of the problems; they know that the conclusions generally prescribe integration, harmonization, liberalization and mutual dependence among themselves and with the international community. They also understand each other's internal political situation and can use this mutuality of approach to reach some resolution. They know, finally that it was the pooling of effort and coordination in the analysis of the problems that brought the benefits of the Sahel Development Program and that continued cooperation in problem analysis, resolution and execution is in everyone's interest.

The Situation in the Sahel

Between 1960 - 1980, the Sahel countries, were increasing per capita GNP at a positive but distinctly modest average rate of less than one percent per year. Of course, that interval encompassed the drought. The relative drought has never been completely relieved in the Sahel (Cape Verde) and since 1980 it has become acute once again, e.g., Mauritania. Little development activity can take place while this is occurring and resources must be diverted for relief purposes. In areas where rainfall levels have become more "normal", we feel that livestock and crop production have recovered the pre-drought volumes of the 1960's and the modest production growth (less than

1 percent/year) is taking place. But because the Sahelian population is now much larger, overall per capita output has actually been declining.

Table I, Basic Indicators, illustrates the situation at the end of 1981. External debt rose at an average rate of 20 percent per year during the preceding decade and was at a level of 50 percent of the aggregate Sahel GNP in 1981. The average debt service ratio was 17.5 percent while the deficit on current account ranged from 16 percent to 50 percent of the respective Gross National Products, even though overall terms of trade had not deteriorated and may have improved. Since the drought, foreign assistance has been increasing rapidly (an average of 20 percent per year) in almost all Sahel economies and now plays a major role (about 15 percent of GNP) in sustaining these economies. Regrettably the normal aid has been insufficient to the need. Currently three countries have in-depth agreements with the IMF and two others are in negotiations.

The litany of problems, with local variations, is more-or-less standard for dry-land developing countries. Maybe the Sahel can be further distinguished by the relative profundity of poverty, isolation and historical neglect. The essential point is that these lands which currently sustain in excess of thirty million people are <u>not</u> hopeless. Exemplary precedents in other parts of the world have taken similar endowments of land and water in a tropical climate and prospered.

BASIC INDICATORS - THE SAHEL

($ or $ Millions)	CAPE VERDE	CHAD	GAMBIA	MALI	MAURITANIA	NIGER	SENEGAL	UPPER VOLTA
Population (million)	0.3	4.9	0.6	7.0	1.6	5.8	6.0	6.2
% Growth Per Capita GDP (1960-80)	NA	-1.8	1.7	1.4	1.6	-1.6	-0.3	0.1
Per Capita GNP (1981)	270. *	120**	350	190	480	340	500	240
Current Account Balance (1981)	NA	NA	-105	-238	-264	-265	-579	-200
External Debt (1981)	NA	143	128	498	827	605	1,057	296
Annual Debt Service	NA	14	4	37	54	63	99	14
Debt Service/Export Ratio (%)	NA	10	16	24	17	21	24	11
Net External Resources (1980)	64	35	82	254	149	256	448	223
Net Concessional Aid 1980	64	35	54	252	159	170	263	210
Official Expenditure plus investment	NA	NA	109	191*	434	743	1,065	362
% Distribution of National Official Expenditure								
Defense	NA	25,8	NA	17,7	29,4	3,8	10,7	16,9
Education	NA	13,5	6,5	21,6	10,4	18,0	18,9	16,4
Health	NA	4,2	6,3	5,3	2,8	4,1	6,0	9,9

* 1979
** 1980

SUMMARY OF CONSTRAINTS

In 1976, the CILSS/Club endorsed a development strategy which had been drafted by a team of international experts. In its analysis, the team identified the following resources, problems and possibilities for the region and its component countries. While each of the Sahel countries is different in some way, there are enough similar problems to suggest common approaches.

1. The population was widely dispersed, illiterate and rural. 85 percent - 90 percent were engaged in small-scale cultivation and/or pastoralism.

2. Transport and communication links served the few urban groupings, principally the capital cities with a minimal low-volume systems of roads, rail and electronics.

3. International commercial opportunities were limited in size and separated by long distances within the region and, except for those bordering on the Atlantic, isolated from the world markets.

4. The lands are mostly desert and sub-desert and those which do receive rainfall sufficient to support cultivation experience highly variable inter-annual precipitation.

5. The region harbors pervasive endemic diseases which affect a high percentage of the population chronically when not fatally.

6. The economies are low-level, subsistence with little surplus for investment.

7. There is very little industry and few mineral resources of commercial potential.

8. The population is growing at a rate of 2.5-3 percent annually, with high infant mortality and very brief average longevity.

9. The governments are new, weak, inexperienced and poor in financial resources and trained personnel.

10. Trade potential is limited by dependence upon low volumes of price volatile primary commodities.

11. Official policies, institutions and plans are inadequate and inappropriate for economic development.

The experts advised and the CILSS/Club approved a strategy for economic evolution centered upon agriculture through improved productivity on small farms with the objective of assuring food self-reliance and eventual production surplus as the basis for future economic growth. These same objectives form the basis of A.I.D.'s strategic approach to the development of the Sahel.

What is being done

In 1976, the donors agreed with the CILSS to a program of 20-30 years requiring external investment resources of $20-30 billion. Through 1983, some $6-7 billion had been dispensed. A large portion of this was absorbed by consumption. A second significant fraction was dedicated to acquisition of knowledge, some of which was acquired from experiments which did not succeed, an inevitable aspect of the process. Another significant portion was committed to establishing the basis for development: organizaton, institutions, training, sanitation, communications and infrastructure.

MAJOR DONOR AID BY SECTOR, 1975 - 1980

	Non-Project		Rural Development		Natural Resources		Infrastructure		Human Resources	
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
France*	887	65	200	15	48	3	149	11	89	2
Germany	188	29	175	27	113	17,5	132	20	26	1
A.I.D.	292**	47	190	31	45	7	28	5	60	10
Canada	79	21	71	19	13	3,5	167	45	44	12
European Fund	448	47	207	22	52	5	153	16	93	10
IBRD/IDA	7	1	243	40	26	4	223	36	81	13
OPEC Countries***	458	33	223	16	185	13	325	24	-	-

* French non-project aid includes $549 million of technical assistance or 40% of total French aid.
** Includes PL 480.
*** Plus other aid: $82 million.

Source: OECD/Club

Western and OPEC Aid to Sahel (1974-1980)

($ millions, disbursements)

1974	1975	1976	1977	1978	1979	1980
667	651	709	736	1,105	1,192	1,202

Source: OECD, 1982

In A.I.D.'s Sahel Development Program budget for Development Assistance (DA) the available resources are divided into sub-budgets for the eight bilateral programs and the for regional projects. The break-down for 1983 and 1984 is:

AID DEVELOPMENT ASSISTANCE BUDGET

($ millioms)	1983	1984 (est.)
Cape Verde	2.2	2.0
Chad	2.0	2.2
The Gambia	3.9	3.5
Mali	9.9	8.7
Mauritania	5.1	2.5
Niger	16.00	16.0
Senegal	14.00	21.9
Upper Volta	0.3	9.2
Regional Projects	31.6	40.6
	85.0	106.6

The A.I.D. program in each country, exemplified by the core projects, is determined to be consistent with the host circumstances and with the regional

strategy by the respective country team. For detailed description of individual bilateral A.I.D. programs the reader is advised to refer to the respective CDSS.

AID's Regional projects in the Sahel Program: (a) support coordination institutions, (b) provide services or develop institutions useful for production in several or all Sahel countries, (c) provide support services necessary to the execution of A.I.D. bilateral programs and (d) develop international river basins. (Some of these categories are obviously overlapping). The basic rationale for all regional projects is that a project provides benefits to several participating countries or missions and that centralization of management of the project is an efficient means of delivering of the services. Initially regional projects were oriented towards institutional development or provision of bilateral program support. The current and future portfolio of regional projects, however, will be more directly related to river basin development. The regional projects in SDP absorb about one-third of the annual budget currently, but the mix of regional and bilateral projects in the program is flexible and continually changing. In Overall, the current expected portfolio of regional projects is in excess of $200 million (Life-of-Project), of which river basin development is about half. Training accounts for ten percent, production support projects (plant protection and meteorological/hydrology) about twenty percent, a demographic/population project about $7 million (3 percent) and others (coordination and PM&R, i.e., PDS) the balance.

Other. Some benefits from all-Africa regional (AFR/RA) and A.I.D. central projects are also available to some Sahel states, e.g., the Oncho Control

Program, CCCD, SHDS. U.S. food aid under PL 480 support (principally Title II) flows at an annual level of approximately $36 million. This, as noted, is intended to improve food security, reduce commercial imports, influence policy reform and improve nutrition. The counterpart funds generated from P.L. 480 sales are very useful in helping pay local costs for other projects, creating employment opportunities and in some cases, fully fund certain development projects.

In the near term, assurance of economic stability, i.e., fiscal and financial solvency, will be a critical concern. As we have seen, external debt is a terrible economic burden for several countries, foreign trade is in deep deficit and inadequate funds internally jeopardize the entire development investment program. Other donors have assumed a major role in helping to finance trade, government operations and to manage debt; but, of course, there is never enough. Commodities provided under PL 480 and Economic Support Funds (ESF) play a crucial role in this situation in relieving the pressures on the external accounts, financing operations and maintenance services supporting the development program and directly supplementing development investment (e.g., food-for-work).

Summary of Resources

In short, A.I.D. budgeted a total of $144.4 million in 1983: DA- $96.8 million, PL 480- $36.6 million, ESF- $10 million, and disaster relief- $1 million.

The program has positions in the field staffs for approximately 130 direct-hire personnel, 30 PASA and 158 personal service contractors, a total of 318 Americans.

AID STRATEGY

In brief, the U.S. economic assistance program in the Sahel will focus on food production by developing both rainfed and irrigated agriculture, livestock and fisheries, policy reform, village hydraulics, health and family planning, fuel-wood and energy supply, environmental restoration and stabilization, infrastructure, and human resources. This strategy is consistent with A.I.D.'s general mandate of concentration on rural production systems and small farmers. Moreover, given the current situation in the Sahel, A.I.D.'s principal program implementation themes are the prescription for the requirements. That is, (a) there must be assurance of internal economic stability in each country (assured on a case-by-case basis by A.I.D. which other donor interventions); (b) the policy environment must be consistent with the development strategy; (c) necessary institutions must be available; (d) required physical and human resources must be assured and (e) the understanding of how to make development succeed must be in hand.

Stabilization

Balance of payments, budgetary support and food aid account for about twenty-five percent of total annual Club donor aid to the Sahel. These resources are critical for financial solvency in certain countries. Food imports are necessary because the region is currently deficit in cereals and milk production relative to the requirement for consumption and minimal security stocks. The food aid which supplies much of that import need will in time be replaced by domestic production as the region's productive capability is developed, but we foresee a need for food imports and food aid to the end of the century. The local currency generated from these sales is used *inter alia* to complement development investments.

The world economic slump and the oil shocks immensely compounded the Sahel's difficulties in recovering from the drought. In the past three years, the cumulative effect of these pressures has forced the Sahelian economies to the brink of insolvency. Consequently, the donors and the IMF have diverted resources from development activities to economic stabilization. The need for a sustained, high level of budgetary and balance-of-payments support will continue. To help with this, A.I.D. will, in selected cases, consider using DA for non-project assistance; but the principal source of our contribution for this purpose will be the counterpart funds generated by PL 480 sales and ESF. ESF, in any feasible volume, would be a small fraction of the general financing requirement, but it could be of crucial importance as a means to assure the effectiveness of our development interventions. Hence, we will take advantage of ESF, Pl 480 Section 206 and the Economic Policy Initiative (EPI) when they are available as a supplement to the development investment program.

