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S E N E G A L

FOOD FOR DEVELOPMENT PROGRAM

PL480 Title III
FY1980 - FY1982

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PL-480 TITLE III PROGRAM FOR SENEGAL

	Page
Table of Contents for Part I, Part II, Annex I, Annex II	
Acronym Glossary	
Introduction	i-vii
PART I: RATIONALE FOR A PL-480 RICE PROGRAM IN SENEGAL	1
A. Overview of the Economic Situation and Prospects for Senegal	1
B. Development of the Agricultural Sector	5
1. Constraints	5
2. Redirections of Government of Senegal Development Objectives	6
a. Background	6
b. Resource Flows into the Rural Sector, 1973-78	7
c. The Role of ONCAD	9
d. Farm Price Policy	11
e. Agricultural Credit	13
f. Reform of Farmer cooperatives	16
g. Decentralization of the Development Process	18
h. Land Resource Protection and Improvement	19
i. Strengthening Agricultural Research	20
C. Government of Senegal Food Objectives	20
1. Plan Budget	20
2. Food Investment Strategy	22
3. Analysis of Government of Senegal Objectives	25
- Groundnuts and millet/sorghum	27
- Rice	28
- Maize	31
4. Organization for Achieving Objectives of the Food Strategy	32
5. Studies Called for by the Food Investment Strategy	33
D. Summary Remarks	34

2

PART II: THE FOOD FOR DEVELOPMENT (FFD) PROPOSAL

		Page
A.	Introduction	37
B.	USG Assistance Strategy and its Relationship to FFP	37
C.	Food Policies in Senegal	39
D.	Food for Development Proposal Project Selection	41
	1. Reform of Cooperative Structure	42
	2. Decentralization of the Development Process	42
	3. Resource Development and Conservation	44
	4. Market Price and Agricultural Investment Policy	44
E.	Food for Development Summary Budget	45
F.	Detail Project Description	46
	1. Agricultural Policy Studies	47
	2. Local Coop. Storage	62
	3. Decentralization of Research	77
	4. Rural Technical Schools	96
	5. Reforestation and Dune Fixation	125
	6. Rural Development Fund	148
G.	Implementation Arrangements	162
	1. Government of Senegal Organization	162
	2. Organization and Responsibilities for the Program	162
	a. Management Commission	162
	b. Secretariat of the Management Commission	163
	c. Special Account for Title III Funds	164
	3. Program Management Budget Requirements	164
	4. USG Monitoring	165

ANNEX I

Tables

1. Basic Economic Data and Indicators
2. Population of Senegal by Region
3. Per Capita Income by Region, 1975
4. Foreign Donor Grant Assistance to Senegal
5. Tax Structure in Senegal
6. GOS Tax Revenues in Constant (1971) CFAF
7. Analysis of Senegal's Balance of Payments
8. Monetary Survey as of June 30, 1978
9. Principal Export and Imports of Senegal
10. Analysis of the Vth Plan to Agricultural Development
11. Evolution of the Primary Sector in the Four Year Plan
12. Senegal Commercial Food Imports, 1970-1978
13. Total Cereal Availability by Crop, 1975-1979
14. Commercial Rice Imports by Country of Origin
15. Senegal's Usual Marketing Requirements
16. Average Present Cereal Consumption by Region
17. Total Estimated Consumption of Cereals by Region, 1981

ANNEX II: RICE SUPPLY AND DEMAND ANALYSIS

	Page
A. Introductory Observations	1
B. Supply Characteristics of Domestic and Imported Rice in Senegal	1
C. Demand Characteristics for Domestic and Imported Rice	4
1. Composition of Grain Demand	4
a. Millet	5
b. Maize	5
c. Rice	6
2. Implication for Plan Objectives	8
3. Urban Rice Demand Projections	9
D. Impact of PL-480 Rice Program on Local Economy	12
1. Overall Benefits to be Realized from Title III Program	12
a. Balance of Payments and National Budget	12
b. ONCAD's Ability to Recoup Costs	14
c. Financial Impact of Title III Program	18
d. Economic and Financial Options for Title III	23
2. Rice Quality Issue: 80% versus 20% Brokens Rice	32
a. Consumer Demand for Rice as a Food Staple	33
b. Composition of Recent Rice Imports	33
c. Characteristics of Consumer Rice Preferences	33
3. "Bellmon" Amendment	35
a. Storage and Handling Capacity of Recipient	35
b. Production Disincentive Determination	35
4. Conclusions	36
Charts and Graphs	37, 38, 39

5

ACRONYM GLOSSARY

Acronym	What it stands for	Explanation
BCEAO	Banque Centrale des Etats de l'Afrique de l'Ouest	West African Central Bank
BEPC	Brevet Elémentaire Premier Cycle	Little higher than Jr. High in U.S. system
BNDS	Banque Nationale de Développement du Sénégal	
CCCE	Caisse Centrale de Coopération Economique	Official French loan agency
CDSS	Country Development Strategy Statement	
CFAF	Monetary Unit of Senegal	Approx. 200 CFAF = $1.00
CGPA	Comité des Grands Produits Agricoles	Retail grain price setting agency
CIDA	Canadian International Development Agency	Canadian aid agency
CIF	Cost-Insurance-Freight	All costs insured up to port of entry
CILSS	Comité Permanent Inter-Etats de Lutte contre la Sécheresse au Sahel	Sahel regional organization for drought relief
CNRA	Centre National de Recherche Agricole	Bambey research station
CPSP or Caisse	Caisse de Péréquation et de Stabilisation des Prix	Price stabilization mechanism
EEC	European Economic Community	
ENCR	Ecole Nationale des Cadres Ruraux	National school for rural technical personnel
ENEA	Ecole Nationale d'Economie Appliquée	National School of Applied Economics
FAA	Foreign Assistance Act	

FAC	Fonds d'Aide et de Coopération	France's special appropriation for foreign assistance
FAO	Food and Agriculture Organization of the U.N.	
FAS	Free Alongside Ship	Price of commodity at U.S. port
FFD	Food for Development Program	
FGR	Federal Republic of Germany	
FIS	Food Investment Strategy	Senegal's food and nutrition plan
IADS	International Agriculture Development Service	
IBRD	International Bank for Reconstruction and Development	World Bank
IRAT		French assistance agency after Independence
ISRA	Institut Sénégalais de Recherches Agricoles	Senegal's agricultural research institute
ONCAD	Office National de Coopération et d'Assistance pour le Développement	Agricultural marketing agency
PAPEM	Point d'Appui et de Prévulgarisation et Expérimentation Multilocale	Experimental program for small and average farmers
PIDAC	Projet Intégré pour le Développement Agricole de la Basse Casamance	Extension agency in lower Casamance
RDA	Regional Development Agencies	
SAED	Société d'Aménagement et d' Exploitation des Terres du Delta	RDA for Senegal River Valley
SERST (DGRST)	Secrétariat d'Etat à la Recherche Scientifique et Technique	
SICAP	Société Immobilière du Cap Vert	Senegal housing authority

SODEFITEX	Société pour le Développement des Fibres Textiles	RDA for Eastern Senegal and Upper Casamance
SODESP	Société de Développement de l'Elevage dans la zone sylvo-pastorale	RDA for Sylvo-Pastoral zone of northern Senegal
SODEVA	Société de Développement et de Vulgarisation Agricole	RDA for the Peanut Basin
SOMIVAC	Société pour la Mise en Valeur de la Casamance	RDA for the Casamance
SONED	Société Nationale des Etudes de Développement	Semi-public consulting firm on economic policy
SWF	Service of Water and Forests	
UMOA	West African Monetary Union	
UNDP	U.N. Development Program	
UNSO	U.N. Sahelian Office	
WFP	World Food Program	

PL 480 TITLE III PROGRAM FOR SENEGAL

INTRODUCTION

USAID/Senegal hereby submits its revised proposal for a PL 480 Title III Food for Development (FFD) Program for Senegal.

Rice is the staple food grain for Senegal's urban population and most of it is imported. The Government is attempting to increase domestic cereals production and eliminating rice imports as a long-term goal. In the meantime, rice imports are a drain on foreign exchange in a country that faces continuous balance of payments problems. A Title III rice program will directly address this problem and at the same time provide budget support to the Government of Senegal. In addition, the Title III provision provides the incentive and means necessary to strengthen the impact of development progress on the rural poor, the ultimate beneficiaries of this program.

This revised proposal takes into account several important developments and changes in the formulation of agricultural policies in Senegal which have occurred over the past few months since the submission of the original proposal.

BENEFICIARIES: THE RURAL POOR.

The program to be funded by Title III revenues has the rural poor as its target group. The rural poor will benefit from additional budgetary resources directed towards the strengthening of several key areas of Senegal's agricultural and rural development policy.

Approximately 65% of Senegal's 5.115 million people are classified as rural with farming as their primary occupation. This rural population is divided into approximately 360,000 small-scale farming units. The typical unit is between 5 and 10 hectares in size and employs 6-10 family members. About 75% of the farm population has per capita farm income of less than $100 equivalent.

AGRICULTURAL DEVELOPMENT: SENEGALESE POLICIES AND PROGRAMS

Senegal believes that its economic viability will be dependent to a very great extent on increased productivity in the agricultural sector. More specifically, Senegal has established food self-sufficiency as a primary agricultural development goal.

Senegal has taken a number of steps in the past few years to increase emphasis on agricultural development through the improvement of rainfed agriculture, the gradual development of irrigated perimeters, attention to livestock production and to the improvement of social infrastructure in rural areas. Specific measures and policies include:

- increasing allocation of Government funds into the agricultural sector (annually 21.5% of Government revenues) and amounting to 7.3 billion CFAF ($35.6 million) in 1977-78;
- allocation of the bulk of foreign donor investment to the rural sector. Between the early drought years through 1977, some $326 million have been directed to agricultural development projects, more than half of which went toward increasing crop production. Current annual investment is approximately $50 million;

- subsidization of farm production inputs, currently estimated at 3.8 billion CFAF ($18.3 million) annual. and
- constructive use of price policy to influence production and consumption, and to transfer resources to the agricultural sector. These include progressive and substantial increases in producer prices of sorghum, millet, corn and groundnuts and elimination of consumer subsidies on wheat and rice.

Four major policy reforms have been decided upon by the Government of Senegal as essential to improving the performances of their agricultural development efforts. They are:

- The decentralization of the development process through strengthening the role of the regional development agencies (RDAs), restructuring key support activities such as agricultural research, and linking cooperatives with the ongoing reform in Rural Communities and with the regional development agencies;
- strengthening the role of cooperatives in the development process, giving them a role in the control of credit and inputs for food crops together with regional development associations. With increasing financial and managerial strengthcoops will be expected to play a greater role in marketing crops other than oil groundnuts;
- a concerted effort to manage and conserve Senegal's natural resource with particular emphasis on the resultant impact on agricultural and livestock production; and

- a review of Senegalese pricing and marketing policies in order to obtain optimum results in its agricultural diversification program, and to assure an equilibrium between the production of food and cash crops.

Some of the more important additional steps which must be taken to implement these new policy initiatives are:

- increase the responsibilities of the Rural Development Agencies, increase their funding, standardize their organizational structures, and strengthen their extension capability.
- decentralize the national agricultural research system to enable it to better support regional development associations with locally adapted research.
- regroup the existing cooperative structure into larger units and establish farmer groupements responsive to local management and control.
- define and strengthen the link of cooperatives to regional development agencies.
- provide cooperative centers equipped to handle increased responsibilities (provision of inputs, collecting, storing, marketing farm products).
- increase the flow of trained manpower to these institutions.
- provide rural infrastructure in regions where it is a necessary precondition to further agricultural expansion.
- provide continuing policy guidance for the time-phased implementation of decentralization and cooperative reform on a national scale.
- substantially increase the allocation of resources to conservation efforts with priority to those actions with a direct impact on firewood, livestock and crop production.

The emphasis given to the elaboration of these new policy directions in recent Government policy statements indicates serious concern with the progress of agricultural development to date. Currently in-depth discussions at the highest official levels in Senegal examine the effectiveness of present policies and governmental structure. Matters brought into public discussion have included the effectiveness of the present system of marketing major agricultural products; the role of ONCAD, the agricultural credit system, the supply of inputs, coordinating the role of centralized institutions and regionalized agricultural production agencies; and importantly, the role of cooperatives in all of the above. Clearly the above range of questions, and new policies which address these questions, goes to the heart of the problems of increasing Senegalese food production.

The seriousness with which Senegal is reforming the present system is evidenced by the recent implementation, on a pilot basis, of cooperative reforms in the Thies and Diourbel regions. The timing of a Title III proposal which assists the Government in addressing and resolving these policy and institutional constraints in most opportune, and can have a significant positive impact on the pace of the country's agricultural development.

TITLE III OBJECTIVES

The objective of the Title III program is to strengthen Government of Senegal development policies and reform initiatives which will enhance the accessibility of the rural poor to a secure supply of food and improved economic welfare.

Senegal has sought Title III assistance for two major foundations of its development policy: first, decentralization of major agricultural support institutions to better enable them to address regional or localized conditions and secondly, increased participation in the development process by a greater devolution of authority to farmer cooperatives on the grass-roots level. In addition, Title III addresses a third policy of deep on-going concern to Senegal, the conservation and development of its natural resources.

TITLE III PROGRAM

Conceptualization of the Title III proposal reflects both the development themes and the above programming considerations of mutual concern to the Government of Senegal and AID. The Title III proposal provides local currency funding for a development program consisting of three major components:

- Assistance in carrying out policy studies which will enable Senegal to redirect food production pricing and marketing policie within the context of objectives articulated by the Food Investment Strategy;
- Assistance in the implementation of "additional agricultural and rural development activities supporting decentralization and cooperative reorganization initiatives;
- Assistance in the development and conservation of natural resources.

Consequently six projects have been identified, designed and endorsed by the Government of Senegal and USAID as agricultural and rural development activities. Primary consideration in the selection of these activities

has been their contribution to the furtherance of the major development policies of the government (decentralization of agricultural support institutions, cooperative reforms, and resource conservation). These six projects are explained in detail in this report. They are decentralized research, cooperative storage, agricultural policy studies, rural technical schools, reforestation and dune fixation, rural development fund. Implementation of the projects will be under the overall policy guidance of a Government Management Commission which will be established to coordinate, report and evaluate the execution of all projects to be financed with Title III-generated funds. The responsibilities of the Commission are detailed in the following report.