Coordination and Cooperation

The CILSS/Club Secretariats and the donors aknowledge that much remains to be done to improve coordination and efficient resource investment. A.I.D. has devoted much energy and resources to improving cooperation and efficiency. We have accepted the premise that the CILSS/Club should have the lead responsibility for this and have thrown our support in that direction. Steps have been taken recently by the CILSS members and the Club to enhance the coordination process. The Sahelian Chiefs of State endorsed the organization and ordered a reexamination of the mandate from which we expect reform and revitalization. The Club members, including the U.S. recently reexamined their commitment (in Brussels) and endorsed the principle of

cooperation and pledged improved coordination.

A.I.D. believes that continued support of and encouragement to the Club and CILSS offer the best prospects for success in the Sahel. But, there is a long way to go before adequate coordination will be achieved. Donor and Sahel program activities are still too dispersed, ambitious and unrelated. The Club and CILSS technical efforts have been encouraged to focus on in-country activities. This will be the principal input of CILSS/Club in program implementation during the next several years. We foresee a continuously maturing process. Starting from a very hesitant community consultations, the donor representatives and host officials in each country will consult regularly on everything from analysis to project execution. Additionally, we foresee similar coordination of planning for each Sahelian country in conjunction with the planning of donor programs. The CILSS and Club Secretariats will catalyze and animate the process.

The other major role for CILSS/Club is to tackle issues common to several or all Sahelian countries and/or can be best addressed collectively. A good example of this is the successful beginning of the recurrent costs program. CILSS and the Club will continue working on the problems of overall regional food security, constructive use of food aid, harmonization of economic policies, liberalization of the economies and efficient integration with greater West Africa. They will also continue to develop collective approaches to cross-border problems of health, crop protection, weather forecasting, communications, research and transportation.

We are convinced of the need to carefully coordinate the activities of the many activists in the Sahel. A.I.D. must work along with other regional and sub-regional entities in order to optimize the program. Important among

these are the river basin development and coordination bodies for the Niger, Senegal and Gambia Rivers and Lake Chad. Among the economic cooperation institutions, there are encouraging possibilities offered by the CEAO (Communaute Economique de l'Afrique de l'Ouest) and, farther into the future, ECOWAS (Economic Community of West African States). We have cooperated continually with both of the latter to encourage the emergence of an integrated West African economy. The CEAO has a coordination agreement with the CILSS. A.I.D. is a modest contributor to the CEAO/CILSS regional solar energy research project and has stated interest in a proposed CEAO regional management training school.

We look to agriculture to provide the surplus to sustain growth and assure economic security. At present, however, the Sahel is severely deficient in the fundamental elements necessary to realize this self-reliance. Through A.I.D.'s own program and the multi-donor effort, the required technology, human resources, institutions and policies will be made available to create a stable environment conducive to increased agricultural production.

AGRICULTURE

The inter-year variability of rainfall is "combined with a tendency for abnormal years to occur in succession" (Nicholsen, 1981). Such patterns of precipitation contribute to the well-known "climatic vulnerability" of the region. Rainfed food crop production dominates agricultural production in the Sahel. It is estimated that there are nearly 60 hectares of land under rainfed production for every one hectare being irrigated. Rainfed crop

production generally ceases around the 350 mm isohyet. Where there is less than 600 mm of rainfall, millet predominates in the cropping pattern. With more than 600 mm of precipitation, sorghum becomes the major grain crop while groundnuts are grown as an important cash crop. Above 1000 mm of rainfall, maize and cotton enter into dryland cropping patterns. Rice is generally irrigated either by natural flooding of low-lying riverine areas or by the controlled application of pumped water. Utilization of scattered surface and available groundwater resources outside of the river basins tends to be limited to crops which are dietary or cash supplements, such as tobacco, sugar, fruits, and vegetables. Such crops grow either on residual soil moisture or are manually watered through the dry season.

Though the climate is difficult, the natural resources beneficial to agricultural production are underexploited. In four of the eight Sahelian countries, there are less than two persons per arable hectare. The 1980 CILSS analysis of irrigation points out that over two million hectares of land could be brought under irrigated production while present estimates indicate that only ten percent or 230,000 hectares of this potential is regularly cropped.

In the last eight to ten years, we have gained greater understanding of the natural, institutional, and economic aspects of the agricultural production environment. Between 1975 and 1981, the donor invested roughly $3 billion in attempts to increase the production of crops, livestock, and forests in the Sahel. The table below details flows to crop production activities.

Project Assistance to Crop Production, 1975-81
(in million $)

All Donors	U.S.	"Lead" Donor	
Integrated rural development	423	55	Germany
River basin development	542	NA	OPEC
Irrigation	543	16	IBRD
Agricultural production, n.e.s.	469	59	US
Crop protection	64	-	Canada
Storage and Marketing	59	18	IBRD

Most projects for agricultural development were and are centered around the concept of an "improved technology" to increase productivity. To understand why this result was not achieved in the 1970's and early 1980's requires a look at the improved technologies and how they have been transferred to rural producers in the Sahel.

The donors have focused on five technological areas in efforts to develop rainfed crop production: improved seed varieties, fertilizer, animal traction, pesticides and herbicides, and a number of cultural practices (sowing in lines, timely planting, adequate weeding, and monocropping). Installation of irrigation infrastructure (bunds, dikes, pumps, control gates, and, rarely, drainage) has been the primary emphasis of irrigated crop production projects.

Perhaps the most serious technological problem has been the lack of improved varieties for the traditional staples, millet and sorghum. Elite varieties introduced from outside the Sahel have been poorly adapted. West African Guineense sorghums have not been adequately studied and it may take years before high yielding derivatives from crosses involving native sorghums and a seed variety truly "improved" in producers' terms is available for extension.

The delivery of improved technologies has been characterized by (1) a

"package" of improved technology which was (2) "extended" through a project. The promotion of improved technologies in a package was the logical application of the Asia Green Revolution experience. The technology "packages" have not been applicable or attractive to the Sahelian farmers for a variety of reasons. While it was assumed that the packages would be adjusted as part of the implementation process, extension services have often been incaple of doing so and farmers, instead, have simply taken them apart themselves as best they could or ignored them altogether. Finally, the technology itself has not been adequate to the requirement in most cases, hence the present conclusion that there is no technology at this time.

Current actions being taken by Sahelian governments, often with the support of donors, indicate that many of the lessons acquired over the last ten years have begun to take effect. There is considerable policy reform under consideration, and many changes in pricing and marketing policy have actually been implemented. In virtually all countries, there has been movement toward more open market prices for food crops and agricultural inputs. The role for private sector participation in trade has been generally acknowledged and is growing.

The Nouakchott Colloquy contributed to the necessary analysis and dialogue, but the progress in each country to date has also come about through further discussions at donor roundtables, rural development conferences, and through numerous project related opportunities. Yet, the necessary analysis is far from completed. Over the next three to five years, there will be a continuation and expansion of such activity in concert with other donors, the CILSS/Club and the Sahelian authorities.

Policy with regard to politically critical crops (such as rice and some cash crops) has been much slower to change; although certain progress in dialogue is perceived there as well. It is likely that more cautious action will be taken in these areas. Input price policies which directly affect national budgets in each country are being modified simply because governments can no longer afford them. Progressive reduction of subsidies is timely for other reasons; with realistic producer prices the incentive effect of input subsidies is no longer needed and rural development organizations which have spent much of their effort administering subsidized distribution of inputs can focus on other activities with fewer staff. Credit policies, however, are currently in a state of disarray, not so much with regard to interest rates as concerning credit administration and availability.

Institutional reform, particularly with regard to regional rural development organizations, has been a significant area of concentration. In most cases, institutional change has been required by policy change. The employment issue associated with the reform of parastatal or government institutions is proving to be complicated. It is widely recognized

are one of the resources provided to this effort. Technical assistance and selected commodity assistance are also being supplied.

Increasing attention is being paid to the rehabilitation and expansion of irrigation infrastructure in the Sahel. Both the rehabilitation of the major perimeters along the Senegal and Niger rivers and the development of new perimeters in the river basins are likely to become major focal points for all donors over the next two decades. The underutilization of perimeters developed to date has highlighted the importance of problems of water management, farmer education, decision making (autonomy) in new technologies, and the economic returns which farmers can hope to achieve from such intensive cultivation.

There is substantial opportunity for A.I.D. to become more involved in efforts to improve water control and to alleviate the repercussions of rainfall variability in the Sahel. There is strong evidence that the objective of food self-sufficiency cannot be met without the construction of irrigation infrastructure. A.I.D.'s contribution will be to continue its research to identify the most efficient and ecologically-sound means of exploiting the valuable potential in the Sahelian river basins. We will begin slowly with small perimeters and help establish farmer-manager, community-centered operations through provision of assistance for agronomics, irrigation organization and management, engineering and infrastructure agricultural inputs and production distribution.

Crop Production Strategy, 1985-2005.

In order to accomplish the twin goals of increasing food self-sufficiency and establishing environmental stabilization in the Sahel over the next twenty years, A.I.D. will emphasize several intermediate objectives:

1. Building the base for research and improved use of agricultural information, through
    - research
    - training
    - upgrading of statistical services
    - pilot efforts and on-farm research
    - project monitoring activities.
2. extending technologies for increased crop production and preservation as soon as feasible, through
    - extension
    - input supply services
    - credit facilities
    - capital investments
    - training at all levels; and
3. fostering improved economic incentives for rural producers, through
    - marketing and pricing policy reform
    - market development
    - infrastructure (road construction and maintenance and water control facilities).

Within the context of these broad sectoral objectives, A.I.D. will place priority on those activities which:

1. minimize producers' economic and ecological risks, for example,
    - varietal selection on drought tolerant grains
    - research on low-input improvements to existing rainfed systems
    - investments in infrastructure to improve market access and knowledge
    - technology development to permit more efficient use of water in bas-fonds with little cash investment
    - functional credit and insurance programs (e.g., for animals used in traction)
2. limit governmental functions - encouraging and facilitating the private sector to assume as many as possible, for example,
    - privately funded credit operations and credit for private entrepreneurs
    - redirection of rural/regional development organizations to service rather than supply functions
    - market information services for the private sector rather than market interventions provided by public institutions; and
3. use Sahelian resources (soil and water, management skills, monetary resources, and farming experience) most efficiently, for example, by
    - thorough feasibility and sector analysis
    - encouraging farmer participation in research
    - investing in soil and water management infrastructure and training
    - fostering the development of village organizations
    - feasibility and sector analysis
    - encouraging farmer participation in research
    - investing in soil and water management infrastructure and training
    - fostering the development of village organizations
    - agroforestry approaches.

Not all of the sectoral objectives will be accomplished at the same pace in each country, nor will each country in the region be able to launch activities along each of the lines stressed above. However, it is felt that A.I.D.'s Sahel program as a whole will be most positively supported if selection of project options follows the guidelines indicated.

To give a better idea of how such objectives might be realized over the next two decades, A.I.D.'s crop production strategy for the Sahel Development Program can be usefully broken into three phases.

Phase One, 1984-1989

Given the experience accumulated by A.I.D., host governments, and other donors in the Sahel since 1974, A.I.D.'s activities in the first period will be concentrated on:

1. strengthening research institutions;
2. agricultural policy reform leading to an expanded role for the private sector;
3 making effective use of already-installed infrastructure and equipment and selectively constructing new infrastructure;
4. strengthening agricultural training institutions; and
5. pilot investments in irrigation development.

These areas of concentration have been selected on the assumption that other donors will continue to specialize along lines followed in the 1975-82 period. OPEC support will continue to be important for river basin development and the expansion of transportation infrastructure. World Bank assistance will continue to lead in irrigation development, livestock and forestry. France will continue to provide substantial volumes of non project assistance in all sectors and other bilateral donors will continue to provide

key assistance in particular countries for particular problems (Holland on irrigation development in Upper Volta, for example). The one major exception to this approach is likely to be in the area of multisectoral or integrated rural development. All donors appear to have learned similar lessons about project complexity and management problems from recent financing of projects in this area and are likely to direct investments, as we propose here, into more narrowly-specified aspects of agricultural development -- particularly production activities, irrigation development, transport, policy reform and storage. Continued regional coordination efforts of the CILSS/Club and host country-donor consultations at the national level will ensure that A.I.D.'s emphases remain appropriate and, consistent with the national governments' priorities and complementary to other donor activities.

Within each of the five areas of concentration, A.I.D. expects to realize specific achievements in this first phase of activity:

1. Research institutions

The top priority given to this activity derives from the recognition that the technological basis for increased production on the majority of Sahelian farms does not yet exist and must be developed with full awareness of the resource and risk situation in the region. Moreover, until improved profitable technologies are available, farmers are likely to continue with low-risk but low-productivity operations. In each Sahelian country, we expect that by 1992 national research systems will be:

a. more adequately staffed with better trained personnel;

b. working in closer and more effective collaboration with farmers to develop: improved seed varieties, cultural practices suited to farmers' labor and capital resources as well as to plant, soil, and water conditions and other innovations to intensify rainfed crop production and make more effective use of irrigation opportunities;

c. capable of addressing a wider range of research questions than are now addressed, particularly with regard to long-term soil fertility, the management of irrigated production systems and the integration of crop and animal production.

Although the primary focus will be on bilateral efforts, there will be a number of ways in which international and regional programs will work to reinforce them. Training and networking of Sahelian professionals will be an intrinsic part of both national and regional activities. This training will include natural and social sciences, research management, farmer communication (through farming systems research training and extension liaison activities), and interdisciplinary approaches (such as those required for integrated pest management research).

2. Agricultural Training Institutions

Through bilateral assistance programs, these institutions will have developed curricula which are more regionally and nationally appropriate and will be staffed with better-trained personnel. The type and number of trainees produced will be more closely in line with manpower needs in each country. Not all bilateral programs will include a specific emphasis on in-country agricultural training, but Mali, Senegal, Upper Volta, and Niger are likely to continue to experience training needs large enough to justify continuation or expansion of current efforts in this area. Opportunities for

further regional efforts will be explored to permit greater exchange of training materials and discussion. Plans for such measures will be developed in conjunction with regional institutions such as the Sahel Institute.

3. Public Agricultural Policy

The policy debate, already underway, will be more firmly grounded as activities supported by A.I.D. and other donors get further along in implementation. Policy and program options will be more completely understood. The statistical basis for policy analysis will have been strengthened.

Every intervention will have to be thoroughly investigated as to financial, political, and administrative feasibility; every reform enacted will have to be closely monitored as to operation and impact. Since this is not an academic activity, monitoring and considerable flexibility of approach must be accompanied by the steady accumulation of information. This will involve a wide range of data-gathering activities, some institutionalized (e.g., area frame sampling in a Ministry of Agriculture to upgrade reliability of crop forecasting), others more temporary (e.g., a consumption/nutrition survey).

Virtually every Mission is presently using, or proposing to use, food aid resources, development assistance, substantial amounts of direct-hire staff time and skills and EPI and ESF funds to support and encourage agricultural policy reform. Because of the number of donors involved and the variety of conditions existing in the various countries, each policy debate is being handled somewhat differently. In all cases, however, there is a strong sense that there must be ample time for dialogue among donors as well as between donors and host governments if effective progress is to be made. There is

every reason to expect that such activities will continue to demand significant attention throughout the next decade.

4. Infrastructure/Equipment Utilization

A substantial amount of rural infrastructure and agricultural equipment has been installed in the last decade. Follow-on projects or new initiatives (e.g., some of the OMVS-related projects) will be implemented to ensure that such prior investments are effectively used. Activities will focus on repair and rehabilitation, training, land tenure, credit, and project management, among others.

A.I.D. will not place major emphasis on this area in the short term, in part because it anticipates that other donors will continue providing the necessary imported inputs (fertilizers, pesticides), equipment (animal traction equipment, irrigation machinery), and functional budgetary support (for road maintenance operations). Generally A.I.D.'s emphasis will be on research and policy reform initiatives during this 1985-1989 period in order to provide the basis and impetus for farmers and private sector traders to take profitable advantage of the capital investments made between 1975 and 1985. It will contribute resources required for maintenance of infrastructure and equipment provided by A.I.D. itself during this period and for assisting with recurrent costs of rural development organizations started with A.I.D.'s help which are, continuing to provide useful services to farmers. Such recurrent costs must be financed in order to realize maximum productivity both of capital equipment (fertilizer and pesticides needed by farmers using animal traction, for example) and of extension personnel (transport, training costs).

Irrigation - Food security of the Sahel would be substantially enhanced by the development of more drought-proof, high productivity irrigation systems. This has led virtually every Sahelian government to emphasize major irrigation development efforts in their agricultural development plans and has justified substantial investments in the expansion of irrigated perimeters. Donors in the 1975-1981 period reported over $1 billion in support of irrigation and river basin development in the Sahel.

However, the track record to date has been disappointing. In 1980, the CILSS reported that ". . . areas farmed in the Sahel under modern irrigation . . . have almost doubled since 1960. But generally speaking, during the past few years, the development of new areas has rarely surpassed the surface of older ones which had to be abandoned ...".

The experience with irrrigation to date has yielded crucial lessons for all future donor support in this subsector:

1. Grant resources for experimental development of irrigation will always be welcomed;

2. Serious technology development and transfer problems as far as irrigation production techniques and water management are concerned indicate a need for fresh approaches;

3. Rehabilitation or transformation of current irrigation parastatals into farmer-managed operations should remain a high priority; and

4. Development of new irrigated surface should be accelerted only after the present base infrastructure is well-utilized, policies which will assure incentives to produce are in place, and marketing processing/infrastructure is operational at acceptable levels of efficiency.

Development of irrigation will require additional financing. This will have to be phased in gradually depending upon how quickly the understanding of other factors such as organization and management, productivity and crop protection can be resolved.

We have targeted pilot efforts in irrigation as one of the priority areas for A.I.D. financing and involvement in the 1985-1989 phase of activity. In addition, A.I.D. will provide resources for rice technology development to WARDA and increased support to national research institutions for irrigation-related research (including horticultural research). A.I.D. will also promote policy reforms affecting farmers' incentives for irrigated production, and, where appropriate, support the redirection of parastatal irrigation authorities and shifting of responsibilities and rights to farmers. Such expanded pilot, research, and organizational reform efforts will assist us as a donor, the host governments and participating farmers in dealing with the unique character of irrigation development in the Sahel.

During this period, it is expected that other donors will continue to support major rehabilitation efforts in the Office du Niger (World Bank, FAC and the Dutch), in the Senegal River Basin (virtually everyone), and in the Gambia River Basin (IFAD, Dutch). The OMVS, in the Senegal river area, with multi-donor support, is expected to continue to push for parastatal reform and policy harmonization which should increase farmer participation and provide increased incentives to producers. The Dutch have targeted Upper Volta for special assistance in small-scale irrigation development, which is the priority of that country. Plans for Niger are not so well-known but will probably involve continued bilateral and multilateral donor support to Niger River Basin development as well as pilot efforts to promote small-scale

irrigation (as the World Bank has done in the Goulbi region near Maradi) and the increased utilization of the Chad River Basin resources in the east.

Between 1990 and 2000, it is anticipated that programs and projects for agricultural development will become somewhat less involved in the use and provision of expatriate technical assistance and will provide more broadly-targeted financial assistance to and through the institutions strengthened in the earlier phase of activity. Specifically, it is expected that:

1 - Substantially greater numbers of farmers will be profitably using animal traction, improved seeds, fertilizers, improved techniques for crop protection, and better soil and water management practices. Therefore, there will be greater scope for both project and non-project assistance to directly support further growth in production by : (a) improving systems responsible for the dissemination of information, distribution of inputs, providing credit and marketing services (if all goes well in the 1985-1989 period, this will have a strong private sector focus); (b) expanding both transportation and irrigation infrastructure to open up new resources for production; and (c) substantially intensifying the focus on crop storage, integrated pest management, and processing methods.

2 - Research institutions will have become more self-sustaining in terms of staffing and training capabilities, so emphasis will shift to: (a) providing technical assistance for short periods of time to contribute to special research topics and training needs, perhaps to administer topical research grant programs; (b) providing non-project assistance for institutional support to encourage networking, continuous staff upgrading, selected program emphases, and dissemination of information.

3 - In irrigation A.I.D. should, in concert with other donors, mount a program for accelerated expansion of new irrigation infrastructure and for farm-level training programs in irrigated production and water management. Potential labor constraints should have been examined in the research of the earlier period. Limited programs of mechanization will also be implemented in the 1990-2000 period. Land tenure, market development, and transportation infrastructure are likely to pose some problems in this phase of activity and will have to be addressed.

Much will depend on progress in research and organizational reform. Other important external factors will be the international price of rice, the world fertilizer and oil markets, and progress on developing rainfed crop alternatives. The difficult "absorptive capacity" question will be a factor affecting irrigation development on the scale envisioned, i.e., perhaps fifteen thousand hectares per year, which will require significantly more trained manpower than is available at this time. There are also significant collateral investments to be made--roads, electricity, market development--if irrigation developments are to be profitable as planned.

4 - Seed multiplication systems will require rehabilitation, expansion, and transfer to the private sector. Continued progress in divesting parastatals of this responsibility will be needed to help bring this about.

5 - The overall need for food aid as a substitute for imports and balance of payments support will have begun to decline by the 1990-2000 period. Better statistical techniques for forecasting production surpluses and shortfalls should also permit more efficient management of emergency stocks, which will also reduce the need for food aid. Food assistance will continue

to be useful for stocking food security reserves and for supporting targeted nutrition programs (MCH, school feeding) which will require a certain amount of food aid.

6 - Agricultural training institutions will be operating at full capacity by 1995, but there will continue to be a role for assistance in upgrading curricula, expanding training activities at the village level, etc.

Between 2000 and 2005, A.I.D. programs should be entering into a more "mature" period, where less Mission attention will have to be devoted to defining good projects and more attention can be directed to responding to Sahelian requests for technical and financial assistance. It is anticipated that resource needs will still be great, particularly for : (a) Targeted programs of agricultural development as expanding transport networks continue to open new areas and as the rest of the West African market begins to be more approachable; (b) intermittent technical assistance for institutional support and/or special skills; (c) developing a more vigorous, competitive agro-industrial sector (initially for agricultural processing, but perhaps also for inputs); and (d) in generally adapting the latest technology.