ELIGIBILITY REQUIREMENTS

Senegal meets all the criteria required by law to be eligible for a Food for Development Program.

- With an annual per capita income of approximately $390, Senegal meets the primary eligibility criteria for International Development Association (IDA) loans.
- The currently weak state of the economy requires that Senegal appeal to the donor community for external assistance such as that offered by concessionary Title I/III commodity shipments. Provisions of the Title III agreement will buttress the country's food production, marketing distribution and storage systems. Overall, a Title III agreement will slow the draw on Senegal's foreign exchange reserves and not exacerbate the present trade balance of payments deficit.

PART I: RATIONALE FOR A PL 480 RICE PROGRAM IN SENEGAL

A. Overview of the Economic Situation and Prospects for Senegal

Although Senegal has certain advantages over other Sahelian countries, the fact remains that the great majority of its people are poor. What distinguishes Senegal is the presence of much greater regional variations in income distribution and access to social services. Senegal's relative advantage is largely the result of the presence of a comparatively developed administrative, commercial, and industrial center in the capital/port city of Dakar and the fact that commercialized agriculture is much more widespread than in other Sahelian countries.

Four major macro-economic factors constrain the growth of Senegal's economy:

1) A lack of adequate public savings constrains Senegal's internal investment program. The country has limited means of increasing taxes within the present structures and tax revenues in real terms have shown almost no increase since independence. The result has been heavy borrowing by the Government. At 28%[1/] of export value of goods and services, the subsequently high debt servicing cost on an already limited revenue base is about the maximum Senegal can handle without major debt rescheduling.

1/ According to Minister of Finance in letter to IMF, March, 1979.

2) Senegal's limited absorptive capacity to meet recurrent costs in order to fully utilize the investment committed to its development effort by foreign donors. Without a strong operational budget, development projects risk failure.

3) The country's continued negative balance of payments which has led to a negative position in the overall foreign reserve position of the country. The trade deficit doubled in 1973 and has since remained at a high level. Factors contributing to this increased trade deficit have been the Sahelian drought which reduced groundnut exports; the wide variation of world prices for groundnut oil and phosphates; the high cost of imported petroleum and food; the government's expansionary policies which led to a rapidly increasing money supply; increased inflation; and increased demand for imports. The result of these factors has been a substantial drop in foreign reserve holdings. As of June 30, 1978, net overall reserves were negative CFAF 32.9 billion.

4) Senegal is extremely dependent upon its agricultural and mineral sectors. The record of the post-drought recovery of the last five years is one of slow growth. Sharp fluctuations in economic performance still point out Senegal's extreme vulnerability to weather conditions and world prices of the country's major exports, groundnuts and phosphates.

This fourth constraint is the underlying factor in the first three. Real GNP fluctuates in close correlation with annual rainfall. Major drops in per capita GNP occurred in 1969, 1971, 1973 and 1978 as the result of droughts which sharply reduced the groundnuts and food grain harvest. Furthermore, overall economic performance is still very much dependent upon the agricultural sector because a large portion of industrial production is the processing of agricultural products. Following the drought of 1977 which reduced the harvest of Senegal's major crops 25 - 45%, refinery production of groundnut oil was cut by 44% and other industries suffered cutbacks in production as well. Given the high percentage of the population directly dependent on the agricultural sector for its livelihood, when agricultural production drops, so do export earnings, government revenues and commercial activity.1/

1/ Of course, the other consequence of declines in agricultural production is the detrimental effect on individual nutritional status. Malnutrition is a major problem for a large segment of the population and particularly for children. Some estimate that 65% of all children over five years exhibit some degree of malnutrition. Diet deficiencies are aggravated by tuberculosis, veneral disease, dysentery, schistosomiasis and malaria, the last being endemic virtually throughout Senegal. Needless to say, the long term consequences for national development of having a substantial portion of the population malnourished (and unhealthy) are profound.

Individual nutrition needs are based on such factors as age, occupation, maternal status and health, but individual food consumption in Senegal falls short of the average daily protein-calorie requirements established by the FAO.

However, there is also considerable variation geographically and seasonally. Coastal people have access to fish as another food source, whereas food intake diminishes among inland rural people especially during the period prior to harvest when food and cash are low. The most effective and immediate means to increase nutritional levels among chronically malnourished people is to increase food consumption through increased quality. Since some 40% of Senegal's foodstuffs is imported, the deficit between agricultural production and consumption needs is evident. Section C (Analysis of the Fifth Plan) describes the government's targets to remedy this imbalance.

Thus, nominal GDP growth in Senegal has averaged only about 3% per year over the last decade while real GDP recorded a negative 0.7% growth rate. The worst years were the early 1970s when the agricultural sector was most seriously affected by the drought. Economic performance began improving in 1974 when the rains returned to "normal" and international prices of groundnuts and phosphates rose sharply. The GDP continued to increase in 1975 but levelled off in 1976 and 1977, reflecting a drought-induced drop in crop production.

The Government of Senegal recognizes that the fundamental causes of low growth in the economy are the limited resource base of the country and the strong influence of exogenous variables of rainfall and world market conditions for phosphates and vegetable oil, a close substitute for groundnut oil. Immediate term prospects for its two exports are not promising. Phosphate prices are low and not projected to increase in the next three or four years. Regardless of what happens to oilseed prices, Senegalese exports of groundnut products in volume terms are expected to remain at more or less the level of recent years. Progress therefore will depend on Senegal's success in diversifying its exports and pursuing import substitution.

Senegal's official budget is in two parts: a general operating budget and an investment budget. Since the end of the drought, the operating budget (almost entirely financed by general revenues) has increased only 14% in constant 1973 francs. There have been almost no real increases in public revenue for more

than a decade and a half. An already limited operating budget means the country cannot afford a much higher level of social services despite increasing social demands. Resource needs for the public investment budget exceed domestic availabilities, and are met principally through international donors or commercial financing on international money markets.

Within the context of the country's economic situation and prospects, a resource transfer program of the nature represented by a Title III rice program can give Senegal's development objectives a substantial boost.

B. Development of the Agricultural Sector

1. Constraints to Agricultural Development

Success in achieving Title III's overall goal of increasing access of the poor to a growing and improving food supply is largely determined by the food production policies of the recipient country. Agricultural policies include a wide spectrum of issues such as farm prices, capital investments, land tenure, agricultural research, extension and farm inputs including credit. Design of these policies must reflect the specific conditions and constraints of the recipient country in agriculture and the rural sector. In Senegal, for example, land tenure is not presently an important constraint to increased food production. On the other hand, Senegal faces a number of other constraints towards achieving growth in the rural sector. These constraints can be summarized as follows:

a. Poor Natural Resource Endowment

Senegal's agricultural development is constrained by generally poor soils, reduction of arable land due to desertification and erosion, and limited water resources. Rainfall is highly variable and much of the present irrigable land suffers from salt water incursion. Development of Senegal's considerable irrigation potential depends on costly infrastructure investment.

b. Limited Quality of Human Capital

While Senegal has developed some indigenous technical and administrative expertise, it still lacks the necessary personnel, particularly at the middle level, to carry out its development program.

c. Inadequate Agricultural Research and Extension Service

Senegal has made some advances in developing appropriate technological packages for food crops in the groundnut basin. But there is a pressing need for research on appropriate technological packages for the Casamance, Senegal Oriental and the Fleuve regions. In addition, the extension services are inadequate for the proposed development activities to be undertaken.

d. Limited Local Storage for Food Crops

Until the recent emphasis on agricultural development took place, there had been no major marketable surplus of food grains in the country. Now the secondary level problems of marketing and storage are beginning to be felt. There is an extensive program underway to increase storage in the central markets but lack of storage still remains a problem at the local level.

2. Redirection of Government of Senegal Development Objectives

a. Background

The basic economic structure and policies inherited at Independence remained largely intact until the ravages of the drought years (1968-73) forced a hard re-examination of the economy. Senegalese planners and officials faced the impossibility of further developing the country without significant economic growth in the rural sector. The theme of

the major shift in policy now underway has been the redressing of the imbalance of investment and development that existed between the rural and urban areas of the country.

The rural/agricultural sector is the basic resource of the Senegalese economy. Sixty-five percent of Senegal's population directly draws its livelihood from the rural sector. Agriculture represents about 30% of GDP and over 60% of export earnings. As the source of raw materials and demand for much of the other activities of the economy, agriculture thus provides the foundation for Senegal's national welfare.

Until the recent reevaluation of policies occurred, the rural/agricultural sector received significantly less investment and development relative to the urban sector, despite its great importance. In fact, the rural sector was used as the principal source of forced savings to finance the development of the urban sector. As a result of the official recognition now accorded the agricultural sector, Senegal has undertaken the following measures to redress the urban-rural sectoral imbalance: The Government of Senegal has modified its farm price policy and increased rural investment. It has also embarked on a campaign to diversify agricultural production. Recently, the Government announced significant reforms of the cooperative structure and decentralization of the development process.

b. Resource Flows into the Rural Sector, 1973-78

The basic indicator confirming that the Government of Senegal has redirected its attention to agriculture is the major shift in resources

toward the rural sector that began in 1974 with increased producer prices and continued in 1975 with credit provisions for agriculture. Sharp increases (64%) in groundnut farmgate prices since November, 1974 resulted in an additional 12.3 billion CFAF in the 1975-76 crop year going to the rural sector. Increased foreign donor investment in the rural sector has been the second major source of funds transferred to the rural areas, increasing at an average of 71% annually during the 1973-78 period. Investment funds from the government, most of which were borrowed on international markets, were the third major source of resources, increasing by 27% a year over this period. Subsidies for fertilizer and farm goods, as well as the forgiving of 40% of agricultural loans from the poor 1977-78 crop year, also resulted in an injection of funds into the rural sector. Finally, the government operating budget for agriculture, health and education constitutes support for the rural population. The exact breakdown of this resource flow is shown in Annex I, Tables 10 and 11.

The major shift in resources emanated from Senegal's investment budget and international donors. Taken together, these funds represent the largest and most rapidly increasing resource transfers to the rural sector.

Given the limitation of its operating budget to general revenues, the Government of Senegal must use other policy variables to shift funds to the rural sector. The most important of these policy variables is the government's ability to set farmgate prices, particularly for groundnuts, through purchases by ONCAD, the national marketing board. For example, this year's increased farmgate price for millet caused farmers

to sell a significant quantity of millet to ONCAD for the first time, resulting in a net transfer of CFAF 3.2 billion to the rural sector in the form of increased rural incomes.

The second variable the government uses is subsidies on production inputs, principally for fertilizer. If necessary, the government can also forgive agricultural loans to farmer cooperatives by ONCAD. This it did for the disastrous 1977-78 crop.

The final policy variable is the investment budget of the Government of Senegal. Senegal can exercise considerable direction over the sectoral priorities of its investment budget, the bulk of which is financed by external borrowing on world money markets. In addition, it must include in the operating budget counterpart funds required by international donor projects. These government funds thus influence the contents of the investment budget.

c. The Role of ONCAD

The Office Nationale de Cooperation et d'Assistance pour le Developpement (ONCAD) has played an important role in the agricultural development of Senegal. Founded in 1966, it has exercised until the completion of the 1979-80 campaign, the following responsibilities:

1) Production organization

- formation of cooperatives, training crop officers and members;
- the acquiring and distribution to cooperatives of inputs (fertilizers, equipment, pesticides, seed)

2) Marketing agricultural products

- purchasing and transporting agricultural products collected by the cooperatives and regional development agencies. In most years this has been primarily groundnuts. ONCAD in 1975 acquired the monopoly in marketing cereal crops. Except for the campaign 1979/80 when it acquired some 120,000 MT of millet, it has been almost inactive in cereals marketing.

3) Food supplies and emergency food storage

- monopoly for the importation of rice, its storage and distribution to approved merchants;
- storage of emergency grain, and supply to deficit areas.

Although this array of responsibilities would seem to establish ONCAD as the main instrument of Senegalese cereals policy, it has seldom in fact fulfilled that role.

Disappointment with ONCAD's performance in a number of areas has been one of the factors behind the current government move toward decentralization of its agricultural institutions and to reshape the role of ONCAD established cooperatives.

Considerable attention is being given at this time to a general reshaping of ONCAD responsibilities as well. While this restructuring has not yet been completely worked out, two significant changes in ONCAD's role have been announced:

1) Responsibility for importation of rice has been transferred from ONCAD directly to the Caisse de Perequation et de Stabilization des Prix (CPSP) of the Ministry of Finance.

2. Monopoly of cereals trading has been taken away.

Although details have not been promulgated it appears to be the intent to establish ONCAD's role in the internal grain trade as a market stabilization agency, operating through licensed private buyers.

d. Farm Price Policy

To bolster its policy to promote domestic agricultural production, the government has actively intervened in pricing and incentive structures at two levels. Central government policies affect all agricultural production through trade policy instruments, price setting, infrastructure and institution building at the national level. At the regional level, Senegal has initiated a number of development agencies (societes d'intervention). Originally set up to promote production of the chief cash crops (groundnuts and cotton), these have evolved into regional development agencies (RDA) and, according to recent policy directives, are now responsible for all agricultural development in their geographic areas.[1/] It is through the regional development agencies that the

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1/ Five of the regional development agencies which have been organize are: (1) SODEVA, (2) SAED, (3) SODEFITEX, (4) SOMIVAC, and (5) SODESP. See Acronym glossary for definition.

government extends a subsidized technology package (fertilizer, pesticides, machinery and equipment), credit and marketing services, thereby exerting considerable influence over the crops grown in each particular geographical area.

An interministerial advisory committee (Le Comité des Grands Produits Agricoles) establishes uniform nationwide guaranteed producer (farmgate) prices for all major crops. Some prices reflect broader protectionist policies for certain crops. For example, at the current producer price for rice of 41.5 CFAF/kilo, domestic paddy prices are set above the paddy equivalents of comparable quality imported rice. This indirect subsidy to producers is paid by consumers whose retail price is also set well above the price of imported rice. The regional development agency is reimbursed by the marketing agency, ONCAD, to cover the high costs of public milling and distribution of domestic rice.