LIVESTOCK

The total contribution of the livestock sector including meat, milk, hides, manure and traction was approximately 22 percent of the GNP or $1,725,000,000 in 1980. Income from livestock is divided as follows: meat 54 percent, milk 27 percent and others (manure, traction, hides, etc) 19 percent. The portion of this income produced by each species was 66 percent

for cattle, 28 percent for small ruminants, 2 percent for poultry, 1 percent for swine and 3 percent for others (horses, donkeys and camels). The producing herd of some 25,000,000 UBI's* in 1983 was valued at just more than three billion dollars. Local governments spend about $7,000,000 on animal services annually. Between 1975 and 1981, donors spent an annual average $33,000,000 on livestock development and support services, declining to a $26,000,000 average between 1981 and 1983. A.I.D. spent about $4 million for each of the last three years. (It should be noted that only livestock project funds narrowly defined are included in these statistics; some other rural development and hydraulic projects benefit the livestock industry.) A.I.D. has provided 26 percent of the donor funds.

According to Sahelian production potential estimates computed in the Sahelian Livestock Industry Status and Development Strategy (USAID, 1980) output could increase to $2,341,000,000 by the year 2000. However, in order to achieve this increase, considerable improvement in animal health conditions (improved health delivery systems, reduced trypanosomiasis threat, more efficient vaccine production and storage) and more efficient resource utilization (better grazing distribution facilitated by water point development, range fire management and utilization of crop residues and by-products) will be necessary. Without these, the present overpopulation of animals is likely to result in periodic high death losses and reduced production during the inevitable cyclical droughts.

* Standard Unit = 250 kg. Cow

Annual development and operational fund requirements to reach the livestock production goal of 1.5 percent annual growth are estimated at $55,000,000 initially, decreasing to $29,000,000 by the end of the century. It is proposed that donors provide 75 percent of these funds at the beginning, with a progressive reversion to Sahel resources until the donor funds are no longer needed. These required development interventions in livestock are identified below. The program for each country and zone would be designed to meet respective needs and capabilities:

(1) Water Development Health and Interventions in the Sahel - Planning and development of water points to balance forage and water systems consistent with the physical, animal and human resources - improve animal health delivery by supplying refrigeration, transportation, construction of veterinary posts and vaccination parks and training of herder level para-vets.

(2) Animal Health in the sudan - Similar support of the delivery services as in the sahel with additional emphasis on trypanosomiasis prophylactics, tick controls and internal parasite treatments.

(3) Research for the sudan - Research to better determine the economics as well as techniques for control of tick born diseases and internal parasites plus research to determine the most expedient and economic means for forage production, storage, utilization and mixed farming techniques.

(4) Trypanosomiasis Research - Continuation of basic research at the regional center in Upper Volta in search of more effective controls for the Tse-tse disease, plus identification of more disease tolerant animals.

(5) Management and Evaluation Support for each country - Improve management of the animal services and evaluate interventions.

The experience gained from development and research projects and close observations of the traditional livestock production system has lead us to this limited list of interventions which we feel can be directly beneficial and can open the way toward realizing the optimum production potential of the Sahel. Many interventions such as firebreaks, ranches, range control and more supplemental feeding have proven to be uneconomical even when production is increased. We have come to respect the traditional herd, range management and marketing system as being efficient and adapted to the conditions. Of the recommended interventions the water point developments and animal health delivery improvements are aimed to directly complement the existing traditional production system by exploiting forage underutilized in normal years and improving access to water along the routes of transhumance and marketing. Research in animal health and forage production utilization is designed to unlock the great potential for livestock production in the higher rainfall areas. Finally, experience has taught us that these development efforts require high level management and evaluation skills which must also be developed if the financial investments are to be most efficiently used to reach our production goal.

There is much opportunity for installation or improvement of thousands of water points in the sahel zone, but substantial preparatory work must be completed prior to the actual installation of facilities. Our estimates have been based upon limited observations and then extrapolated for all the zone. Extensive surveys in each country and area will be needed to identify the locations and quality of interventions required. First, each mission will need to supplement existing information through the Service de l'Elevage and the Service Hydraulique to develop a map of water points, forage availability

and vet posts and parks. Existing maps and information available through the national services will have to be supplemented by reconnaissance trips into certain zones to develop the detailed data required. The surveys and planning will be undertaken in cooperation with the Sahelians, other donors and the CILSS Livestock Working Group. Pilot projects to perfect the methodology of installation and management of water points will then be undertaken.

A phased approach is incumbent. We will continue, initially, with the activities we have underway in Mali and Niger, trying to refine and develop some promising interventions. This approach will be applied also in the evolution of water point development. Following this first phase and assuming that our expectation of the feasibility and utility of the strategy as outlined is proven by our pilot investigations, the rate of implementation of this sector program can be accelerated.

A gross estimate of the proposed multi-donor program interventions is given in the table. We estimate that AID's annual level of project activity could not efficiently exceed an average of $10 million per year. Other donors and the countries themselves would be encouraged to undertake the balance.

To reach the livestock production goal by the year 2000, (1.5 percent annual growth), it is estimated that aggregate average annual funding for development and operations should be about $50 million over the period 1985-2000. Donor contributions would be relatively high initially but should decline as finance generated from the sector itself increases.
Results of these interventions would be approximately 5000 new water points, 5000 old water point improvements, 3000 vet post and park improvements,

national research units in four countries, support of the regional tryponosomiasis research unit, a management-evaluation unit in each country and a healthier herd due to more adequate operational budget. Refer to the table for the projected schedule of water and animal health program implementation.

Fisheries Fish provide an important proportion of Sahelian protein consumption and domestic and coastal fisheries can be highly productive. Up until this time, A.I.D. has not undertaken substantial activity in this sector because the artisanal inland fishing industry is commercially viable and independent and no compelling technical intervention has emerged. This may not be the case with the maritime fisheries which do have potential for improvement. Although these fisheries resources are being efficiently caught at optimal levels, the returns usually accrue to foreign fleets, little or none of the catch is landed in the Sahel and equitable fees are not paid. In other instances, substantial losses of the landed catch occur because of inefficient handling and inadequate preservation.

The United States posseses some expertise in fishing which could be exploited to the benefit of the Sahel through technical training. There may also be interesting commercial opportunities for private sector participation, for example in use of underutilized species such as the triggerfish. These could be ventures for the US Trade Development Program or private enterprise.

TABLE

PROPOSED TYPES OF INTERVENTION OF ANNUAL LIVESTOCK DEVELOPMENT IN THE SAHEL UNTIL YEAR 2000

	TYPE PROJECT ($ 000,000)							
	Water Development and Animal Health	Animal Health	Disease & Forage Research	Trypano Research	Management Evaluation Support	TOTAL		
	SAHEL	SUNDAN	SUDAN	SUDAN	COUNTRY WIDE			
Country	Cost (All 20 Yeares)	Cost (All 20 Years)	Cost (First five Years)	(First Fifteen Years)	Cost (First five Years)	Development Cost	Operational Cost	Total Cost
Cape Verde	0.0	x	0.0	0.0	x	x	x	x
Chad	3.9	1.0	1.4	0.0	1.6	8.0	1.7	9.7
Gambia	0.0	x	0.0	0.0	x	x	x	x
Mali	5.7	1.0	1.5	0.0	2.0	10.2	1.8	12.1
Mauritania	3.0	x	0.0	0.0	0.8	3.9	1.6	5.5
Niger	5.9	0.4	0.0	0.0	1.6	7.9	4.1	12.1
Senegal	0.8	0.4	0.6	0.0	0.5	2.2	3.3	5.5
Upper Volta	0.4	0.7	0.8	6.0	0.7	8.5	1.6	10.1
TOTAL	19.8	3.6	4.2	6.0	7.3	40.9	14.3	55.2

x Insignificant Amount

In summary it should be noted that while the livestock production goal for the year 2000 is considered near the maximum potential, it will still be inadequate in terms of quality nutrition for the Sahelian people. If the total production of meat and milk are consumed by the Sahelian population (no exports), per capita consumption would be 16 kg. of meat or 50 percent of the world average and 36 liters of milk or 36 percent of the world average. Therefore, well-planned and executed livestock production interventions are essential to assure an optimal economic production level to provide as much animal protein to the population as is econmoically practical and to avoid reduction of the production potential by protecting the natural resource base.

TABLE II ANNUAL GROSS VALUE OF LIVESTOCK PRODUCTION 1980

Country	Animal Population (000 UBT)	VALUE) ($000,000)
Cape Verde	20	2.0
Chad	4,200	315.0
Gambia	200	18.0
Mali	5,300	394.00
Mauritania	3,200	235.0
Niger	4,800	358.0
Senegal	2,700	199.0
Upper Volta	2,400	178.0
TOTAL	23,000	1,725.0

ENVIRONMENT

Rehabilitation of natural woodlands and range and environmental stabilization are goals of the Sahel Development Program, second in importance only to food self-sufficiency. These are pan-sectoral concerns that must be addressed in each sphere of development activity through careful attention to the long-term sustainability of Sahelian production systems. The broad issues of "desertification", environmental degradation and declining soil fertility are aspects of Sahelian development that encompass the issues surrounding the "rural development dilemma" in the Sahel (increasing population pressure, highly variable rainfall, patterns of land use and social structure that mitigate against long-term natural resource management, etc.). Although the threat of the "creeping desert" has been given widespread coverage over the past decade, both the magnitude of "environmental degradation" and the nature of the processes involved are, as yet, poorly understood. While it is clear that ecosystems in certain parts of the Sahel have come under abnormally intense pressure over the past few decades (the Mossi Plateau in Upper Volta and the Groundnut Basin in Senegal, for example) and that remedial measures are urgently called for, there is little agreement among technicians as to the extent of such degradation over the region as a whole, its principal causes or recommended solutions. To cite one example: ecologists maintain that fire is a principal enemy of environmental rehabilitation and should be reduced to the greatest possible extent while livestock experts consider it a highly rational form of natural resource (range) management. Whereas a few years ago there was relatively widespread agreement about the fragility of Sahelian ecosystems, more recent

work has indicated remarkable resilience. In short, there is still much to be learned about the dynamics of the natural systems upon which life across the Sahel is based. A.I.D. has and will continue to support research to answer these questions.

The issues and challenges involved in forestry development are broadly similar in five of the eight countries that make up the Sahel: Senegal, Mali, Upper Volta, Niger and Chad. There are important nuances of difference to be sure: Mali has far and away the largest pool of trained technicians (due to the siting of the oldest forestry training institution in the region at Katibougou); Senegal and Upper Volta have a more developed forestry research infrastructure (due in large measure to the organizational structure and history of France's Centre Technique Forestier Tropical); Upper Volta, Senegal and Mali have received substantially larger amounts of forestry assistance over the past decade than have Niger and Chad. The remaining three countries - Cape Verde, Mauritania and the Gambia - are each a "special case" for various reasons: some historical and political, others bioclimatic.

The CILSS/Club du Sahel set in motion, early in 1981, a process to review forestry sector programs across the Sahel. In addition, a number of special studies were commissioned on issues of central importance to sector development including: recurrent costs, the economics of forestry projects, forestry research, rural land use, local participation in forestry projects, and natural forest management. At the same time, a considerable range of other studies and analyses, including project-specific evaluations, were undertaken. These analyses demonstrated that:

a. Large-scale rainfed plantations of exotic species have been very disappointing. As the recent evaluation of the Bandia Fuelwood Production project (685-0219) in Senegal has shown, adequately tested techniques were not available prior to the launching of these schemes. The result: plantations established at a cost of $800/ha producing only marginally more than the adjacent natural forest with no management.

b. Rural forestry: Results to date have been mixed but generally not encouraging. Recent evaluations of a number of projects including Village Reforestation in Mali have shown local populations less enthusiastic than expected, suitable land difficult to find, appropriate technology limited to a few (mostly exotic) species, survival rates for trees planted generally low, and farmers not convinced that they will reap the benefits of their work.

c. Irrigated plantations were touted by some as the answer to projected future fuelwood shortages but results of the few pilot efforts undertaken to date have been disappointing. As with rainfed plantations, energy-related costs have soared (particularly for water pumping) and production is now projected to be substantially lower than original estimates.

d. Natural forest management: Very little work has been done to date on the management of natural forests in the Sahel. It has become increasingly clear over the past few years that this has been an important oversight and that in the future more attention needs to be devoted to it by A.I.D. and other donors. There are a variety of reasons for this, among them: the relatively poor performance of other types of interventions, a better understanding based on recent research results of the productivity of

natural formations, and a greater appreciation of the importance of the many wood and non-wood products produced by natural forest and brushland.

e. Efforts to reduce fuelwood consumption: These have centered primarily on the development and dissemination of "improved" wood and charcoal stoves. There are substantial savings to be made from widespread adoption of more efficient stoves and there have been recent encouraging research results and prospect for improved popularization. Improvements in charcoal manufacture are encouraging. Relatively modest changes in traditional production techniques have been shown to improve conversion efficiency to levels comparable to those obtained with imported metal kilns. These improvements are now being taught to charcoal producers across the region.

We have also been forced to consider structural issues:

f. Policy review and reformulation: The review and reform of forest policy stands as a linchpin for future forestry development across the region. Current policy and legislation does not address the changing circumstances surrounding either the relationship between foresters and Sahelian populations or the role of foresters in relation to Sahelian forests.

g. Institutions: Now that it is clear that many of our short-term efforts have had little lasting impact, substantially increased attention to forestry research is required. Linked closely to this is a need for improved planning and programming. The community has to develop its capability to control its program, to select and coordinate interventions and to manage a complex of resources, interests and individuals.

h. The social dimensions of forestry development: Results of sector projects to date point to the clear need for more systematic and sustained attention to the social dimensions of forestry development. Among the elements deserving of more careful study: the identification of areas where people are particularly interested in forestry problems to serve as the focus for project activities, more careful assessment of "felt needs" of these populations and the priority they assign forestry in relation to other types of development interventions, and the careful identification of the types of sector interventions preferred. In addition, there is an ongoing need to more systematically identify constraints to forestry development (land and labor availability, land and tree tenure, local institutional constraints, the role of women, distribution of benefits, etc.) and to outline ways of addressing those constraints. An understanding of the dynamics of rural land use (including but not limited to land and tree tenure) is a fundamental building block for the design of more effective sector interventions.

i. Private sector. Forestry offers a number of interesting possibilities in this regard: seedling production and distribution, forest product processing and marketing (already predominantly in private hands), community-based forest management, and the development and marketing of "improved" stoves and other forestry-related technologies. Opportunities for private sector involvement in forestry projects are being actively explored by USAID Missions across the region.

Between 1975 and 1979, external investment in environmental protection, was about $215 million (commitments), or less than 2 percent of total aid. But development initiatives in this sector have been growing rapidly. The major activity has been in forestry because, in addition to their other benefits, more trees are perceived as the only realistic solution to the problem of fuel wood. The Sahel is annually consuming more wood than is being grown and the net cutting is expected to increase geometrically such that in twenty years, according to the most optimistic forecast, as much as 40 percent of the fuel used for household energy will have to be imported if the woodlands are to be stabilized. Stabilization itself will require a large and increasing investment in reforestation, conservation, training and management.

FORESTRY/ECOLOGY FINANCING BY DONOR AND BY SUB-PROGRAMME

($ millions)

	I	II	III	IV	V	VI	TOTAL
United States	23.257	.975	19.637	460	6.498	185	51.012
World Bank	1.000	9.500	36.675				47.175
United Nations	5.755	13.953	5.457		2.730		27.895
France		1.580	19.215		480		21.275
West Germany	2.600	7.163	8.410	900	382		19.455
Switzerland	3.085		10.880		1.125	327	15.417
Other (Japan, Italy)	135	11.272	2.405	5			13.817
Canada	5.665		4.200				9.865
Belgium		6.500				40	6.540
Netherlands	1.500		685	40			2.225
Arab States	500	365	152				1.017
TOTAL	43.497	51.308	107.716	1.405	11.215	552	215.693

(Adapted from CILSS, 1980)

Key

I Soil and Water Conservation

II Integrated Rural Development (Agrosylvopastoral)

III Forestry/Wood Production

IV Energy (renewables, conservation, substitution)

V Research and Training

VI Planning

The strategy for Environmental Stabilization. A rigorously selective focus is required to narrow in on priority problem areas in which the U.S. has a demonstrated comparative advantage. Based on lessons learned coupled with Agency guidance including PD-7 on Forestry Policy and Program and the draft Agency Forestry Sector Strategy, primary foci will be:

1) Institutional strengthening: the two sub-components will be:

a) support for planning and programming, including assistance with all facets of policy review and reformulation, support for the creation or strengthening of planning units at the national and, in carefully selected cases, at the regional levels (including strengthening of monitoring and evaluation capabilities where necessary), and support for applied research to fill basic data gaps for planning purposes. Initial emphasis will be given in each case to the training of forestry economists and planners, using an important U.S. comparative advantage in this field.

b) support for improved public sector administration and financial management. Among the areas of public administration deserving priority attention are the review of personnel policies and performance incentives (including the need to build in incentives for foresters to live and work in the field), careful manpower planning, the development of improved program data collection and analysis capabilities, and the strengthening of documentation and information dissemination capabilities.

2) Training: based again on comparative advantage, assistance will be concentrated at two levels: a) field agent level - using the on-the-ground experience and language skills of ex-Peace Corps Volunteer (PCV) foresters coupled with U.S. expertise in the training of trainers; and b) university level - with support and advanced training in the U.S. coupled with support for third country training.

3) Research: long-term support will be provided to carefully selected institutions at both the national and regional levels. In the short term, emphasis will be on the training of Sahelian researchers, the careful identification of research priorities and the development of appropriate infrastructure and facilities. While the U.S. is expected to take an active role in the development of Sahelian forestry research capabilities, great care must and will be exercised to ensure the closest possible collaborating with other key actors including IUFRO, the World Bank, FAO and the French. Francophone/Anglophone linkages will be encouraged, including support for language training and regional workshops.

Research to date has been almost exclusively technical. However, future forestry research efforts in the Sahel will need to have three principal foci: technical (i.e. silvicultural), economic, and social. Prior to the launching of these efforts, a careful inventory of work completed to date will need to be conducted. Specific research priorities that deserve immediate attention include forest inventory work, an improved understanding of the role of trees in agricultural systems, natural forest management (including the silvics of indigenous species, the silviculture of natural formations, the costs and benefits of various types of silvicultural treatments, etc.), and work on species trials and trees improvements (including improved seed collection, storage and distribution). It is particularly important that close collaboration be established and maintained between forestry and related agricultural research work (including A.I.D.-funded mixed farming and farming systems research).

4) The Private Sector: Increased attention will be devoted to identifying areas of possible support for private sector contributions to forestry development and ways and means of encouraging and supporting private initiative. Included in this dialogue will be the important long-term issue of community-based locally controlled natural forest management.

5) Conservation

a. Soil and water conservation and management - This is seen as the most important "action element". Environmental rehabilitation in the Sahel must be based on the development of ecologically-sound, sustainable systems of agricultural production. The lack of effective soil and water management stands as one of the key constraints to the attainment of this goal, particularly in areas under stress from high population. A.I.D. is already supporting soil and water conservation work in Cape Verde and The Gambia. Plans are underway to give serious attention to these issues in the Mossi Plateau (Upper Volta) and the Groundnut Basin (Senegal). It is appropriate that soil and water conservation activities be funneled, to the greatest extent possible, through agricultural institutions, with foresters being called upon to provide technical guidance on the use of vegetative cover to promote broader soil and water conservation and management goals.

b. Natural forest management: Most of the fuelwood and other forest products produced across the region over the next decades will come not from plantations but from the natural forest management underway across the Sahel. A.I.D.'s pioneering work in this domain in both Upper Volta and Niger should be expanded. On the consumption side of

the fuelwood equation, assistance in two areas is appropriate: continued support for VITA's work in providing technical direction to stove programs across the region through the CILSS regional improved stove project, coupled with support for careful reviewing of pricing policies for fuelwood and other forest products.

c. Agro forestry and rural forestry: There is still a considerable amount of research to be done in order to develop appropriate technical packages to make rural production systems in the Sahel more productive. However, there is much knowledge regarding specific types of interventions appropriate for particular types of situations across the region. Work on rural forestry should be continued, incorporating both lessons from experience to date and research results as these become available.

d. Cooperation: Coordination of sector programs and the effective use of comparative advantage is of great importance. In forestry, as in most other sectors, there is much to be learned from sharing experiences. Mechanisms - both formal and informal - to promote this sharing are, in many cases, in place but not functioning as effectively as they might. Much can and should be done to expand the role and increase the effectiveness of the formal mechanisms (including, inter alia, CILSS and the Sahel Institute (INSAH) at the regional level, and institutions such as Upper-Volta's Comite de la Recherche Forestiere at the national level). Emphasis and support will continue to be given to such efforts at both the national and regional levels.

Priority interventions and expected impacts over time.

Priority interventions over the short term (1985-89) will be on two

tracks: one, requiring the bulk of the funding, will concentrate on laying a solid foundation for future sector programs by developing Sahelian research, training and planning capabilities. Primary emphasis will be on building national level capabilities, while at the same time seeking to support the development of effective regional coordination and information dissemination mechanisms. The second track, involving relatively less funding, will be continued support for highly selective pilot interventions (with principal focus on improved woodstoves, soil and water conservation and management, natural forest management, and agroforestry using PVO's and other appropriate intermediaries as well as national forestry services). Some of this work can be funded with PL 480 counterpart funds. By the end of the planning period it is expected that the impact of support for research and planning activities will begin to be felt, with national forestry programs addressing priority problems in logical sequence, within a realistic timeframe, giving initial attention to areas of greatest need and using proven techniques. Smaller, more highly trained and effective conservation services should be in place by the end of the 1985-90 period, acting as a catalyst for the whole range of both private and public sector activities. Moving into the medium-term planning horizon (1990-2000), it is expected that work on both tracks outlined above will be continued with relative emphasis shifting over the planning period from institutions building/strengthening to interventions on the ground. Assuming Sahelian forestry research efforts have been effective, tested technical packages should begin to be available for dissemination.

HEALTH, NUTRITUION AND POPULATION (HNP)

In terms of the current health situation, nutritional status and population growth, Sahelian countries rank among the world's worst: infant mortality rates, on the average, are about 160 per 1000 live births. About one third of the children die before reaching age 5, mostly from a combination of diarrhea, respiratory infection, malaria and malnutrition. Life expectancy is around 42 years and daily calorie supply per capita is about 85 percent of estimated requirements (as compared with 131 percent in Western industrial countries).