Until November 1974, farmgate prices were set at a low level to subsidize food costs of urban consumers and to provide substantial revenues for the national budget from the export of groundnuts. The policy of low farmgate prices had been in effect from the beginning of the colonial period. The combination of this policy and the Sahelian drought resulted in stagnant agricultural production and weakness in the economy as a whole. In 1974, this policy was reversed. Farmgate prices were greatly increased and subsidies on urban food costs were eliminated. The producer prices of groundnuts have risen 64%, millet 54%, rice 66%, cotton 37% and maize 40%. Without subsidies, the retail price of rice

and bread rose respectively 76% and 32%, making retail prices high enough to provide available additional investment resources as incentives for local producers.

This reversal of the previous low farmgate price policy has continued to the present. Even now during a tight monetary situation, the government has recently reaffirmed the continuation of higher crop prices for farmers. This further demonstrates the Senegalese effort to continue shifting the terms of trade toward the rural sector.

e. Agricultural Credit

Greater access to agricultural credit and subsidized cultivation inputs complements the more remunerative farmgate pricing policy. In order to understand this process in Senegal, it is necessary to explain the Caisse de Perequation et de Stabilisation des Prix (CPSP). The CPSP was created in 1973 to merge a number of price stabilization funds under one umbrella. Its basic role is to stabilize both farmgate and selected consumer goods prices. ONCAD is its primary implementation agent for agricultural concerns. The CPSP finances ONCAD operations in groundnuts, cotton and, until recently, imported rice. ONCAD then transfers its profits on these operations to the CPSP. In addition, the CPSP supplies funds for subsidies on farm inputs distributed by ONCAD. The responsibility for the rice importation program was transferred from ONCAD to CPSP in late 1979.

Until the pronounced shift in resource flows toward rural sectors, beginning in 1974, the government transferred resources from the rural sector to the urban sector via de facto taxation primarily on groundnuts.

By paying the farmer a low price for his production, ONCAD was able to reap profits by reselling the product on the export market. These profits reverted to the CPSP to subsidize urban consumer food prices and finance urban development projects.

Funds flowing into the CPSP from the rural secto. come primarily from the sales of groundnuts and cotton. Funds flowing into the CPSP from the urban sector began in 1975-76 when subsidies on rice and sugar were removed and consumer prices were set above the world market CIF prices.

Formerly, the urban sector received benefits from subsidies on wheat (discontinued in 1976), rice and sugar (before the 1974 price increase) and local purchases of groundnut oil. Funds now flowing out of the CPSP toward the rural sector are primarily for farm input subsidies. The price of domestic paddy is also subsidized through funds given to ONCAD to cover the extra costs associated with purchasing paddy at the higher official price.

The following table shows the yearly net positions for the rural and urban sectors as a result of CPSP intervention. Figures in parenthesis indicate negativ e transfer flows.

Unit: billion CFAF

	1971	1972	1973	1974	1975	1976	1977	1978
Urban	1.4	1.8	3.2	11.1	4.7	(4.8)	(2.7)	(2.2)
Rural	(3.7)	(3.4)	(2.7)	(14.1)	1.2	5.2	(1.5)	2.7

Source: World Bank, CPSP

It is clear that since the restructuring of farm and consumer prices in late 1974, CPSP actions have shifted in favor of the rural sector.

The farm credit system in Senegal is part of the Programme Agricole, a rather complex system which recycles government funds for agricultural development. Funding for farm subsidies are channelled through the Fond Mutualiste de Développement Rural from the CPSP. Funds paid ONCAD make up the difference between market prices of inputs, principally fertilizer, and the lower price paid by the farmer. The value of the present Programme Agricole activities is seen below:

Unit: billion CFAF

Crop Season	Total Cost	Farmer Cost of Inputs	State Subsidy	State Subsidy as Percentage of Total Cost
1973-74	1,398.5	336.1	1,062.4	76.0%
1974-75	2,240.0	535.0	1,705.0	76.1%
1975-76	6,467.7	961.3	5,506.4	85.1%
1976-77	9,416.7	4,494.3	4,921.9	52.3%

Source: BCEAO

Short-term credit goes not only to agricultural production, but to agricultural marketing and processing as well. The major share of credit available for agricultural production is allocated for ONCAD's purchase of crops. Agro-industry loans are dominated by credit to the groundnut industry for export of groundnut oil. Medium-term credit is principally used for purchase of larger farm implements, usually on the cooperative level. In all cases, the amount of credit available is a direct function of the previous crop year's harvest.

Agricultural credit in Senegal has two main characteristics: First, it is channeled through cooperatives established under ONCAD; second, it is granted in kind, not cash. Another crucial link in the Programme Agricole is the role of the Banque Nationale de Développement du Sénégal (BNDS) which loans ONCAD the funds to purchase fertilizer and other crop inputs to transfer to the cooperatives. Once the cooperatives receive these goods, the debt to BNDS is transferred from ONCAD to the cooperatives. The cooperative is collectively responsible for the debt of its members. By law, 60% of the short-term credit from the previous season must be paid before ONCAD will purchase the new crop from the cooperative, although in practice this is seldom followed. In addition, part of the price paid to the farmer for his production is held as a deposit to cover non-payment of debts by members of the cooperative. Repayment of the debt for farm inputs is handled via ONCAD and can be made in cash or with produce -- groundnuts, cotton, rice and millet.

f. Reform of the Farmer Cooperative Movement

Cooperatives have been assigned a significant role in Senegal's rural development. Their primary functions have been in supplying inputs for and marketing of groundnuts. This role was modified in the mid-1970s to increase attention to food crops (principally millet). Responsibilities of ONCAD, the marketing board once responsible solely for groundnuts, were expanded to include distribution of inputs and credit for food crops, channeled through cooperatives. In recent months the Government of Senegal has attempted to redefine their role to give greater responsibility to members. A basic framework has been established for reform of the cooperative system with the following features:

1) Regrouping the cooperatives into larger, more economically viable units.

2) Establishing associations of farmers within a limited area with voting representation in the new larger cooperatives.

3) Linking the cooperative structure with the ongoing administrative reform in Rural Communities.

4) Shifting much of the responsibility for control of credit and inputs for food crops from ONCAD onto the RDA's working with cooperatives.

5) Developing at each cooperative center (usually one per Rural Community) a complex including a seed ware house, storage area for peanuts (secco), weighing station, conference hall and storage for inputs and central collection for farm produce for delivery to regional warehouses.

These reforms are to be implemented region by region. The first areas to undergo cooperative reform are the regions of Thies and Diourbel within the area presently handled by the SODEVA.

These reforms will play a fundamental role in guaranteeing the transfer of benefits of the new higher farmgate prices to low income farmers. It should also reduce the present bottleneck on input supplies and credit, and it should encourage greater local participation and control of farmer services by the farmers themselves to make such services more effective.

Lastly, the general direction of this new policy is critical. The government anticipates that once these reformed cooperatives gain additional financial and managerial strength, they will be able to seek out and use new

channels to acquire agricultural credit, purchase farm inputs and sell their production, including both the private and public sector.

g. Decentralization of the Development Process

Since 1974, with the initiation of the Administrative Reform the Government of Senegal delegated certain taxing and budget responsibilities and political authority to the local Rural Communities, each composed of about 10,000 rural people. As the Food Investment Strategy, 1977-1985, indicates,

> "the Rural Community, covering a fixed geographical area, has an elected council that controls its budget; it is responsible for the management of the land resources of the area and is to progressively assume certain responsibilities formerly discharged by the central government. These community groupings provide the rural population with opportunities for a fuller expression of their vitality and powers of initiative, particularly in the design and execution of development programs."

Quasi-public agricultural agencies that were previously oriented to a specific cash crop (groundnuts, cotton) are being reorganized into Regional Development Agencies devoted to the entire rural development of their regions of activity. In those regions where none were operating, new ones are being developed.

As a further continuation of this policy of decentralization, the government is now preparing plans to decentralize agricultural research. This will shift agricultural research activities out of an almost exclusive concern with the groundnut basin into the areas of food crop production in the Fleuve, Casamance and Eastern Senegal regions.

This general trend towards decentralization of authority, and delegation of responsibility by the government is resulting in a more efficient research

and extension system. It also seeks the essential involvement of the farmers themselves on the direction agricultural development will take. Local participation of farmers heightens the likelihood of success.

As a crucial part of the decentralization process, the Government of Senegal has recognized the need for improving rural infrastructure -- health facilities, developed water sources for human and livestock consumption, schools, even recreational facilities. First priority has been given to the provision of adequate, safe water.

h. Land Resource Protection and Improvement

Senegal suffers many of the same constraints to its rural development as other Sahelian countries. These include highly variable rainfall; increasing desertification due to drought, erosion, brush fires and poor land use; and a large and important livestock sector occupying lands most vulnerable to expanded crop production. In addition, the limited amount of arable land is losing viability due to population pressures. Senegal cannot afford the loss of even a small part of its agricultural resource base without dire long-range consequences.

The Government of Senegal is well aware of these problems and has formulated policies and programs to combat them. Two of the most important of these have been reforestation of lands threatened by erosion or other potential loss and the establishment of a community-based range and brush fire control system. Unfortunately, the government has been badly constrained in carrying out these policies by lack of funds. Donors, the major source of new investments, have wanted to concentrate on immediate food production needs rather than the protection and improvement of the agricultural resource base that is essential to long-term food self-sufficiency. This constraint can no longer afford to be ignored and several donors, including Germans and AID, are preparing reforestation and environmental rehabilitation programs.

i. Strengthening Agricultural Research

Senegal is in the process not only of decentralizing its research effort, but of increasing its scope and effectiveness as well. The agricultural research organization, ISRA, is being reorganized under the Secretary of State for Scientific and Technical Research (SERST). The main thrust of this reorganization will be to create and support multidisciplined teams conducting research on basic food crops, strengthen the farming systems research programs, establish a macro and microeconomic research capacity in ISRA, and provide for close and effective communication between researchers, development authorities and agricultural policy makers.

C. Government of Senegal Food Objectives

Analysis of budget allocations in Senegal's recent four-year development plans reflects the official shift in emphasis towards agriculture and the rural sector. A more informative and direct insight is the Food Investment Strategy which articulates food production, processing and consumption objectives for achieving significantly greater food self-sufficiency by the end of the Sixth Plan in 1985.

1. Plan Budget

As developed in the previous section, the major policy shift which acknowledged the contribution of the rural sector to the national welfare began in late 1974. This redirection was considered so substantial that the Fourth Plan (1973-76) was formally revised in mid-course. In absolute terms, allocations to the primary sector increased by 78% as follows:

Unit: million CFAF
(% of total sector in parenthesis)

Primary Sector	IVth Plan	IVth Plan Revised	Vth Plan
Crops	24,810 (60)	47,561 (65)	48,216 (44)
Livestock	4,844 (12)	7,202 (10)	15,665 (14)
Forestry	2,686 (6)	3,955 (5)	11,591 (11)
Fisheries	9,000 (22)	14,860 (20)	28,347 (26)
Rural Hydrology	-	-	6,921 (5)
Total	41,340 (100)	73,578 (100)	110,740 (100)

The Fifth Plan increases funding to the primary sector (crops, livestock, forestry, fisheries, rural hydrology) by 50% over the revised Fourth Plan but calls for a different internal allocation. The amount of funding devoted to crops shows a slight increase in absolute terms but the percentage falls from 65 to 44%. A careful line-item examination of the Fifth Plan indicates that a full 45% of total funding directly supports agricultural and rural development. In addition to the primary sector, the Plan projects expenditures in secondary sector agricultural-related industry, in the tertiary sector (mainly rural roads) and in the social sector (rural health, education, human resources development and research).

Nonetheless these Plans suffer from lack of funds. As Senegal's investment budget is limited to its ability to contract loans and the largesse of international donors, there is a decided gap between planned expenditure and financing received. One full year into the Fifth Plan period, the Ministry of Plan announced that only 36% of the investments in the primary sector had

been acquired or committed. Not surprisingly, therefore, the Fifth Plan is a continuation of the Fourth in the sense that roughly half of the earlier, yet uncompleted, projects are carried forward.

2. Food Investment Strategy

It is the broader Food Investment Strategy rather than the Fifth Plan which serves as Senegal's medium term blueprint for achieving a sounder food policy. Not only does it address the issue of food security, uppermost on the minds of policymakers, but it spells out clear-cut policy objectives, development opportunities and constraints, and the actions required to overcome those constraints.

The recurring theme of the Food Investment Strategy calls for a reduction of food imports. The FIS finds it ironic that Senegal should be "...an essentially agricultural country, more than a third of whose imports are food products, of which over 40% are cereals." After reviewing production, population and demand statistics, the FIS concludes that a combination of measures encouraging domestic production and import substitution makes it "technically possible in the medium term to eliminate 100% of maize, millet and sorghum imports and 50% of rice imports, and that in the longer term, all rice and wheat imports could be phased out."

To reduce food imports in a food deficit country requires first an expanded program to increase domestic food production, particularly cereals crops. Through its Food Strategy, Senegal aims to:

a. increase food production associated with the opening up of irrigated areas in the regions of the Fleuve, Lower Casamance and Senegal Oriental;

b. substantially expand millet-sorghum production, initially through improvements in yields and later through expansion in the land area planted;

c. initiate an off-season wheat program in the irrigated areas of the Senegal River; and

d. triple maize production through both extensive and intensive methods and improved crop rotation.

Simultaneous attention to the areas of food processing and changes in consumption patterns complement the objectives of greater agricultural production. Briefly, the FIS calls for achieving ultimate food self-sufficiency. It recommends a series of actions to carry the country's agricultural sector through the completion of the Sixth Plan in 1986.[1/] These include:

1/ The Development Plan does not spell out national nutrition targets as coherently as does the Food Investment Strategy which covers both the Fifth and Sixth Plans. Changes in consumption and nutritional levels will become more striking by 1985, the final year of the Sixth Plan, by which time government crop production emphases and food import regulations will show a 50% reduction in wheat flour consumption, 30% reduction in rice consumption but accompanied by a very substantial increase in the consumption of maize and millet flour.