None of the Sahelian governments has enough resources to cope with its health problems. Per capita health expenditures in 1983 were estimated at around $1.50 for Mali, Niger, Chad, Upper Volta and about $3 for Senegal, Gambia and Mauritania. Most of the health expenditures go to salaries (60-90 percent), 5 percent or less for drugs. There is virtually nothing left for operations, investment or, in some countries, even for maintenance. There is little or no money left to pay operating costs of the projects where foreign donors pay for the investments. The people themselves can only finance part, mostly in the form of fees for services and drugs, i.e., for something from which they directly benefit. These direct costs are minor compared to the sums required, for example, for gasoline, vehicle maintenance and supervisors' per diem. The "equity distribution" policy, i.e., to spend less money on urban-based hospitals and more on village-based health services, does not work because there is simply no way to reduce the already insufficiently funded but badly needed urban services which do exist. Groundwork for immunization programs has been laid in most Sahelian

countries. Some, like Mauritania, the Gambia and Senegal, have nationwide immunization programs. However, many epidemic diseases such as measles and especially meningococcal meningitis pose a chronic recurrent problem, which, at present, is only dealt with by ad hoc emergency assistance.

Although increasing, manpower is still in short supply. The near absence of well-trained administrators and accountants in the ministeries of health is largely responsible for the chaos in urban hospitals, exacerbates the poor support to rural areas and is an obstacle to the introduction of fees for services, a policy of which countries like Senegal, Mali and Niger already approve. Private medicine has recently been liberalized in several countries. Drug supply systems, which may be the most crucial element to the success or failure of health programs, have only recently begun to be studied in detail. The old drug supply systems are heavily indebted in most countries because of official policy to provide medicines free. Competitive procurement of drugs is limited by the fact that prescriptions, and consequently, orders, are still in trade and not generic names. So far only Mali and Chad have officially approved national essential drug lists. Prescription practices among physicians and nurses leave much to be desired: overprescription, i.e., many unnecessary drugs, often for the slightest ailments, and wrong prescription are common.

DONOR ASSISTANCE - Between 1975 and 1981 donor countries spent about $256 million on health or about 2.7 percent of their total assistance. The trend is declining. While Niger had the largest share ($41 million), Cape Verde received the highest ($ 7.50 per capita) which is about twice their Ministry of Health per capita budget. The U.S., with $30 million (12 percent of total health assistance) was the fourth largest donor after the UN, the European

Development Fund (FED) and the French development fund (FAC). Various missionary groups and voluntary agencies, especially in Upper Volta, Mali, Senegal and Cape Verde, are often very effective and the only ones who provide health services in rural areas. The other important group rarely mentioned in official documents are the communist countries, especially Russia and the People's Republic of China (PRC).

French medical assistance is now mainly concentrated on the national teaching hospitals, where they also give material support such as drugs and equipment to physicians. Hospital-based assistance including building construction is provided by the FED and various banks such as the ADB (African Development Bank) and the Arab Bank. Italy, with its $500 million Sahel Fund, is a newcomer and its health programs are still in the planning stage. The World Bank is another recent donor in health with programs in Mali ($16.7 million for rural health), Senegal (primary health care), and Upper Volta (health planning). Except in Upper Volta, none of the IBRD's program has started yet. British contributions are substantial in the Gambia and Arab aid is highest in Mauritania. UNICEF operates Primary Health Care programs in every Sahelian country.

AID's Current Health Program

Niger remains by far A.I.D.'s largest effort. We are supporting the Ministry of Health in activities ranging from construction of provincial headquarters to provision of Village Health Worker (VHW) kits and training materials. Niger has the only country-wide VHW program in the Sahel. Senegal has two A.I.D. health projects: the Rural Health project in the Sine Saloum, which is basically a VHW program and now in the phase two design stage, and the Family Health Project whose implementation is now starting.

The latter envisages the integration of family planning (FP) with maternal/child health (MCH) in several urban clinics. Mauritania is implementing a national immunization program integrating VHW programs in three provinces. This program is carried out through fixed centers and mobile units whose vehicles are also used for VHW supervision, thus considerably improving operating efficiency. Mali has redesigned the remainder of the VHW rural health project and now provides support for such formerly neglected infrastructure as furniture and equipment to rural dispensaries and the health centers. The health component in Mali's Manantali resettlement effort awaits project approval by A.I.D./W. Upper Volta has a Health Ministry planning project to improve information and health statistics collection and a rural wells project with a small health education component. Chad is now starting to develop health programs, mostly of an emergency nature, in the areas of drug supply and is restoring the health planning unit which had to close down in 1979. The Gambia and the Cape Verde Islands have no A.I.D. bilateral health programs and none are currently anticipated.

A.I.D. centrally funded programs are being used by all missions to a varying extent mainly in the areas of population, nutrition and training. INTRAH and JHPIEGO, for example, provide training for mid-level personnel in Mali, Mauritania and Senegal.

There is one Sahel Regional project in that sector, the Demographic Data Collection and Analysis (DDC), carried out by the Sahel Institute in Bamako. Two other Africa Regional projects, the Combatting Childhood Communicable Disease (CCCD) and the Strengthening Health Delivery Systems (SHDS) program reach the Sahel but, apart from supplying measles vaccine, their support is limited to short term technical assistance and third country training. The onchocherciasis (river blindness) control program encompasses

Upper Volta, parts of Niger and Mali. A planned westward extension of this program was delayed by the international donor conference in 1982. An ORT initiative is also anticipated.

The total funding obligation as of January, 1983 for both A.I.D. bilateral and regional health programs in the SDP was approximately $6 million per year, not including the ONCHO. This represents about 6 percent of the annual SDP funds. During the course of the last four years, U.S. health projects have shifted their focus from VHW projects to a more diversified approach ranging from health planning to immunization to VHW activities. The controversial results reported by evaluations of VHW projects, especially regarding the problems of recurrent costs, continuous drug supplies and personnel motivation were a major reason for this shift. Although VHW efficiency, i.e., the effects upon reduction of morbidity and mortality, is largely unknown, but the few reports analyzing the number of contacts and actual activities of a VHW suggest a rather low level. There is also some question as to whether the VHW is an appropriate vehicle for health delivery in areas severely lacking in health infrastructure, such as most parts of the rural Sahel. The phase two Senegalese rural health project will be an interesting attempt to introduce known technology such as oral rehydration, presumptive malaria treatment and immunization into VHW programs.

Nutrition

As the people of the Sahel are increasingly underfed, the program to increase agricultural and especially food production will be the principal nutrition action. While there is undoubted potential for a Sahel

self-sufficient in basic cereal foods, the expectation is that the region's per capita consumption of animal (livestock) protein will decline in the future since the potential rate of meat and milk production increases is less than the population growth rate. For the distant future (beyond year 2000), we are projecting surplus cereals production (and therefore the means to import milk products and seafood) and an increase in Sahelian fish production. A significant agricultural project interest is the development of vegetable production. However, in the interim, diets will have to be supplemented with imported foods, particularly during years of diminished production. The U.S. plans to contribute PL 480 imports as part of to a considerable volume of food aid provided by Club donors. Food aid imports are to be used for security stocks, health and nutrition projects (MCH), feeding programs in the schools and general augmentation of adequate food availabilities overall. The counterpart proceeds from sales of donated food will be employed in enhancing domestic production, liberalizing markets to facilitate trade and expand varieties of available food and the encouragement of private sector food processing and trade. We encourage food aid in dairy products to help relieve a persistent deficit.

The SDP is developing and test marketing more convenient forms of the most popular and more nutritious grains, millet and sorghum. These activities will support self-reliance by encouraging demand and lower prices in urban markets while offsetting the growing demand for imported rice.

Maternal/child health projects encourage improved nutrition, monitor growth, supply nutrients, treat diarrheal diseases and dehydration and instruct mothers in sanitation, nutrition, and in particular, breastfeeding and nutritionally adequate weaning. MCH projects are a principal focus of family planning efforts in the near term, the success of which is partially based upon the diets of mothers and infants.

A serious concern for the SDP and a constraint to production is the reduced level of food consumption at the time of cultivation. By assuring food supply during these periods (by making credit and/or food aid available, or by simply improving markets, distribution and infrastructure) our program will not only contribute to domestic food production but also the nutritional levels of Sahelian diets when they are most deficient (due to high labor demands and the increased disease potential during the planting season).

Finally A.I.D. participates and encourages development of a sanitary and voluminous water supply and the monitoring and prophylaxis of waterborne diseases.

The long-term public health strategy will vary from country to country. The selection of a program will adhere to a limited number of technical options taking into consideration the constraints posed by national level decisions, realistic prospects, political possibilities and A.I.D. management capabilities. Our strategy is in line with the A.I.D. health, nutrition and population policy paper, 1982, adapted to the special characteristics of the Sahel. There are eight major areas of intervention possibilities (not ranked in order of priority):

a) Diarrheal disease control, notably oral rehydration, which is practical, affordable and effective in reducing diarrhea-related deaths which constitute an estimated one-third of infant mortality.

b) Maternal/Child Health services comprising nutrition monitoring, immunization, oral rehydration, prenatal, delivery and postnatal care and first aid treatment, especially malaria.

c) Strengthening of the existing health infrastructure through provision of basic furniture, equipment, vaccine and building maintenance to support the above.

d) Studies and interventions in the pharmaceutical sector, improvement in prescription habits, selected local drug manufacturing (dependening upon ability to finance locally, technical feasibility and availability of required personnel).

e) Zonal Health Development: In a chosen area the above interventions are carried out at the village level via dispensaries with back-up from the regional health center. Because of A.I.D.'s technical, logistic, and resource limitations, we will restrict rural health projects to a limited number of VHW's, dispensaries and health centers.

f) Health Planning at the ministry level: Although these units will establish data banks or data collection, they will provide mainly logistic support to the ministry, especially in the areas of drugs, vaccines, furniture and equipment through standard lists and foreign donor coordination.

g) Family Planning, in urban and rural areas and, at least initially, integrated in a MCH service package.

h) Disease surveillance, epidemeiological studies and applied research, mostly in combination with one of the above programs are to be developed in cooperation with A.I.D./Washington. Assistance will be sought to clarify the epidemiology of meningitis and develop a satisfactory method of immunization against meningococcal disease.

After 1990, U.S. health assistance in Mali, Upper Volta and Senegal should be in the areas of MCH and family planning activities. will have to be strengthened through the development of new FP centers in large urban areas and improvement in logistics. For this and other projects the position of an HNP officer is essential. Senegal should consolidate its experience

with community health worker and dispensary level supervisory support and with the innovative trials of community financing and management through the user fee system. Family planning should increasingly involve the private sector and a pilot program to market contraceptives should be launched. Upper Volta has been intensively sensitized in the past and could soon start the opening of MCH/FP clinics. A component in the present health planning project points to that direction. (See the section below on family planning) Niger will need a fresh look at the entire national primary health care program. A certain level of quality care which reduces morbidity and mortality in both the individual and the community has to be maintained, even if it is at the price of quantitative expansion. Proven technologies such as immunization, oral rehydration, antimalarial treatment, good obstetrical care and surgical interventions in life threatening situations must be reinforced at the provincial hospital and to some extent down to the arrondissement level. A.I.D. will restore the Chad Health Planning Unit to generate the data and analyses for resurrecting the public health services in that country. Private sector participation in health services will be encouraged. Mauritania will continue the nationwide primary health care program based on the eight years of A.I.D. experience there. Technical assistance to the ministry planning division will address manpower, finance and data generation. During the next five to ten years, the Gambia's health care delivery system will be funded by a number of donors including A.I.D.'s CCCD. The planned Sahel-wide oral rehydration project will disperse ORT technology throughout the region.

All of these countries need infrastructure reinforcement, be it physical reinforcement through renovation of buildings, supply of basic equipment and furniture, or technical reinforcement through training and standardization of essential supplies and their proper use.

POPULATION

In mid-1983, the total population of the Sahel, approximately 34.5 million, was growing at a rapid rate of 2.5 - 3.0 percent annually. Given the fact that most Sahelian countries have not been able to increase economic growth beyond one percent annually, persistance of the current rate of population growth implies continued decline in welfare and an obstacle to whatever economic progress the Sahelian countries can hope to achieve. To achieve the objectives of the Sahel Development Program, the economies of the region will have to grow at an unprecedented (for similarly endowed areas) rate over the next twenty years if the current population growth rate is maintained. It is in the interest of these countries to begin now to mount initiatives which will, as quickly as possible, reduce popualtion growth. The implications of rapid urbanization in the Sahel make matters much worse. Through 1960, only 9 percent of the population lived in cities. By 1980, however, 18 percent of the population was urban. This trend will inevitably result in a growing demand for urban amenities, services, imported products and tastes and will increase the political power of urban economic producer and consumer groups. With urbanization, rural sector output per worker must increase at substantially higher rates to keep per capita, domestically produced food supplies constant. The increased urbanizaion combined with the high population growth rate will create a higher agricultural dependency ratio. In

1970, one farmer supported 2.5 persons, of which 0.3 were outside agriculture. In the year 2000, one farmer will have to support 2.9 persons, of which 1.2 will be outside agriculture. This effort has critical implications for the economic welfare as well as for the political stability and security of the region.

A.I.D. is one of the few donors with an interest in addressing population growth in the Sahel but several factors could act as constraints to A.I.D.'s achievement of its policy objectives. Examples of these are government policies which encourage high fertility and do not countenance activist family planning programs, more specific regulations prohibiting contraceptive distribution, and, in some cases, prohibition or taboos which preclude discussion of population issues. However, as more Sahelian governments and people become sensitized to the issue, the situation is increasingly more encouraging and there is greater opportunity for A.I.D.'s interaction.

A.I.D. has established priority areas of intiative with the dual function of addressing existing obstacles to the encouragement of voluntary family planning and of providing family planning services. First, A.I.D. is working in close collaboration with selected governments and private organizations to develop country-specific strategies for the introduction of voluntary family planning services and educational programs. A.I.D. has initiated dialogue with government officials on the desirability and opportunities for family planning and the need to re-examine official policies which tend to encourage high fertility. The R.A.P.I.D. (Resources for Awareness of Population Impact on Development) presentations depicting population growth trends have been presented to officials across the Sahel to increase their awareness of the economic implications of the rapid population growth rate and induce family

planning policies. In Upper Volta, in preparing for a projet beginning in FY 1985, A.I.D is conducting discussions with women's groups to encourage their participation in the development of information services. Such mobilization of public interest in family planning should provide additional motivation to Sahelian governments to support and develop family planning programs. A.I.D. has also provided training and informational programs to instruct service delivery personnel, potential users of family planning services and village health workers under the Rural Health Worker projects in both Niger and Senegal. It is also assisting in the development, on both a country and regional basis, of an adequate demographic, biomedical and social sevice research data base which is available to those people involved in the creation of effective policies and programs.

A.I.D. is strengthening host country public and private institutions so that they can more effectively implement population policies and programs. A.I.D. projects in Mali and Senegal are integrating family planning with maternal/child health (MCH) in several urban clinics. Through these clinics, family planning information and commodities will be made available for delivery. Other activities A.I.D. will pursue in the period 1985-1984 include the following:

1. Policy.
    a. RAPIDS presentations or similar national seminars;
    b. Participation of key national representatives in an international conference on population programs;
    c. Promotion of multisectoral information materials, national conferences and seminars relating all aspects of development and welfare to demographics.

2. Service Delivery in Senegal, Mali, the Gambia and Upper Volta.
    a. Family planning training for traditional birth attendants, mid-level personnel and physicians ;
    b. Establishment of family planning clinics in major towns , either integrated into MCH or separate;
    c. Establish, improve and expand the management of family planning commodities;
    d. Promote MCH/FP education programs aimed at health worker-patient consultations as well as the mass media;
    e Establishment of functional recording/registration and follow-up system in the use of FP services.
3. Sahel regional activities.
    a. Carry through the Demographic Project to install the national capability to generate and analyze demographic data ;
    b. Assure the capacity of the Sahel Institute to coordinate demographic data generation and analysis;
    c. Posting of a full-time Population Officer for the Sahel in the field.

Our approach will be country-specific. First, the regional Population Officer will outline a strategy for each USAID, taking into consideration the country's political, cultural and technical situation as well as the management capabilities of the respective A.I.D. mission. Each USAID will be encouraged to examine the option of contracting for a population program manager as a complement to the limited mission staffs. This FP assistance will be provided where practical, partly as an end in itself but more important as a contributon to achieving the overall goal of increased nutritional self-reliance.

EDUCATION AND TRAINING

For Sahelian countries, financial constraints, e.g., teachers'salaries, have prevented the expansion of the formal education system beyond a small minority of primary school age children, mainly in urban areas. Even this small percentage of the school-age population served by the traditional primary education system is not always acquiring the skills appropriate for the living conditions and work environment of both rural and urban areas. The problems are:

a. Limited access to basic education and unequal distribution among rural persons and females;

b. Inappropriateness of curriculum;

c. Insufficient financial resources and high recurrent costs. The resources required exceed the financial capacities of Sahel countries. Sahel governments invest 6 - 22 percent of their national budgets in formal education. Teacher salaries typically constitute between 75 and 90 percent of the total;

d. Inefficiencies. A major cause of inefficiency in the education system is poor quality instruction leading to dropout, repetition and the need for remedial education. In general, 15 percent of the students at a given grade level have repeated that level and approximately 50 percent of all students drop out of the system before completion of the fourth grade.

In non-formal education a number of practical skills-training programs have been developed in the Sahel over the last ten years in areas such as adult literacy, midwifery and vocational skills training. Vocational training programs are a valuable resource in improving employment

opportunities in the Sahel. As pointed out in the Africa Bureau Strategy Paper on Basic Education and Technical Training Assistance, greater attention must be devoted to improving the quality of education and providing literacy and occupational skills training in Africa to promote economic and social development outside formal education systems.

Donor commitments in education and training in the Sahel increased from a total of $45 million in 1975 to $58 million in 1981. Aid from the largest donor, France, is almost exclusively committed to the provision of technical assistance in the form of high school teachers and university professors rather than assistance in increasing the efficiencies of basic formal education or support for the promotion of economic development outside the formal education system. Over the last several years, France has collaborated with other donors in priority support for primary education. The Sahel governments are rethinking the role of France in host country educational systems and in long-range educational planning. They are open to more dialogue with other donors concerning the training of host country personnel and assistance in educational planning. The World Bank has assumed a leading role in educational reform planning in a number of the Sahel countries. A.I.D.'s own programs in education and training began in 1976 and commitments have increased from $2.7 million in 1976 to about $9 million in 1983. In addition, a very large additional expenditure for training is associated with specific requirements of A.I.D. projects.

The Agency policy on education places highest priority on increasing the efficiencies of basic formal education. The Africa Bureau guidance recommends an increase in efforts to improve education and technical training opportunities. It encourages collaboration across all sectors in order to

identify human resources deficiencies and to improve the efficiency of the education and training effort.

We fully support the popular wisdom with respect to education: it one of the most effective investments in economic development. In the Sahel we are confronted by the immediate need for trained people to help implement A.I.D. projects designed to increase agricultural production and improve rural incomes. Cumulative project experience highlights the fact that relatively low levels of managerial resources in Sahelian institutions is one of the single most critical constraints to effective project implementation. A.I.D.'s efforts in the area of human resources development, therefore, will be channeled, as a short-term priority, into technical and management development and training in those skills required for successful implementation. Projects will be designed to provide the management requirements particular to and generated by A.I.D. projects. Thus, the A.I.D. strategy will be to systematically include training components in most A.I.D. projects. In addition, A.I.D. will provide increased participant training through regional projects.

A.I.D. has not assigned a high priority to funding formal education projects in the Sahel because of the program's focus in agriculture and rural development, and the comparative advantages of coordinating with other donors, especially the French, for them to concentrate their efforts on formal education in this Francophone region.

The areas requiring the most attention include:

a. identification of solutions to problems in the economics of education, i.e., improving the internal efficiency;

b. increase communication among donors and other professionals working in the Sahel to expand the knowledge base;

c. assist host country ministries of education in conducting research, policy planning, developing and testing new approaches; and

d. assist in improvement of educational planning.

While not a priority concern for program resources, A.I.D. may be willing, on a case-by-case basis, to consider limited initiatives in some of these areas.

Short-term 1985-1989. The Club/CILSS goal of increased food production in the Sahel dictates increased support to shorter-term programming. The Africa Bureau policy paper supports a series of short-term activities designed to provide needed skills for improved utilization of development resources. The principal strategy for the Sahel under this approach is institutional development through participant training and technical assistance for the development of host capabilities required for program implementation. Participant training is and will continue to be a cornerstone of this strategy. However, to be effective, there must be key people to set in motion and sustain the training process, i.e. trainers. Simultaneously, A.I.D. will consider supporting activities for increased access to the educational system.

After 1990: Economic independence in the Sahel will require, by definition, an adequate complement in indigenous talent. This implies a capable education system from the ground up, founded upon a high capacity, high quality primary education system which will assure a quantum increase in the literacy level of the population on the whole. The governments have been convinced of this since independence and have typically expended major efforts for this purpose. Concurrently, certain donors, notably the World Bank, Canada and France, have dedicated a large share of their assistance to this end. This focus must be continued and proportionately increased through

the coming generation. Resources will be required for everything: construction, teaching materials, teacher training, teacher salaries and operations in both formal and non-formal education. Certain reforms will be required in addition to resources: relative improvement in provincial and rural education services, relative shift of focus from high-level training of an elite to primary education and literacy, adoption of curricula appropriate to rural production, production of printed matter in local languages, development of mass instruction through telecommunications, and other adaptations to the priority, primary education.

A.I.D. will always have to assure its requirements in kind and number of necessary personnel for agricultural development. We have launched training assistance to provide these. We also to anticipate a need for minimal levels of education in the primary rural sectors where our production projects are targeted. The more farmers and farm labor have minimal education in fundamental agricultural technology, basic literacy and numeracy the more rapidly will development initiatives and production improvements take effect. While we view this as a primary area of activity by other donors, especially since the Sahelian education systems are mostly French-based, A.I.D. should consider some initiatives which will expedite outputs consistent with our program requirements at the basic level. We are already doing this, to some extent, e.g. farmer literacy training and radio education in Niger. We may wish to consider other limited interventions in the education sector, consistent with overall program goals and our management capacity.

PHYSICAL INFRASTRUCTURE

While A.I.D.'s Sahel Development Program has assiduously attempted to limit its development efforts to those which clearly contribute to improved production in agriculture, the nature of these interventions has never been constrained. The program has always had the diversity to range from child health to road transport, based on the original intent of the Congress which specifically identified infrastructure, including transportation, as a key element of the SDP. During the last decade, A.I.D. has generally opposed large infrastructural endeavors and precluded their implementation in the Sahel. More recently, however, A.I.D. examined the large infrastructural option explicitly and determined, as a principle, that there was to be no restriction on this type of project provided it was also demonstrably contributive, proportionally, to the overall objectives.