The table below, confined to cereal intakes, calculates the daily per capita allocation of calorie and protein intakes. A more thorough investigation would indicate that the available supply of energy, which in 1974 amounted to 2200 calories (slightly less than the FAO recommended minimum intake of 2350) progressively increases until it reaches the level of 2,420 calories in 1985 - this, of course, on the assumption that production and per capita incomes forecast in the Plans actually materialize. The supplementary intakes are obtained principally from the consumption of vegetable oils, sugar and cassava. This improvement in the level of per capita calorie intakes is accompanied by an increase in the total intake of protein, which increases from 67 to 76 grams per capita per day. Thus, by the 1985 horizon, the average per capita energy intake in Senegal will reach the existing average for the population of the Cap Vert region, although the corresponding protein intake will still be inferior to the latter. It has been estimated that con-

a. Support of production by

- increased support of agricultural research;
- substantial increase in training agricultural technicians;
- incentives for producers, including input subsidies, price incentives, crop contracts;
- diversification of production;
- improving the agricultural credit system;
- study and adaptation of improved appropriate technology;
- training of artisans to service the agricultural sector;
- increased production of leguminous crops, particularly soybeans.

1/ sumption in the rural sector will increase from 2,100 calories/capita/day and 60 grams of protein in 1974 to 2,300 calories/capita/day and 70 grams of protein in 1985.

Projected Daily Per Capita Consumption Targets

	Per capita consumption (kg/year)			Calories (cal/day)		
Production	1974	1981	1985	1975	1981	1985
Wheat flour	15.2	17.2	9.3	145	164	97
Rice	46.4	49.7	36.3	453	485	372
Maize flour	11.7	12.3	26.4	113	119	274
Millet flour	60.9	59	68.3	631	611	659
All cereals	134.2	138.2	140.3	1,342	1,379	1,402

See National Investment Strategy for Increasing Food Production, Senegal, 1977, pp. 15-17.

b. Support of distribution and processing by:

- improved efficiency of inter-regional grain transfer;
- defining more clearly the national cereals marketing policy;
- improved storage capacity at various levels of the marketing chain;
- increased number of small scale milling and hulling plants in association with cooperative development;
- increased industrial processing of maize and millet.

c. Consumer related activities

- the development of clearly defined consumer price policy;
- strengthening nutrition education program.

3. Analysis of Government of Senegal Objectives

The Fifth Plan (1977-81) agricultural objectives[1/], as well as those of the FIS, look to increase productivity and diversity of crops, reduce the dependence of agricultural production on rainfall by means of water control, expand land under agriculture by encouraging migration, and expand agriculturally-based industry.

The crop diversification program in Senegal emphasizes the addition of new crops in expanded farming areas, primarily outside of the groundnut basin. Higher cereals targets are premised on production increases from a combination of higher yields, expansion of cultivated lands and improved crop rotation.

Crop diversification varies by region, by crop and by technique. It is a program characterized by its overall balance. Diversification in the north promotes the cultivation of irrigated rice, vegetables and wheat, plus

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1/ See Plan agricultural objectives next page

Objectives in Terms of Area, Yields, and Production
Principal Crops during the 5th Plan

Crop	(1000 ha) (kg/ha) (1000 T)	Average for base period	1977/78	1978/79	1979/80	1980/81
Groundnuts for oil	Area	1153	1153	1158	1177	1187
	Yield	850	878	925	980	1008
	Production	980	1012	1071	1153	1200
Millet & Sorghum	Area	979	993	993	1080	1080
	Yield	493	542	542	694	694
	Production	483	538	538	750	750
Rice (paddy)	Area	84	94	105	116	125
	Yield	1320	1600	1800	2200	2400
	Production	111	150	189	255	300
Cotton	Area	39	48	51	55	55
	Yield	1000	1100	1150	1200	1200
	Production	39	53	59	66	66
Maize	Area	49	51	55	70	87
	Yield	857	1100	1200	1600	1700
	Production	42	56	66	112	148
Confectionnary Groundnuts	Area	25	47.5	59.5	70	67
	Yield	840	922	934	937	937
	Production	21	43.8	55.6	66	63
Cowpeas	Area	65	74	74	79	79
	Yield	277	270	273	297	297
	Production	18	20	20	23	23
Cassava	Area	34	38	38	44	44
	Yield	3941	3900	3900	3900	3900
	Production	134	148	147	172	171
Wheat	Area	---	---	---	---	---
	Yield	---	---	---	---	---
	Production	---	4.5	12.5	19	29

Source: "Cinquieme Plan Quadriannal de Developpement Economique et Social," Ministere du Plan et de la Cooperation, pp. 100

sugar production; increased cattle production in the Sylvo-Pastoral zone; groundnuts, cowpeas and millet in the central zone; cotton, maize and upland rice in the east; and rice (swamp and upland), cotton, tropical fruits, groundnuts and maize in the south.

Crop by crop analysis of Plan feasibility follows:

Groundnuts and Millet/Sorghum

Two crops, groundnuts and millet/sorghum, cover 85 - 90% of Senegal's cultivated land area. Production of both groundnuts and millet/sorghum is concentrated in the Groundnut Basin with about 70% of each crop grown there.

Groundnuts are Senegal's main cash crop and will remain so for the foreseeable future. Senegal is a major exporter of groundnut oil with some 40% of the world market. Yet, a number of close substitutes for groundnut oil, such as soybean, palm, and sunflower oil, make Senegal a price-taker rather than a price-setter for its principal foreign exchange earner. The outlook for future rises in world prices for groundnut oil is not promising. The FAO projects an expanding demand for edible oils, particularly in the developing world. But they also predict greater supplies from increased soybean, palm and sunflower production.

In light of the extensive investment in marketing, extension and refining facilities already in place in the country, groundnuts will continue to remain a major crop in Senegal but production will probably not expand beyond 1980/81 levels. The Plan forecasts a groundnut yield increase from 878 kg to just over 1000 kg/ha with total production stabilizing at 1.2 million tons annually to allow the present refineries to operate at their most efficient level.

Although much of the country's millet is still grown in traditional fashion, the Plan calls for a yield increase from 493 to 694 kg/ha and an acreage increase from 979,000 to 1,080,000 hectares. Thus, the 1980/81 annual production of millet would be 750,000 tons, a figure exceeded in the good crop year of 1974/75 and 1978/79. Production is therefore attainable but it is probably unlikely that much yield increase can occur in the Groundnut Basin area, where returns to land and labor favor the export crop.

Rice

The record of all cereal crops in attaining Plan production targets is generally good with the sole exception of rice which falls consistently short. This 'poor performance' of rice may have more to do with the unrealistic expectations of planners rather than the cultivation potential of rice. For example, the Fourth Plan (1974-77) called for an annual paddy production of 270,000 tons by the end of the Plan period although only 112,000 tons or 41% was attained.

Greater food self-sufficiency will depend heavily on increased rice production which constitutes more than half of the country's grain imports. Government production benchmarks are specific. The Fifth Plan calls for an increase in rice area from 83,000 to 125,000 hectares with an attendant doubling in yields from 1.2 to 2.4 tons per hectare. This would result in a tripling of production to 300,000 tons which appears overly optimistic such a target figure would imply 56% self-sufficiency by 1980/81. The Food Investment Strategy has even greater expectations. It calls for a 208% increase in domestic paddy production over 1975 levels to 385,000 tons by 1985 and a commensurate drop in rice imports by 77% to 48,000 tons by the

same year. The production figure would cover 80% of total demand.[1/]

Yet, a number of questions have been raised about the economic viability of rice production in Senegal. The principal problem is that domestic production costs exceed cost of imported rice. High domestic production costs are due to high cost in inputs, limited economies of scale, underutilized milling capacity and high transportation costs. Import costs are low because Senegal imports large quantities of cheaper low quality 80-100% broken rice (See Rice Supply and Demand Analysis, Annex II).

Paddy production to date has actually averaged around 100,000 tons and serious cultivation problems remain unsolved for each production technique. The Casamance is the main production area for rice and all types are grown there -- irrigated, rainfed and swamp rice. Current yields for all three techniques are around 1.5 tons per hectare. Along the Senegal and Casamance Rivers, increasing production requires control of irregular flooding through irrigation in order to permit two crops per year. On the plateau of Casamance and Senegal Oriental where upland rice is grown, yields are already around 1.5 tons per hectare and further increases will be slow in coming. Expansion of swamp rice cultivation in the lower Casamance region will involve successful construction of a flood gate dam and control of the water salinity problem.

1/ Value-added costs attributable to the long distances involved in transporting domestic rice from the periphery to the major consumption center in the Cap Vert (Dakar) region raise questions about the short term ability of domestic rice to compete with cheaper imports (see Annex II)

The FIS warns that if domestic paddy production maintains its present level of yields and area planted, Senegal will require approximately the same level of imports (205,000 tons) in 1981 rising to 227,000 tons by 1985.[1/] It is most unlikely that all of these necessary developments will occur between now and the end of the Plan period two years hence. For this reason, USAID/Senegal is projecting a domestic production figure of 160,000 tons of paddy by 1980/81.

An option that is often mentioned would incorporate Senegal's food self-sufficiency policy into a regional concept. Such a policy, it is argued, could mean lower costs and risks and result in more efficient resource use due to maximizing comparative advantage. This suggestion also supports the increasing regional perspective of the Sahelian food question. The principal problem with this option is that Senegal is understandably reluctant to have an important source of its food supply dependent on the stability of neighboring governments and policies.

Additionally, there are economic and infrastructural constraints on a regional self-sufficiency policy. Mali, for example, is the only neighboring state that could conceivably supply the Senegalese market with rice. However, close examination of the transportation network from the rice producing regions shows that Mali's rice is competitive with world market prices only when exported southward to Ivory Coast or Upper Volta, not to Senegal.

Although it may be premature to expect that a significant regional self-reliance policy will be operational in the short future, opportunities for promoting a regional grain trade, for example, Senegalese millet to perenially deficit Mauritania, deserve continuing study and attention.

1/ These figures are consistant with USAID's projections. See Annex II, Section C.3, Urban Demand Projections.

Maize

Maize is a comparatively minor crop in Senegal, satisfying only about 5% of the total cereals requirements. Peak production of 47,000 tons was attained in 1976/77. The Plan calls for an increase in yield from under 0.9 tons/hectare to 2.0 tons by utilizing improved inputs and increasing extension programs, and a doubling of the production area resulting in a total production of 142,000 tons in 1980/81. The potential exists for reaching this level of production in Senegal, but not by 1981. A doubling of production by 1981 would seem more reasonable from the standpoint of both production possibilities and growth in consumer demand.

The following table summarizes the conclusions reached in this section regarding production prospects for cereals in Senegal. The adjusted estimates reflect USAID/Senegal's assessment of what can reasonably be expected to be achieved during the Plan period.[1/]

Projected Cereals Production
(thousand tons)

	Base Period	1980/81 (Vth Plan)		1980/81 USAID Adjustment	
	1,000 MT	1,000 MT	% growth	1,000 MT	% growth
Millet/sorghum	483	750	8.5	750	8.5
Paddy rice	100	300	19.0	160	8.1
Maize	42	148	25.0	84	14.5
Wheat	-	29	-	10	-

1/ While the FIS emphasizes cereal policy because of its major impact, it does not ignore or exclude consideration of other food sources such as vegetables and livestock.

4. Organization for Achieving Objectives of the Food Investment Strategy

Mobilizing widespread support to achieve the food production objective requires that forms of rural organization undergo two successive transformations: "Efficient performance and...organized action is to be achieved in the short term by a general process of decentralization at all levels, and in the medium term through a restructuring of the rural sector on the cooperative model to give farmers more real responsibility.[1/]

At the policy making level there is to be a progressive adoption of the Adminstrative Reform[2/] encouraging the establishment of Rural Communities and their elected councils to control their own budget, to be responsible for management of the land resources of the area and to gradually assume responsibilities formerly discharged by the central government. At the production stage, decentralization has been promoted since 1976 by turning over integrated development responsibilities to regional development agencies, like SODEVA and SOMIVAC.

1/ National Investment Strategy for Increasing Food Production, p.48.

2/ The Administrative Reform was an Act passed by the National Assembly in 1972 which forms Rural Communities as the basic political entity in Senegal and allows the devolution of budgetary authority over certain central government tax revenues to the Rural Communities to plan their own development at the grassroots level. Ideally, Rural Communities group villages with a collective population of 10,000 people.

Supporting institutions such as the Senegalese Agricultural Research Institute (ISRA) will be decentralized in a manner to allow them to give more efficient support to this regional development principle. At the stage of the supply of factors of production and marketing, a start is being made on the transfer to the regional development agencies of ONCAD's responsibility for the supply of fertilizers and equipment, and to some extent for marketing.

At the farmer level, the organization of the Senegalese rural sector is essentially based on the evolution of multi-purpose cooperative structures for the marketing of all products, except oil groundnuts, and for the supplying and equipping of the rural sector.

5. Studies Called for by the Food Investment Strategy

The goal of ultimate food self-sufficiency represents a conscious policy choice by Senegal, one not without its costs and short term trade-offs in production efficiencies and generation of income. The Government of Senegal has thus attempted to follow a rational set of national development policies in the areas of production, marketing and pricing, all the while recognizing that these are very sensitive areas which require continual study and adjustment. Accordingly, the FIS calls for in-depth studies in the following areas:

a. to support the formulation of a balanced pricing policy that encourages the consumption of maize and millet in various forms and curbs consumption of imported wheat and rice.

b. to support the formulation of a well-defined cereals marketing policy including storage requirements, ONCAD responsibilities and operations, renewal of reserve stocks, farmer pricing, surplus/deficit problems, crop marketing responsibilities, etc.

c. to guide the evolution of uniform national migration and land-settlement policies.

The Title III proposal for Senegal will directly support carrying out of the first two of these studies.

D. Summary

Senegal is a key Sahelian country with not only the distinct prospect of significantly improving its agricultural production, but also the political will to do so. Social and economic dislocations caused by the severe droughts of the early 1970s have impressed upon the government the country's precarious vulnerability to exclusive emphasis on an agricultural policy which promotes export crops to the detriment of domestic food needs. Food security remains uppermost on the minds of government policy makers. The wide range of reform measures instituted since the mid-1970s reflects the progression toward a sounder agricultural policy, one more conducive to equitable long-term development.

The new emphasis given the agricultural and rural sector has led to efforts to improve cereal production and to provide adequate storage facilities to assure the marketing of the increased production as well as management of security food stocks. A striking early example of the redirection of national priorities is the major policy reform which overhauled the agricultural pricing system starting in late 1974. Linked with these price reforms have been policies substantially redirecting resource flows into the agricultural sector - a major part of foreign donor contributions as well as substantial subsidies on farm production inputs. Recent decisions to reorganize and decentralize the major development agencies, to reform the cooperative movement into a more prominent role in the development process, and to sharpen up the role of price policy as a development tool further

indicate the serious dedication of Senegal to food and agricultural development.

With full implementation of its current food production efforts, Senegal can expect to be more than self-sufficient in millet and sorghum in years of normal rainfall. Although the country is moving toward becoming a rice producing nation, domestic rice production will not reach 300,000 metric tons of paddy rice by 1981 as was forecast in the Fifth Plan. At best production may reach 160,000 tons, and thus Senegal will remain a significant rice importer. Given the high social costs related to domestic rice production and the continued projected import rates, a 20-25,000 ton Title III rice shipment within the context of Senegal's usual import requirements will have no disincentive on local production.

In the financial sector the Government of Senegal has demonstrated its commitment to redressing the country's serious balance of trade deficit. In order to increase public savings, the government recently announced its intention to undergo a period of financial austerity. It proposes to cut the capital investment budget by over half (reducing commercial borrowings), increase custom duties, and enforce stricter controls over imported goods and against tax fraud.

In summary, there is tangible evidence that the Government of Senegal has made and is implementing the politically tough decisions necessary to spur growth in the agricultural sectors. It now has an agenda with benchmarks for greater food self-sufficiency. Furthermore, a revitalized agricultural sector makes it possible for the government to squarely address its unfavorable trade balance, particularly its heavy dependence on imported food. Senegal can effective use the additional budget support a Title III program offers. Equally important to the achievement of rural development and food self-sufficiency objectives, the

Title III program will (a) reinforce the achievement of specific areas of development policy already announced and undertaken by Senegal and directly encourage further policy analyses, and (b) provide financial support to specific sub-projects which are both additional and complementary to on-going programs to achieve those objectives.

PART II - THE FOOD FOR DEVELOPMENT PROPOSAL

A. Introduction

This Food for Development (FFD) proposal is designed to fulfill three overall objectives:

1) Provide complementary support and encouragement to policies of the Government of Senegal that will foster increased agricultural productivity and food production, more equitable income distribution and greater involvement by the rural poor in decisions affecting their livelihoods.

2) Provide necessary additional funds, presently unavailable from other sources, to carry out or complete government projects and programs pursuant to the above policies and the objectives set forth in Section 103 and 104 of the FAA of 1961.

3) Be consistant with the overall USAID program in Senegal as set forth in the CDSS.

B. USAID Assistance Strategy and its Relationship to the Food for Development Proposal

The Country Development Strategy Statement (CDSS) represents the assistance strategy of USAID/Senegal. It emphasizes the following long-range objectives:

1) Assist the Government of Senegal in lessening dependence on imported food grains through increases in crop and livestock production and expansion of agriculture through new lands settlements

2) Assist rural development through provision of primary health services with special emphasis on nutrition.

3) Assist the government in protecting and regenerating the natural resource base of the country.

The priority sector for the USG is agriculture, particularly that sub-sector which is directly involved in the production of food crops. Within this framework of objectives the USAID assistance strategy supports activities in the following areas:

1) Increased food production through the intermediary of Regional Development Agencies (SODEVA, SAED, etc.);

2) Agricultural research and planning;

3) Natural resource conservation and management;

4) Livestock production;

5) Health and family planning;

6) Human resource development.

The six FFD projects presented in this section fit within the first, second, third and sixth priority areas listed in the CDSS. The relation of these FFD projects to the USAID assistance strategy can be seen in the table below.

Relationship of the US Assistance Strategy and the FFD Proposal

USAID Assistance Strategy	FFD Projects
1. Support regional development agencies	-Local Cooperative Storag -Rural Development Fund -Rural Technical Schools
2. Agricultural research and planning	-Decentralized Research -Agricultural Policy Studies
3. National resource conservation	-Reforestation and Dune Fixation
4. Human resource development	-Rural Technical Schools

Most of the USAID projects are directed to enhancing the country's food production capabilities. This emphasis accounts for over 80% of the dollar program. The U.S. project mix in Senegal has been designed to balance the food production efforts from both dryland and irrigated agriculture.

The USAID program has been coordinated with other foreign donors who also place considerable emphasis on agricultural production. Grant assistance in agricultural development has risen from 11 to 32% of total assistance to Senegal in recent years. By 1978, foreign donors were putting more than $45 million annually into agricultural development in Senegal. Clearly, this level of funding in one sector pushes hard on the limits of the Senegalese to effectively use such funds. Therefore, additional funding must be carefully placed to avoid duplicating present development efforts and overtaxing the absorptive capacity of the government. The selection of projects for the FFD proposal seeks to avoid these two real problems.

C. Food Policies in Senegal

Senegal imports up to 40% of its food grain requirements. This heavy dependence on imports has caused balance of payment problems. If further impacts on farm price policy requiring a serie of difficult trade-offs. "Cheap food" that is used to restrain rampant inflationary pressures resulting from urban wage demands is in conflict with efforts to increase income in the rural sector; the objective of food self-sufficiency is being undercut by low cost imported food; and the effort to increase food crops for local

consumption may come in conflict with the production of cash crops needed to generate national revenue. Senegal is attempting to resolve these kinds of conflicts through adjustments in its producer and consumer price policy.

Since 1974, Senegal has opted for a food/rural development oriented farm price policy. Farmgate prices have been increased on food and cash crops while food subsidies to the urban consumer have been eliminated. An articulated policy of food self-sufficiency has been established. Programs to carry out this policy have been initiated. The most recent of these has been the requirement that all bakers substitute 15% of the imported wheat flour used in baking bread with locally produced millet flour. Other programs include increased emphasis on rice production, decentralization of research and extension and reforms of the cooperative movement to provide greater access of farmers to the increased farmgate prices and farm inputs.

Senegal has for some time been undertaking a wide range of policy reforms, most in response to international consultation and advice, particularly from the IMF, the World Bank and the EEC. The important role of the FFD program will be to support, through a program of project implementation, those policies of the Government of Senegal that directly relate to increasing food availability to the poor of the country. These cover the three areas noted previously of increasing agricultural productivity and food production, providing greater equity of income distribution, and increasing

participation in the decision-making process affecting local development. By providing funding, presently unavailable from other sources, to projects that provide linkage of these policies to specific activities implemented at the field level, the benefits of these policies can reach low-income producers.

Within this framework of appropriate policies and additionality four main policy initiatives are supported by the FFD proposal. These are:

1) Support reforms of the farmer cooperative movement;

2) Strengthen the decentralization of the agricultural development program;

3) Protect and improve the agricultural resource base;

4) Refine agricultural policy in several key areas to more effectively guide food grain production and consumption toward desired objectives.

In addition to a group of specific projects directed at the above policy initiatives, the FFD proposal is structured to include in-depth policy studies in the areas of agricultural pricing, marketing and investment policy.

D. The Food for Development Proposal and Project Selection

The FFD proposal is based on funding of projects that support and encourage the above mentioned policies. These projects, selected in consultation with the Government of Senegal, are complementary and additional to other projects and funding sources.

A brief description of projects to be funded which are related to these specific policy objectives is as follows:

1. Reform of the Cooperative Structure

Two projects of the FFD proposal support reforms of the cooperative structure:

a. Cooperative Storage

This project supports the reorganized cooperatives by providing small warehouses primarily for agricultural inputs (seed, fertilizer, farm equipment) and for temporary storage of millet and peanuts prior to their being moved to central warehouses.

These warehouses will serve as a focal point of the cooperative reorganization since they will allow the cooperative greater control over the supply of inputs to its members and will reduce storage losses of food transferred to central storage areas. This project is both additional and complementary to the central cereals storage construction now being funded by USAID and other donors.

b. Rural Development Fund

The Rural Development Fund is designed to provide funding for locally inspired, small-scale projects directed to improving food production, distribution and marketing through the reorganized cooperative structure. These funds will be channeled to the cooperatives via the RDAs.

2. Decentralization of the Development Process

Three projects help to support Senegal's policy of agricultural decentralization:

a. Rural Technical Schools

The majority of the vital middle level RDA technical

cadre comes from the rural technical schools (ENCR, ENEA and other ecoles techniques). Title III assistance to the rural technical schools will help to provide the increased numbers of properly qualified personnel required by the RDAs. FFD funds will be used to upgrade and expand the facilities and curricula at these schools.

b. Decentralized Research

Senegal has an effective agricultural research system primarily oriented to the Groundnut Basin (groundnuts/millet). With increased attention now directed to the country's peripheral regions (Fleuve, Casamance and Eastern Senegal) as part of the decentralization policy, there is a pressing need to establish agricultural research stations in these areas in order to obtain the appropriate technical packages based on the specific agronomic potential of each region. The government has initiated the regionalization of research with the help of donors. The FFD program will provide the additional funds needed for the basic infrastructure to establish these regional research centers.

c. Rural Development Fund

As the RDAs and Rural Communities are reorganized to give rural people greater participation in the development process, there will be a need to support worthwhile small-scale projects identified by the local population but for which funding is unavailable. FFD funds will be used to complement these small-scale projects through creation of a Rural Development Fund.

Projects would be eligible for funding which respond to specific agricultural development needs of the locale, including

but not limited to, inputs and production storage, marketing, local agriculturally-related artisan industry, and food processing.

3. Resource Development and Conservation

One project will be funded by the FFD program in support of the policy to protect and improve the basic land resource base of the country. This project will provide necessary additional funds to the Forest and Water Service of the Ministry of Rural Development for a reforestation and dune fixation program. This region, currently threatened with shifting sand dunes, provides much of the fruit and vegetables for consumption in Dakar, and for export.

4. Market Price and Agricultural Investment Policy

Senegal faced a number of hard choices when mapping out its medium-term (1985) strategy for agriculture. Arriving at the optimal price and market policies supportive of that strategy is an ongoing process that requires continual refinement and improvement. As a means to encourage the progressive trend in the government's commitment to agriculture, over the next three years Title III will fund in-depth studies for price, marketing and storage policy, as well as major long-term agricultural investment alternatives to facilitate economically sound policy decisions. For the longer term, it is necessary that the Senegalese government develop its own capacity in the planning and economic analysis area. This is in fact anticipated under the Agricultural Economic and Farming Systems Research and Planning Project (685-0223), now under discussion

between the Government of Senegal and USAID/Senegal. The proposed studies will furnish necessary policy guidance during the period of the Title III program and until the Agricultural Research and Planning Project is effectively implemented.

E. Food for Development Program Summary Budget

The proposed Food for Development Program is predicated on the availability of approximately 22,000 to 25,000 metric tons of rice per year for Senegal over a 3 year period beginning in FY 80. Exact tonnage will depend on rice prices and the availability of less expensive 80% broken rice, but the proposal anticipates generating local currency under the Title III program equivalent to $7 million per year.

This represents a total availability of $21 million in local currency for the development program over the three-year period.

In accordance with Section 306 of PL 480, and based on the periodic progress reports of the Government of Senegal, the proposed program may be modified and improved during semi-annual reviews. Given the newness of the Title III program to the government, it is expected that some modification in the proposed projects will occur as implementation takes place.

The table below presents a summary budget for Food for Development project activities. The anticipated requirements for project funding have been divided into three calendar years and represent current estimates of annual disbursements required for each project activity. Periodic adjustments in these allocations will be made based on semi-annual program reviews.

Summary Budget, PL 480 Title III

SENEGAL FOOD FOR DEVELOPMENT PROGRAM ($000)

	Year 1	Year 2	Year 3	Total
I. Approximate generations:	$7,000	$7,000	$7,000	$21,000
II. Use by Projects				
1. Agricultural Policy Studies	300	300	300	900
2. Local Cooperative Storage	2,000	1,000	1,000	4,000
3. Decentralization of Research	1,520	1,520	1,710	4,750
4. Rural Technical Schools	900	900	240	2,040
5. Reforestation and Dune Fixation	2,080	2,180	2,650	6,910
6. Rural Development Fund	-	1,000	1,000	2,000
Sub-total	6,800	6,900	6,900	20,600
Program Management	200	100	100	400
Total	$7,000	$7,000	$7,000	$21,000

F. Detail Project Description

A detailed description of each project of the FFD program follows.

I. AGRICULTURAL POLICY STUDIES

A. Background

The Senegal Title III Agricultural policies studies will finance research in three priority policy areas: (a) official pricing at producer and consumer levels to achieve specific objectives in agricultural development, (b) the structure of Senegalese internal and external grain markets, and (c) major investment alternatives for Senegalese agriculture over the next 10 years.

Recent Senegalese development plans, and the Senegalese Food Investment Strategy of September 1977, quoted at length in other parts of this proposal, set increased food self-reliance as the priority objective of agricultural development policy. To the achievement of this objective, they have taken a number of decisions and actions, including:

- an emphasis on the production and consumption of millet, sorghum and locally produced rice;
- an effort to improve the processing of millet and increasing its utilization, e.g. as a wheat substitute;
- encouraging the production of local grains through raising producer prices and subsidizing farmer inputs;
- removing consumer subsidies on wheat and imported rice;
- heavy investments in the development of dryland agriculture.

While these are important steps, they do not resolve all problems. Among the reasons is that the achievement of Senegal's goal of food self-reliance is complicated by two important factors: (a) the availability of low-cost imported rice, and (b) the importance of peanuts as a foreign

exchange earning export crop. A few of the complications which arise include:

- the limitations of price policy to induce development, e.g., raising millet prices sufficiently to increase production may require raising consumer prices to the point of discouraging consumption of local millet in favor of imported rice;

- producer prices which increase cereal production may have unfavorable effects upon peanut production;

- costs of local rice production are so high as to make it uncompetitive with imported low grade rice. While raising producer and consumer rice prices will encourage production of local rice and discourage imported rice consumption, it will at the same time lower the real income of rice consumers;

- the effects of increasing income levels may counteract policies to increase coarse grain consumption.