In the past, our program has contained a large measure of infrastructure, including descreet projects but, more commonly, components of projects. These included secondary roads, road maintenance, capital equipment grain storage, service and administration buildings, clinics and health posts, schools and training facilities, wells, erosion control construction and catchment dams, woodlots and tree plantations, firebreaks and wind breaks, and irrigation facilities such as dikes, canals, dams, and pumping stations. This type of physical development is integral to the development process. Infrastructure and equipment characterize that phase of development which produces the services and production outputs that are physical means to yielding the welfare objectives of the program, i.e., increased consumption/investment resources itself. Hence, physical infrastructure will

become an increasingly important component of any development program as the program matures.

We can expect the evolving Sahel Program to conform to this same pattern. The development of physical infrastructure will gradually become an increasingly important aspect of the project portfolio. The sequencing of this investment will naturally correspond to the pace of evolution of the SDP and the various sub-sectors within the program.

Transport and Communication - On the whole, the minimal requirements for access to the Sahel based upon hard surface trunk roads and railroads are in place. These are the links through Ivory Coast and Senegal and, to a lesser extent, Nigeria, Togo and Cameroon. There are certain "breaks" which need attention, such as the strip of unpaved road in southern Mali linking to Ivory Coast and the connections from northern Cameroon and northern Nigeria into Chad. These routes are vital to the international trade within the Sahel and with other coastal African states.

Certain internal routes of lesser international importance may also require priority attention in special cases. The interest in such road development centers on secondary and feeder roads which have more localized, but in limited terms, crucial importance for the exploitation of certain high-potential agricultural enclaves, for example. The CILSS/Club have determined that the really critical requirement in the transport infrastructure equation is improvement of road maintenance and the provision of materials, equipment, training and, most importantly, operational funds to help pay road crew salaries and purchase fuel. Other donors, particularly OPEC are leading support for road construction. A.I.D. will undertake, selectively, large-scale road projects, particularly if they

can be implemented with other donors, such as the World Bank, under a joint funding arrangement to achieve management efficiencies. Otherwise, our focus will be on those roads which are required for the success of agricultural production improvement efforts and support for road maintenance. Counterpart funds can be very useful for these types of development investment.

Rainfed Agriculture - Since the planning period priority in this sub-sector is research, infrastructural development would be limited to locales which require laboratory or training facilities including capital equipment but would also include development of production capabilities such as farm-implement manufactures, farm-inputs, e.g., fertilizer and, possibly, processing of agricultural products.

Irrigation - The self-reliance and food security objectives of the SDP dictate development of irrigation and water management infrastructure. As noted elsewhere in this statement, there are attractive opportunities for irrigation throughout the Sahel. We consider these investments not only practical and defensible but a means to enhance the resource base of the Sahel. Investment in irrigation can transform the region from chronic dependence on external sources for a portion of current consumption to economic independence in dry periods and surplus production when rainfed output is "normal". Donor investment in irrigation is the only way to assure evolution of the region from future dependency. A.I.D. will have problems, initially, in implementing irrigation development because of our own deficient experience in the Sahel and limited agency technical design and management capability for this type of endeavor. Hence we will proceed systematically by acquiring expertise through selected projects and develop the required contractor capability for analysis and execution of irrigation

projects. The pace should accelerate and each of the Sahel missions will examine its options for irrigation development and undertake their exploitation as A.I.D.'s overall capacity improves.

Livestock - We have concluded that the thrust of the SDP efforts to exploit the potential of animal products output in the pastoral areas should be improvement of animal health and efficient use of grasslands whose access is constrained due to absence of drinking water for animals. This will require, inter alia, construction or improvements of health posts and water points. The need is extensive but only roughly quantified at this time. The first step will be to conduct detailed surveys of the range to locate where health posts and water sources should be positioned. The systematic surveys required for this identification phase are just beginning. It would be followed by a construction phase in which A.I.D. itself would selectively participate since other donors have interest in this development. The Sahelians have their own capabilities in their livestock and water works ministries and the pastoralists are willing to pay for health and water services as well as develop and manage their sources themselves.

Public health and Training - Infrastructure required for these activities consists of building construction, mostly, and would be a very modest portion of the total program, principally because the dominant needs in these sub-sectors are for technical assistance, equipment and pharmaceuticals, instruction and operational expenditures rather than physical investments.

PHASING

We have noted the extreme degree of underdevelopment in the Sahel in contrast to the program goals of food self-reliance within, now, less than twenty years. The average rate of development consistent with these goals

cannot be attained immediately in most sectors. Much preparatory investment is required in advance. A.I.D. guidelines are especially apropos in the circumstances. Policy reform in the cereals sector and elsewhere is essential in almost every Sahel country as are human resources, institutions and private sector development. A major priority for improvement of food production is research, particularly in rainfed agriculture, but also in irrigation and forestry/energy/environment. Many initiatives have already been started and, of course, needs differ among countries.

We foresee a general evolution of the regional program emphases along the following lines (increasing order of priority):

PHASING THE PROGRAM

	1985-89	1990-9	1995-2000	2000-2005
General	Food Security Policy Infrastrutr. Private Sect.	Food Security Infrastrutr. Policy Private Sctr.	Private Sector	Private Sector
Agriculture				
Rainfed	Research Policy Production Training Institutions	Production Research Training	Production Research Training	Production -- --
Irrigated	Research Training Production	Production Training Research	Production	Production
Livestock	Water/Forage Health Research	Water/Forage Health Research	Water/Forage Health	
Environment/ Forestry	Research Training Policy Conservtn. Reforestn.	Conservtn. Reforestn. Training Research	Reforest. Conservtn.	Conservtn.
Health	ORT/Immuniz. Planning Supply/Equip. Drug Supply Rural Health	Rural Immuniztn.	Rural	Rural
Population	Policy MCH/FP Informatn. Commodities	MCH/FP Informatn. Commodities	MCH/FP Informatn. Commodities	MCH/FP Informatn. Commidities
Education/ Training	Training Extension Literacy	Training Extension Literacy	Training	Training
General Support	Budget B.O.P.	-- --	-- --	-- --
PL 480	Emergency Feeding Food for Developmt.	Food for Developmt. --	Food for Developmt.	-- --

We plan for near-term policy and institutional reform, a high level of training and agricultural research and a concurrent major effort to "unleash" the private sector and improve Sahelian planning and analytical capability. In the latter half of the decade, and into the 90's, there will be an increasing capability: expanded use of fertilizer, mechanization, improved varieties and techniques to increase rainfed production, construction at an increasing rate of irrigation perimeters to exploit the river basins, transfer of funding of basic planning and immunization services to ministries of health and expansion of family-planning services. As stabilization improves, we expect to phase resources transfer from government finance to production and to establish a self-sustained food security system while PL 480 is gradually reduced.

Implementing the Program: Resources

The Sahel is a difficult place to work, even to induce people to come there to work. A.I.D. has grappled with this and related problems and has worked out improved (but far from perfect) ways of doing business. We have learned that because of distances and the conditions of logistics and communications, our missions cannot efficiently sustain a multitude of projects widely scattered throughout a country. Hence, we try to concentrate projects in space and in quantity. We carefully limit the nature, volume and diversity of responsibilities our projects require of host counterpart institutions and personnel. We have specifically emphasized training in management of finances and administration and certify and monitor these closely in order to assure standards and efficiency. We expect and plan for delayed, more cumbersome delivery or unavailability of commodities,

information and contract personnel. We have been plagued by inappropriate design and project plans which are too complicated in organization or diversity for the implementation capabilities.

We are adjusting our processes to the realities of the region. This has become incumbent, the lesson derived from the failure of attempts to do the "quick fix". Research/knowledge, trained personnel, institutions and an appropriate policy atmosphere must come before improvements in production can be achieved. If we do not have these available; they must be generated. Projects designed to set in place production inputs become only the first-phase of the attack upon a problem. The expectation is that other phases or projects concurrently or subsequently will assure all complementary prerequisites and, ultimately, production. A.I.D. has invested and will continue to invest heavily in technical training in the Sahel. Some is now paying off as more African technicians are becoming available. We have invested in basic data (e.g., resource inventories, mapping and surveying). These are necessary for planning. We now have facts formerly unavailable. We can schedule our program more competently, make our commitments to certain sectors or areas within countries prepare the basic inputs and exploit them over 5,10,15 years as required to achieve the production objective.

The conclusions of the program assessments, audits and project evaluations have been incorporated into the present strategy which is intended to be inclusive of all of A.I.D.'s Sahel Program activities. It should be clear that the technical balance which we have attempted to design into this strategy does not imply that each of A.I.D.'s bilateral programs will incorporate examples of each of the numerous initiatives identified as important for the program goals. That will not be possible. Some programs

will have to be limited to one or a few initiatives. Each bilateral mission is obliged to undertake a program consistent with the quality and quantity of the resources at its disposal and consistent with the development efforts of other donors and the host country program. Each mission will be limited to a specified few direct-hire (DH) staff, expatriate contractors and consultants as-well-as by the short supply of host-country technicians. Hence, we will implement our programs according to the priorities (food self-reliance first, etc.) subject to the availability of technicians, financial resources, expertise, timing, logistics, and etc. We will look for means to overcome resource constraints; the usual being training of required technicians, joint programs with other donors, opportunities for the private sector, including PVOs, improvements in efficiency and automation. Also, we will experiment with novel approaches such as turn-key infrastructure projects, collective efforts such as regional training institutions, economies of scale, integration of national economies and removal of barriers to economic progress.

In the area of program management, we have already tightened the processes of recruitment, logistics and, particularly, financial management. This process will be continuous, enabling A.I.D. to profit from the experiences, reflection and maturation of procedures which are forthcoming from this sustained committment to the region.

Keeping in mind that A.I.D. is only a junior partner in the Sahel Program, we plan to support our strategy with the following approximate resource allocations.

AID SAHEL DEVELOPMENT PROGRAM ($ millions)

	1985	1986	1987	1988	1989
A R D N	64	70	74	78	83
E H R	9.5	10	11	11.5	12
HE/POP	7.5	8	8.5	9	9.5
Other	24	27.1	27.8	29	31.6
TOTAL	105	115.1	121.3	128.5	136.1
OF WHICH					
Bilateral projects	74.5	82.7	87.7	93.2	100.3
Regional projects	30	32.4	33.4	35.3	35.8
PLUS					
PL 480 Requirements	40	40	40	40	40
ESF	50	40	20	-	-

For the immediate planning period, the aggregate level of regional projects in the portfolio will remain about the same proportionally. However, we plan to continue to redirect that portion of the program toward river basin development. The initial research, training and institutional development objectives of regional projects will be achieved or, at least be less dependent upon aid financing toward the end of the period while the opportunities and needs for production projects in the river basins will become more compelling. (This is consistent with the overall strategy expectations). The model for future projects in international river basin development will consist of (a) assistance to the multi-national coordination and monitoring units (NBA, OMVS, LCBC and OMVG) and (b) finance of production projects (essentially bilateral) within member states. Thus, although nominally "regional," the major portion of this portfolio component will be in support of projects which are primarily the responsibilities of individual bilateral A.I.D. missions.

As we enter the final decade of the century, the knowledge, institutional and trained personnel base will be established. If the program is sustained, the rewards for the extended effort will be increasingly accessible, and the high rate of growth in production, economic independence, environmental stability and self-generated growth which we have planned will be in sight.