Other serious problems appear to be caused by the official marketing structure developed by Senegal over time. ONCAD's role in the grain trade had been characterized as superfluous[1/] even though it enjoyed a monopoly for primary collection of traditional cereals and commercialized over 100,000 MT of millet in 1978/79. ONCAD has been criticized by other writers also, and a number of ideas have been advanced for improving its efficiency and modifying its role, particularly its relationship to the cooperative movement[2/]. As a consequence, the respective roles of ONCAD, the Regional Development Agencies and the cooperatives in the marketing

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1/ Marketing, Price Policy and Storage of Foodgrains in the Sahel, CILSS/Club du Sahel, Aug. 1977, Vol. I, p. 218.

2/ See for example SY, Cheikh Tidiane, "L'ONCAD Est-il un Mal Nécessaire?" presented at the National Club for Development, December 18, 1979, in Senegal.

process are expected to be changed substantially in Senegal's current process of decentralization of rural development.

At the same time, very little empirical information is available on the functioning of traditional markets, the number of traders, their buying and selling prices, seasonal variations in buying and selling, quantities of cereals produced, stored and commercialized, costs in both traditional and official circuits, etc.

Little attention appears to have been given in any research and analysis to the relation of cereals production and commercialization vis-à-vis neighboring countries (Mauritania, Cap-Vert, Mali and The Gambia), and the importance of these for Senegalese agricultural policy.

The CILSS/Club du Sahel study on Sahelian grain marketing cited earlier recommended "systematic study of the operation of grain markets and related questions...a pre-condition of better policy" and its generation a "matter of urgency" in 1977. This urgent need for systematic research to guide the articulation of coherent price and market policy still exists and the Title III program will sponsor studies in these areas.

Senegal faces another set of major agricultural policy decisions which bears directly on the objective of food self-reliance - to what extent and at what rate to allocate agricultural investments over the next ten years to irrigation development. Investment in dryland agriculture is predicted to show diminishing returns over the next ten years as the intermediate technology package spreads to all dryland areas. Senegal's long term agricultural development may therefore be ultimately dependent on bringing under irrigation the approximately 250,000 hectares which are adapted to this practice. This would require extremely heavy investments over a time

period which will present other, perhaps equally urgent capital requirements, in agriculture. The most striking example is the Peanut Basin, earner of the bulk of the country's foreign exchange and producer of much of the country's coarse grains, which shows signs of serious depletion of soil fertility and deterioration of its physical capital. There is need here, not for either/or policy, but for investment decisions based on analysis of various alternatives of timing and levels of investment in irrigation versus dryland farming. Other factors which are important to, and influence the timing of, irrigation development include the need to:

- lower the cost and improve the efficiency of local production;
- coordinate increased local rice production with gradually increasing marketing and consumption;
- develop locally adapted irrigation production technology;
- train farmers in irrigation techniques;
- solve in an equitable manner the serious problem of social structure, costs and benefits associated with irrigation development.

B. Policy Study Objective

The objective of the policy studies to be conducted under Title III is to provide systematic fact finding and analysis to Senegalese policy-makers on the most urgent agricultural development questions at as early a date as possible.

The problem areas which have been selected - price, market and agricultural investment policy - have been cited in every recent Government and USAID

statement on the subject as the most urgent areas of economic research.[3/] They are at the same time the key policy issues relevant to the Title III program, to Senegal's self-reliance objectives, and to the country's redirection toward decentralization of the agricultural development process. The Title III program therefore will finance studies in these areas to be undertaken by the Secretariat d'Etat pour la Recherche Scientifique et Technique (SERST).

It will not be possible in the time limitations of the Title III program (in effect two years will be available for design, field work, analysis and presentation) to explore all aspects of these major policy questions. Nevertheless, it is essential that key issues be investigated and analysis and conclusions be presented to policy-makers as early as possible and in sufficient time to influence agricultural policy before the final evaluation of the Title III program. This research under the Title III program and the design of these studies will be carried out in a manner to assure complete coordination with the objectives, and with the personnel and institutional arrangements to be implemented under AID's Economic Research and Planning Project 685-0223.[4/]

3/ Cf. the Senegalese National Food Investment Survey, op.cit., pp. 26-27-44; CILSS/Club du Sahel: Marketing, Price Policy and Storage of Foodgrains, op.cit., Vol. I, pp. 87-95; Diouf, Jacques, Avant-Projet de l'Etude "Analyse Economique du Secteur Agricole", SERST, Aug. 1978, pp. 4-5; Senegalese-IADS Study Team Report "Senegal Agricultural Research Review", Dec. 78, p. 53; Eicher/Brown Memo "Agricultural Research and Planning Project, Nov. 79, p. 9; Senegal CDSS (draft) Jan. 1980, pp. n

4/ Cf. "Agricultural Economic and Farming Systems Research and Planning", Project Identification Document, Project 685-0223, USAID, Dakar, Senegal, Feb. 1980.

C. Description of Project Inputs

1. Price Policy

a. Review, evaluate and prepare summary synthesis of relevant literature on Senegalese agricultural price policy including but not necessarily limited to the following areas:

- production economics of grain, peanut, producing farms, input/output relationship for various crops; influence of farm size;
- quantities of grain produced, stored, sold, given away;
- constraints to output expansion;
- farmer responsiveness to price changes in quantities of peanuts produced, stored, sold;
- consumer behavior, response to pricing expenditure.

b. Evaluate areas where further research is required and develop prioritized time-phased plan for carrying out such research.

c. Assist the Government of Senegal to implement the SONED/SEMA model for price determination in the 80/81 and 81/82 campaigns, evaluate its effectiveness, assist to revise as needed.

2. Market Policy

a. Review, evaluate and prepare summary synthesis of relevant literature on the functioning of Senegalese foodgrain markets both traditional and official, and of the relationships between those markets and those of neighboring states.

b. Determine areas requiring further research and develop prioritized time-phased plan for implementing such research.

c. Develop an analytical market structures model of the functioning of the foodgrain production, marketing and distribution systems, taking into account all relevant factors, including but not limited to:

- farmer's motivations in producing, storing, selling foodgrains;
- farmer sales at farm gate and village levels;
- nature and number of traders both traditional and official and their outlets;
- role of storage at all levels of marketing chain;
- costs, prices, margins at all levels of the traditional and official marketing chain;
- the interaction of the official system (ONCAD, cooperatives, RDA's), with the traditional system and the effect on quantities market flow of grain, prices, etc.

d. An in-depth study and analysis of the 1978/79 marketing campaign;

e. A study of the possibility of inter-regional trade to be anticipated over the next ten years under alternative assumptions of regional growth.

3. Alternative Capital Investments for Agricultural Development

a. Review, evaluate and prepare summary synthesis of relevant literature on cost/benefit or other economic studies of investments in irrigation development and rainfed agriculture in Senegal and other Sahelian countries.

b. Develop an analytical model for evaluating major Senegalese cereals production investments.

c. Develop case studies of investment potentials from alternative levels of investment and phasing of investment in the Senegal Peanut Basin and in a major river basin with irrigation potential.

II. RELATIONSHIP OF PROJECT TO TITLE III PROGRAM OBJECTIVES, USAID ASSISTANCE STRATEGY AND SENEGAL'S FOOD POLICIES.

The Title III input to this Project will provide support to economic and social research designed to increase the capacity of Senegal to more effectively plan and evaluate agricultural development policies and technical recommendations.

Since Independence, successive Government development plans have insisted on the priority of rural development. The current Fifth National Plan emphasizes more than ever the primary sectors and allocates additional internal budget resources for achieving the goals of:

a. agricultural diversification with concentration on crops which are consumed locally;

b. increased agricultural production; and

c. conservation of natural resources.

It is obvious that if Senegal hopes to achieve these goals, an integrated effort, including agricultural, economic, social and cultural factors must be undertaken. Furthermore, Senegal's planners must be able to analyze the data correctly for effective use as a policy and development tool. Title III funds attributed to this Project assist in addressing each of these aspects.

The priorities of the AID program in Senegal, as outlined in the CDSS, emphasize assisting the rural poor through rural-based agricultural development. Furthermore, USAID will carry this work out on a sectoral basis rather than in any single geographic region. This project is directly related to these priorities.

The direct beneficiaries of this Project will be the institutions and agencies in the Government involved in agricultural policy development. The Project will help them improve their ability to develop and carry out their agricultural policy goals. The ultimate beneficiaries will be the estimated 360,000 small farming units directly affected by improvements to the agricultural sector.

III. TECHNICAL AND ADMINISTRATIVE FEASIBILITY

A. Technical Analysis

The studies called for above in pricing, marketing and investment policy represent a consensus of the most urgently needed policy-oriented research in these fields. Priority will therefore be given, following completion of the literature review and synthesis called for in sections B, and C 1, 2, 3 above, to their implementation in the following sequence:

1. For implementation - September, 1980

a. Price policy - application and refinement of the SONED/SEMA price modeling analysis.

b. Market policy - development of an analytical market structures model;

- study and analysis of the 78/79 cereals marketing campaign.

2. For implementation - September, 1981

a. Agricultural investments - develop an analytical model for evaluating major Senegalese cereals production investments.

b. Market policy - inter-regional grain trade.

It is anticipated that field data gathering, compilation and analysis in support of price and market studies will overlap considerably; it is suggested that such studies be designed and implemented simultaneously.

The scope of the studies and their priorities, recommended in sections B and C above, may be modified as appears necessary following the required literature search and analysis, and upon mutual consent of the Minister of SERST and the Director of USAID. Any research to be undertaken under this financing, however, must contribute, during the life of the Title III program to the refinement and improvement of agricultural policy in the three subject areas.

Specific research techniques to be used in the accomplishment of these studies will be decided by the Director of ISRA or such other organizations as designated by the interministerial council and the research group assigned to carry out the studies.

B. Administrative Analysis

1. The project leader will be a qualified economist appointed by the Secretary General of SERST.

2. Research and studies will be carried out by the technical staff of Economics and Sociology Section of ISRA.

3. To the extent that qualified research personnel are not available within SERST/ISRA, SERST may contract research with the Société Nationale des Etudes de Développment (SONED-Afrique) or other equally reputable research organizations, within the limits of the resources available, or with suitably qualified individual Senegalese technicians.

4. Funding is provided for up to 12 months TDY of U.S. technical assistance as needed.

5. Field investigators, secretarial assistance, office space and vehicles will be provided by ISRA as available, or contracted.

6. Upon implementation of the Agricultural Research and Planning Project, the Title III research program will be integrated into any administrative/technical structure established under that program which is mutually agreed to be appropriate by the Director of SERST and the Director of USAID.

7. The USAID staff ag-economist will provide technical monitoring and liaison with the study project.

IV. FINANCIAL PLAN

(DOLLARS)

	CY 80	CY 81	CY 82	TOTAL
Research Studies Leader	$30,000	$100,000	$100,000	$230,000
Technicians TDY	21,000	42,000	28,000	91,000
Technicians	50,000	150,000	97,000	297,000
Field enumerators, travel, computer time, etc.	26,000	80,000	66,000	172,000
Supplies, office space, secretarial, other logistic support	30,000	45,000	35,000	110,000
Total	$157,000	$417,000	$326,000	$900,000
Expected generations	$300,000	$300,000	$300,000	$900,000

V. Implementation Plan

MARCH 1980	Signature Senegal Title III Agreement
APRIL 1980	Designation of GOS Project leader
APR/AUG 1980	Identification of personnel/contract requirements; Development of Terms of Reference, Requests for contract proposals; Evaluation of proposals; Identification of office space, supply and logistic requirements and sources.
AUG 1980	Selection of contract institution; First money generations deposited in project accounts.
SEPT 1980	Signature of GOS contract to provide technical support; engagement of Senegalese research technicians.
SEPT 1980	6 months evaluation
SEPT- DEC 1980	Search of literature, elaboration and approval of research designs, identification and training of enumerators; field work begins.
MARCH 1981	Submission of 1st Interim (6mos) report
SEPT 1981	Submission of 2nd Interim report
MARCH 1982	Submission of 3rd Interim report
SEPT 1982	Submission of final research studies
NOV-DEC 1982	Consideration by GOS policy-makers of policy outputs for 1983 campaign.
DEC 1982	Termination of Title III studies program; Submission of final studies sub-project report.
JAN-FEB 1983	Final evaluation of Title III program including effectiveness of policy studies
MARCH 1983	USG decision on future Title III program.

In the event of serious dislocations of this schedule beyond the control of the ISRA team, adjustments may be made with the mutual agreement of the Minister of SERST, the Director of ISRA and the Director of USAID.

VI. EVALUATION PLAN

1. Results of individual research studies will be reported separately within three months of the completion of field work and data analysis.

2. The project will submit semi-annual reports to the Director of SERST and the Director of USAID, the first report to be submitted 6 months from the actual start-up date of the research project, (considered to be the date of initial deposit of project funds). The reports will consist of two sections, an administrative section reporting on budget, logistical, housekeeping and administrative matters; the second part will summarize technical research to date, and policy implications of that research. The research studies and reports will not make policy recommendations, but will report research conclusions and policy implications of alternative courses of action.

3. The first six months report will present, but is not necessarily limited to, the literature review and synthesis called for in sections C.1.a., C.2.a., and C.3.a. above.

4. The second six months report will present, but is not necessarily limited to, the research plan called for in sections C.1.b., C.2.b., and C.3.b. above.

5. The project first and second year reports, scheduled for submission in September 81 and September 82, will be written with a view to providing maximum assistance to policy-makers from the research accomplished to date. A project completion report will be submitted at the termination of the Title III studies program.

(a) First Year Evaluation Criteria

The following outputs will be provided during the first year of the research studies project, and project success in that time period will be evaluated against their accomplishment.

1. Functioning, fully-staffed, housed, equipped study group.

2. Literature search and synthesis of relevant policy research completed and submitted.

3. Development of prioritized plan of research studies in relevant policy areas completed and submitted.

4. Analysis of 1st year experience (June 80-June 81) using SONED/SEMA price model[6/] completed and recommendations for modification submitted. Field work in support of 81/82 campaign under way.

5. Design of market-chain studies submitted and accepted; field work completed; interim study report ready for submission, Sept. 81; on schedule for submission of final report, March 82.

6. Analysis of 78/79 cereals marketing campaign under way and on schedule for submission of report, not later than March 82.

7. Design of irrigation/dryland farming investment study completed and approved.

8. Preliminary design of inter-regional cereals marketing study completed.

9. Title III study effort fully integrated administratively into research structure established under Ag. Research and Planning Project.

5/ For purposes of the establishment and use of these criteria, it is assumed that the 1st annual project evaluation will take place approximately Aug-Sept 1981.

6/ Assumes SONED/SEMA price model submitted on time (June 1980), accepted, and implemented by Government of Senegal.

6. The Translation of Research into Policy

Responsibility for the implementation of the policy-oriented studies to be financed under Title III has been assigned to SERST because, among other reasons, this institutional location offers the best assurance that policy-oriented research will be available to and used by decision makers at the national level.

SERST is headed by the Minister for Science and Technology and is responsible for planning, administering, coordinating and evaluating nearly all research in the country. The Minister for Science and Technology reports directly to the Prime Minister, whose office is the locus of all national level policy formulation.

Aiding the Minister for Science and Technology, both in deciding what research will be undertaken, and in providing an official channel for the flow of research findings to the ultimate users, is an Interministerial Council composed of the major ministries including Plan, Finance, Health, Rural Development, Education, etc.

The fact that this council, at the highest ministerial level, must consider the entire range of Senegal's research questions and has no supporting staff limits the depth of consideration that can be given to agricultural research affairs. SERST has recognized this organizational problem and is recommending the establishment of an agricultural research council composed of representatives of the agricultural sector to work with SERST/ISRA to coordinate with the Interministerial Council the establishment of agricultural research priorities and application of research findings.

7/ The optimum locations for agricultural policy-oriented macro-economic research within the Senegalese government is analyzed in detail by Carl Eicher, Michigan State and Don Brown, USAID/Senegal staff economist in a paper dated Nov. 79, on issues for the implementation of project 685-0223. Their recommendation, based primarily on the question of use of research results in policy determination, is to place it in ISRA under the Secrétariat d'Etat à la Recherche Scientifique et Technique (SERST)

LOCAL COOPERATIVE STORAGE

I. PROJECT DESCRIPTION

A. PROJECT PURPOSE

This project proposes that PL-480 Title III funds be used to finance the construction of 100 small warehouses at the cooperative level to provide short term storage for agricultural inputs of fertilizer, seed and equipment, and for grain and peanuts received from farmers to be sold. The facilities will not require the establishment of new organizations or a new organizational structure. Similar purchasing centers now exist and have operated relatively successfully for many years in the groundnut marketing activities of ONCAD.

B. BACKGROUND

1. Role of Institution

With the recently initiated cooperative reforms, the cooperative will increasingly become the focal point of agricultural development. Its role as a collection point for groundnuts and increasingly millet and other food crops will expand rapidly. In addition, the local cooperative will play an expanded role in input procurement for its members including the collection, treatment and storage of seeds. This latter activity alone is estimated to unburden the cooperative members of up to CFA 10 billion ($45 million) of indebtedness to ONCAD which now handles all seed transactions on a credit basis.

To carry out this expanded role, one of the most important elements needed by the cooperatives is additional local storage. This storage would be used to hold food grains for shipment to regional warehouses, to store and protec farm inputs (such as fertilizer, and small farm equipment) and to store local seed supplies.

2. Rationale

Senegal h-- worked diligently this past half-decade to increase producti

of grains, particularly of millet, the primary foodgrain. Following the drought-induced crop reduction in 1973, millet production rebounded to a level sufficient to cover rural population food needs. However, urban population food needs have been supplied largely by the importation of wheat and rice; grain imports have totaled over 300,000 MT/year (200,000 MT rice and 100,000 MT wheat) for the past three years.

In 1978, the Government of Senegal made a major effort to further increase millet/sorghum production. A guaranteed floor price was announced before planting which increased the floor price from 35 to 40 CFA/kg. Fertilizer supplies were increased from 70,000 to 100,000 tons nationally. Crop production reached 900,000 MT in 1978 compared to the previous peak of 795,000 MT in 1975. The previous four good crop years have apparently provided sufficient surplus for farmers to replenish reserve stocks and the marketed surplus has reached an all time record. ONCAD purchased over 120,000 MT of millet/sorghum compared with a previous high of 36,000 MT in 1974/75 and an annual average of only 22,000 MT for the past four years. This record purchase level has strained both the financial and physical resources of ONCAD and the Government.

ONCAD's own storage facilties are filled to capacity, forcing it to rely upon rented and temporary storage. Current availabilities for central storage are low but this picture will change in the immediate future.

Senegal has recently completed a Government financed 30,000 MT capacity bag warehouse storage. USAID is completing the construction of an additional 30,000 MT of storage.

Other countries are also providing funding for storage facilities and it appears that needs for medium and long term storage will be met.

However, one storage link in the marketing channel is still missing;

this is for short term storage at the point of crop purchase from the farmer. Most of the transport available to the farmer is animal transport; it is difficult for farmers to deliver grain over large distances. Although ONCAD now operates approximately 600 purchasing centers, many more are needed. The centers purchase groundnuts and grain as well as distribute inputs such as fertilizer and pesticides to farmers. Most of these centers have little or no covered storage; grain and groundnuts are stored in the open until they can be transported to central storage which may involve a few weeks of exposure to the weather.

This proposal provides small multi-purpose storage facilities at cooperative purchasing points. Millet would make the first use of the facilities followed by groundnuts after the millet is moved to central storage. In turn, groundnuts would be moved on to central storage or processing units and the facility would be available for fertilizer storage before the next planting season.

C. DESCRIPTION AND PROJECT INPUTS

The warehouses proposed would be built largely of local materials using local labor; the type of construction is within the proven capability of Senegalese contractors and artisans. The warehouses would have concrete floors raised about one foot above grade (or higher if flood conditions exist). Walls would be of locally made concrete blocks. Locally made cement-asbestos roofing would be supported on locally fabricated steel trusses. Almost the entire cost of the project would flow into the local economy.

The buildings proposed would be 8m x 20 m with a 4m eave height. This would provide space for about 200 MT of grain storage, 100 MT of fertilizer storage, a small store room and grading laboratory plus an open covered area for weighing and rebagging grain.

The estimated cost of each building plus pallets and other facilities and including supervisory engineering is $40,000; hence the total project cost for 100 buildings would be $4,000,000.

D. FINANCIAL PLAN

USAID

Warehouse Construction 100 x 35,160 =	$ 3,800,000
Scales - already on site	
Moisture meter - already on site	
Grading Equipment - already on site	
Supervisory Engineering	200,000
TOTAL	$ 4,000,000

GOVERNMENT OF SENEGAL

1. Land for Warehouses 100 x 1 at 200 =	$ 20,000
2. Site preparation 100 x $500 =	$ 50,000
3. Personnel - already on site	
TOTAL	$ 70,000

E. ECONOMIC EVALUATION

Fixed costs/station

Depreciation (20 yrs)	$ 2,000/yr
Interest at 6% of 1/2 first cost	1,200
Insurance at 1%	400
Maintenance at 1%	400
Total fixed cost/yr	$ 4,000

Additional operating costs/station

Added interest on fertilizer (200 MT x $250 x 2%)	$ 1,000
Total added costs per year	$ 5,000

Benefits: assuming 200MT of grain and 200MT/yr of fertilizer.

Grain value at 40 CFA/kg - 40,000 F/MTor 8,000,000 CFA = $40,000

Fertilizer at 250 x 200 = $50,000

Grain benefits:

Reduced weather damage at 2%	$ 800
Reduced theft losses at 2%	800
Reduced insect-rodent losses at 1%	400

Fertilizer benefits:

Reduced weather damage 5%	$ 2,500
Reduced theft loss 2%	500
Reduced freight costs (assume 20 mi. backhaul at 31 CFA/MT/km) $\frac{20}{60} \times \frac{31 \text{ CFA/mi} \times 200 \text{ MT}}{200} =$	1,033
	$ 6,033

Conclusion: Annual benefits are 30% greater than the annual costs.

II. RELATIONSHIP OF PROJECT TO TITLE III PROGRAM OBJECTIVES, USAID ASSISTANCE STRATEGY AND GOS FOOD POLICIES

A. PROJECT RELATIONSHIP TO PROGRAM OBJECTIVES

Increasing food deficits characterize the Sahelian countries. Deficits are the result of successive years of poor rainfall and land or decreasing productivity in the face of population growth. Senegal imports about 200,000 MT rice and 100,000 MT wheat each year.

Senegal has embarked on a vigorous program of self-sufficiency in food-grain production. The Government of Senegal's internal development budgets, donor investments and government pricing policies are in line to accomplish this objective.

USAID development priorities for Senegal are directly supportive of Senegal's development priorities and follow the framework by CILSS and accepted by Club du Sahel.

USAID long range goals are:

- reduced dependence on imported foodgrain;
- an integrated approach to rural development including dry land farming, irrigated agriculture, livestock, rural health services, human resources development and conservation and development of natural resources.

To accomplish self-sufficiency in foodgrain production requires (a) increased productivity to a level to feed all the people, and (b) commercialization of foodgrain by establishing marketing facilities, timely and efficient distribution of seed, fertilizer and other inputs, stabilization of farmer and consumer prices and improving the dependability of farmer cash income, thus providing incentives to increase food production.

The 1978/1979 harvest produced 120,000 MT more millet than ever before. Inefficiencies in marketing practices and inadequate storage facilities are a major deterrent to the commercialization of millet.

B. BENEFICIARIES

The primary beneficiaries will be the approximately 600 to 1,000 small scale millet producers who will be encouraged to produce more millet at a preannounced price once fertilizer and seed inputs are more readily available and less costly. Change-over from a subsistence to a cash economy will raise levels of income and enable farmers to enjoy an improved standard of living.

The main benefits will accrue when heavy unexpected rains occur during the dry season. For example these rains occurred widely over Senegal during January, 1979 resulting in a 10 percent weight loss to groundnuts, loss of oil and forage.

C. POLICY ISSUES

There are no policy issues.

The government has already established the coops to buy and sell grain, and to sell inputs (fertilizer, pesticides, etc.).

No new personnel are being hired.

III. TECHNICAL AND ADMINISTRATIVE FEASIBILITY

A. TECHNICAL ANALYSIS

The warehouses will be constructed of indigenous materials (cement and concrete blocks) and imported angle irons to make roof trusses. The building design is very simple and the construction procedure is standard in Senegal.

Because of the large geographic area covered, it is assumed that five separate contractors will be required. Each contractor will complete 100% of the work on each building assigned. Contractors will be selected on the basis of competitive bidding.

Site selection will be based on the following criteria:

1. The construction of warehouses will be closely related to restructuring of cooperatives in Diourbel, Thies and Sine Saloum (Min. Rural Development).

2. They will be confined to areas with rural reform (Min. Rur. Dev).

3. Each rural commune should have at least one warehouse (Min. Rur. Dev)

4. Primary purpose of the warehouses is to promote production; the Diourbel, Thies, Sine Saloum Regions are the chief millet-producing regions of country (USAID).

5. Site selection should be governed by concentration of development activities to maximize development impact; and in areas of strong development supervision; Thies, Diourbel, Sine Saloum fit this criteria (USAID).

6. The coop level warehouses should be integrated with the 60,000 MT central cereals warehouses now being completed by the Government (30,000MT), USAID (30,000MT), and FRG (20,000MT).

7. The warehouses should be placed so that farmers need not travel more than 10 kilometers to reach their cooperative warehouse, and the coop warehouse should be no closer than 20 kilometers to the central cereals warehouses. (USAID).

B. ADMINISTRATIVE ANALYSIS

1. Cooperative Management of Warehouses

The cooperatives will own, manage and maintain the warehouses provided by this project. Coop management consists of a president and a vice president who serve without pay, and a secretary-treasurer who gets paid for hours actually worked. Maintenance of the warehouse will be essentially zero. There are no utilities or ground rent to be paid; construction will be concrete block; only the steel reinforced asbestos roof will need to be repaired or replaced after 20 years.

Only one full time warehouseman will constitute the warehouse staff. He is paid by ONCAD on an annual contract. The warehouseman will be responsible for proper storage. The USG now provides the trainers to train these warehousemen under the ongoing 30,000 MT central cereals storage project.

2. Economic Viability of Cooperatives

Coops raise initial capital from annual membership dues of approximately $5.00. Coop purchases of peanuts and cereals for ONCAD yields them a buying commission paid by the purchaser. For the sale of fertilizer to their members, they get a sales commission paid by the seller. ONCAD furnishes an agent who works for the cooperative, hence coop expenses are minor. Most cooperatives have a truck which is purchased by ONCAD and sold to the coop on

credit. The truck is a source of income for the cooperative. Development agencies provide animal traction for farmers; coops act as agents to sell or rent their services.

Most of the activities discussed above take place at the coop warehouse which includes an office/sales area. The coop members thus benefit by having their activities center at the coop warehouse. The farmers do not pay to store their production; this cost is paid by the buyer of production and the seller of agricultural inputs. The coop makes a small profit on storage, and together with other services discussed above, they create working funds. The cooperative reorganization discussed above insures financial viability. Cash accruals by the coops are well invested. In the Bakel SAED perimeters, for instance, USAID requires the coop to amortize the pumps granted by the USG, hence coop savings meet this requirement; other coops buy trucks from ONCAD on credit. The specific purposes to which savings are put vary from coop to coop.

3. Relationship of Cooperatives to Rural Reorganization

As early as 1960 the coops were conceived and organized as basic units of development but over the next 15 years they encountered many organizational representational and economic problems (including drought); they were simply not economically viable. Of 1800 coops in the Peanut Basin, less than 1/3 wer viable.

In 1972, the Government of Senegal embarked on a major Administrative Reform in rural Senegal which offered a new approach to economic, social and political development through popular participation by villagers. They were organized as Regional (state) Councils, Departmental (county) Councils and Rural Communes. Membership in the Regional Council is elected 1/2 by Departmental Council and 1/2 by cooperatives. Departmental Councils provide techni

assistance from the ministerial technical services. Finally, there is the Rural Commune, consisting of several well-grouped villages of about 15,000 population.

The Rural Commune has financial resources including 60% of all head taxes, 60% of fines and judgements, portions of licenses and property taxes. In short, 75% of all taxes are returned to the Rural Commune. It has been decided that each Rural Commune should have a dispensary, school, a cooperative, and a warehouse.

Certain other institutions are essential to rural development in Senegal including (1) the Rural Extension Centers; (2) the specialized regional development corporations like SODEVA (groundnut basin), SODESP (sylvo-pastoral) SOMIVAC (Casamance), and SAED (Senegal River); (3) ONCAD (National Office for Cooperatives and Development) is the nationwide marketing organization which works through the existing cooperatives to market groundnuts and cereals and to deliver farm inputs with financing from the National Development Bank of Senegal. (4) The cooperative is the fourth institution which relates to reform. Cooperatives play an important political role (1/3 representation on the Rural Community Councils) and an important economic role since Senegal's main cash crop (peanuts) is marketed and farm inputs are provided through them.

In 1978 restructuring of cooperatives began within the rural communes to correct the problem which arose during 15 years following the organization in 1960. This restructuring reduced the number of cooperatives, expanded membership to include several villages and took into consideration population groupings when relocating them. It was further decided that cooperative activities should be multi-faceted including production, consumption, transportation, artisan skills, credit, and all things of interest to villagers. Since

membership included several villages, sub-units of coops were organized in each village.

4. Project Impact on Administrative Capabilities

We believe ONCAD has the managerial capacity to assume this additional work. ONCAD will not employ additional people to manage the construction. However, $2,000 per warehouse has been allocated for supervisory engineering by a private firm.

ONCAD has managed the contracting for erection of 60,000 MT USAID and GOS financed central cereals warehouses. This demonstrates ONCAD's ability to manage the contracting for 100 coop warehouses.

IV. FINANCIAL PLAN

Warehouse construction will commence within 5 months following the signing of the Title III Agreement.

It will require 4 to 5 months to build one warehouse from the time of ordering the work to commence.

The currency utilization rate for one warehouse is as follows:

Advance for materials	$ 6,000
Advance to start work	6,000
Payment at end first month	4,000
Payment at end second month	8,000
Payment at end third month	8,000
Payment at end fourth month	8,000
TOTAL	$ 40,000

The total time to construct 100 warehouses is 36 months. The currency utilization by year is as follows. Half of the 100 warehouses will be completed the first year; twenty-five will be completed the second and third years.

	FIRST YEAR	SECOND YEAR	THIRD YEAR	TOTAL
1. Local Currency Expenditures ($000)	$ 2,000	$ 1,000	$ 1,000	$ 4,000
2. Number of Warehouses Completed	50	25	25	100

The list of proposed sites for construction of coop warehouses has been received.

V. IMPLEMENTATION PLAN

The following schedule (I through VI) details the steps and time in months required to complete one group of warehouses, Cycles IV through VI will be repeated until all warehouses are constructed.

A. Implementation Plan

MONTHS			
	I	SELECTION CRITERIA	
1		(a) Develop selection criteria (b) Select villages	
1		(c) Visit villages (d) Certify sites	
	II	DESIGN	
1		(a) Secure architect's design (b) USG and GOS certify design	
	III	CONTRACTS	
2		(a) Issue invitation to bid (b) Make selection of contractors	
		(c) Approve contract	
1	IV	START-UP ACTIVITIES	
		(a) Allocate funds (b) Order commodities	
		(c) Inspection approvals	
	V	CONSTRUCTION	
5		(a) Complete slab (b) Inspect slab (c) Allocate funds (d) Make concrete blocks (e) Inspect blocks	(f) Construct walls (g) Allocate funds (h) Erect roof trusses (i) Lay roof (j) Fit doors and windows (k) Complete driveway
	VI	GOS & USAID ACCORD ON OPERATIONAL PLAN	
1		(a) Select warehouseman (b) Make final inspection report (c) Make follow-up plan for operations.	

B. COORDINATION OF ACTIVITIES

1. Responsibilities

Policy: USAID and ONCAD

Village and site selection: USAID and ONCAD

Construction: ONCAD and Contractor

Inspection: ONCAD and USAID

Fund allocation: ONCAD

2. Coordination of Activities

Component coordination:

- the schedule of activities should be maintained for each warehouse in one notebook; the construction of standard size doors and windows and wire mesh gate should be ordered in sufficient time.

Inspection coordination:

- USAID and ONCAD inspectors should coordinate their trips.

3. Monitor Activities and Required Reports

Inspection team of USAID and ONCAD constitutes the monitoring activity. Each warehouse job should be inspected at following stages per schedule of activities:

- village inspection
- site selection
- approve architect's design
- inspect concrete slab
- inspect concrete blocks
- inspect outside and inner walls
- final inspection.

Reports should include:

- village selection report
- architect's design report
- contractor approval letter
- activity accomplishment report
- ONCAD inspection reports
- USAID inspection reports
- final inspection report
- quarterly financial reports.

4. Role of USAID

After preliminary approvals, USAID will assist ONCAD in monitoring the cooperative warehouse construction, but the responsibility will be ONCAD's. Specifically, USAID will perform the approvals and inspections listed in item 3 above.

VI. EVALUATION PLAN

A. DESCRIPTION

The project objective is to deliver a completed warehouse which follows the schedule of specifications, and to assure warehouse manager takes over on delivery. The village coop president will sign a declaration that his coop wants a warehouse and agrees to provide a full-time warehouseman once the warehouse is completed.

Evaluation will be continuous commencing with site selection process through final inspection report and delivery.

We will recommend that ONCAD allocated funds following satisfactory completion of each construction stage.

The inspection reports and their timing is shown in section V.B.3.

B. EXECUTION OF EVALUATION

1. Implementing Agency Role

ONCAD will be primarily responsible for evaluation since progressive evaluation is the basis for release of funds.

USAID role will be to accompany ONCAD inspectors as much as possible and to make their own independent reports as described herein.

RESEARCH DECENTRALIZATION

I. PROJECT DESCRIPTION

A. Project Purpose

The purpose of this project is to help support the agricultural research effort of the Government of Senegal. The project involves the provision of infrastructure, equipment, and operating costs necessary in support of decentralization of research.

B. Background

The Government of Senegal recognizes the importance of agriculture to the national economy and has continuously searched for ways to increase rural incomes and agricultural production, including agricultural research which has made important contributions to the improvement of Senegalese agriculture. The first research station in Senegal was started at Bambey in 1921 by the French colonial administration. In 1958, this station became the Federal station for agronomic research in French West Africa. After Independence, Bambey became the chief agronomic research station in Senegal under administrative control of the French assistance organization IRAT. In 1975, the Institut Senegalais de Recherche Agricole (ISRA) was created, passing management of agricultural research to Senegalese authorities. The Bambey station became the Centre National de Recherche Agricole (CNRA). During this period the CNRA has been the source of major activities of peanuts and millet grown in Senegal, and is leading the way in research on crop diversification and irrigation in the Peanut Basin. Also, its research results have formed the basis for the extension recommendations presently offered by the development society working in the ecological zone.

In 1973, the Government created the Délégation Générale à la Recherche Scientifique et Technique (DGRST) as the overall administrative authority of research in Senegal. The DGRST, now called SERST, is responsible directly to the Prime Minister and has responsibility for planning, administering, coordinating and evaluating nearly all research in the country. The SERST is actively involved in relating agricultural research more closely to development by increasing the amount of problem-oriented (applied) research and improving the communication and cooperation between the agricultural scientists of ISRA and the development and extension staff of the development societies and of the Ministry of Rural Development. As a first step toward this goal, SERST examined the structure of its present agricultural research organization (ISRA) and considered what actions were necessary to improve research projects and programs in the various ecological zones of Senegal.

To assist in the formulation of an over-all plan for strengthening the agricultural research system, the Minister of Science and Technology, Mr. Jacques Diouf, in June 1978, requested the International Agricultural Development Service (IADS) to send a team of agricultural specialists to Senegal to work with local scientists in analyzing the present research situation, and to prepare an indicative plan for re-orienting and strengthening agricultural research in Senegal. In December 1978, IADS officials visited Senegal and made a preliminary study of the agricultural research system. One of the major recommendations of the IADS team was that ISRA decentralize its research operation through the creation of six research regions in Senegal based on ecological conditions. Each of these regions would have one regional research center, one or more experimental stations and several outlying research sites. This decentralization would facilitate closer contact of the research establishment with farmers and extension agencies an

assist in directing research toward solving production - oriented problems. The Senegal River Valley, the Central Region and Casamance were singled out as the regions of highest priority for developing agricultural research capabilities.

Execution of the decentralized research program proposed by the IADS/Bank reports will be the responsibility of ISRA with the responsibility for research management lying with each appropriate department head in ISRA headquarters and with the coordinator of each of the multidisciplinary items.

The Title III Program will provide broad support to several aspects of the Government's decentralization program. It has been designed as a package of projects which will support reforms of the cooperative movement, strengthen the decentralization of the agricultural development process, protect and improve the agricultural resource base, and refine agricultural price policy to more effectively guide foodgrain production and consumption. Most specific to the execution of the decentralized research program, this project component of Title III will finance infrastructural development at ISRA field-research centers and assist in providing for their operating costs, so that close contact of the research establishment with farmers and extension agencies will be facilitated at outlying research sites.

C. Rationale

Agricultural research is of little value unless the knowledge developed is transferred to the farmer. This transfer is accomplished in most countries through some type of an agricultural extension service.

There are two principal functions of extension. One is to identify the principal problems that confront the farmer, and to bring these problems to the research scientist for solution. The other is to interpret the findings of the research scientist and to give this knowledge to the farmer in practical terms that he can understand.

The Government of Senegal fully appreciates the fact that the application of the results of research has been, and still is, below what it should be. A practical approach being made by ISRA to this problem is the PAPEM (Point d'Appui et de Prévulgarisation et Expérimentation Multilocal) program. The PAPEM program is experimenting with crop production methods that the average farmer could use with a minimum of risk. Animals, not tractors, are used in land preparation and cultivation. Efforts are being made to determine the optimum (not maximum) amounts of fertilizer and insecticides to apply, thereby seeking the most profitable ways for farmers to increase yields and income.

Important strides are being made between research and extension in assuring effective coordination. As evidence, the organizational structure of the CNRA at Bambey has a section whose function is coordinating production systems and the application of research results. Also, under financing of a bilateral AID project in the Peanut Basin is provision for cooperative off-station research to be conducted by collaboration between ISRA and the local extension service, SODEVA. A formal protocol is being developed to define responsibilities and formalize the cooperation. It is a precedent which, if successful, can be utilized in other research zones.

Presently, most of the agricultural diversification program directed toward greater self-sufficiency in foods is to take place in the so called peripheral regions of the Senegal River Valley and Casamance. There is, however, an urgent need for more production-oriented research with crops adapted to these ecological regions to develop the necessary technological packages required for successful production, again underlining the need for decentralization of the research organization in Senegal.

D. Project Components

The IADS report delineates six ecological regions in Senegal. a) Senegal River Valley, b) Cap Vert and North Coast, c) Sahel Region, d) Central Region, e) Senegal Oriental and f) Casamance. (These ecological regions should not be confused with the present administrative regions which have similar names).

A breakdown of the ecological regions involved and the centers to be proposed under this Project is as follows:

Senegal River Valley

The Senegal River forms the northern border of Senegal. This area is slated for intensive irrigation development with the construction of a salt intrusion dam near St. Louis and a holding dam in Mali. Several experiment stations now exist in this region but they need to be upgraded. A regional center is being developed at Fanaye. It has an ample supply of representative experimental land but other facilities are lacking. It requires further development of this land and irrigation system, construction of buildings for storage and for machinery maintenance, a minimum of laboratory space, some offices, houses for resident staff and guest living facilities for scientific staff. Improvements to the stations at N'Diol and Richard Toll are also planned.

Sahel Region

The Sahel Region encompasses the Sylvo-Pastoral zone, a belt of Sahelian ecology covering the northern thirdof the country. It is principally a livestock area. A regional center is to be developed at Dahra. This center would be primarily devoted to animal production research. To upgrade the present research station at Dahra will

require a substantial building program and provision of certain equipment.

Casamance

The Casamance region covers all of Senegal below Gambia. It is the most humid region in Senegal and has a large agricultural production potential. This potential is just now beginning to be tapped. Title III funds will be used to upgrade the present research station at Djibelor into a regional center and improve the livestock research station at Kolda.

Senégal Oriental

This region covers most of the eastern third of Senegal, and is sparsely populated area of considerable agricultural potential. Currently there is only one modest research station in this region at Sinthiou Malem, This station is to be upgraded under this funding.

In addition to the development of the research stations mentioned above, this Project will also undertake certain aspects of the construction planned for the new ISRA headquarters complex to be built at St. Louis. Title III funds will be used to build and equip the Socio-Economic Center at ISRA headquarters. Title III funds will also be used for initial personnel and overhead cost associated with the socio-economic research and local-currency operating support of the research programmed under the Agricultural Research and Planning Project 685-0223. The purpose of the socio-economic research will include improving the understanding of present farming systems in the

major agro-ecological zones and of social, economic, and technical constraints on farm-level decision making; recommending improvements to farming systems to make them more productive and profitable; and, recommending guidance of macro-policy and institutional impacts on the development of the crop and livestock subsectors.

II. RELATIONSHIP OF PROJECT TO TITLE III PROGRAM ASSISTANCE USAID ASSISTANCE STRATEGY AND SENEGAL' S FOOD POLICIES.

The Government of Senegal with the assistance of IADS, a U.S. based agency funded by the Rockefeller Foundation, and the World Bank, completed an extensive review of agricultural research in Senegal, and recommended that a six year decentralized research program be developed. The Government accepted the report's recommendations and is presently implementing the planning necessary to carry out the scheme. The Title III funds requested for the Project, herein described, directly support the Government's decentralization of research.

Since Independence, successive Government development plans have insisted on the priority of rural development. The current Fifth National Plan emphasizes more than ever the primary sectors and allocates additional internal budget resources for achieving the goals of:

a. agricultural diversification with concentration on crops which are consumed locally;

b. increased agricultural production; and

c. conservation of natural resources.

The priorities of the AID program in Senegal, as outlined in the CDSS, emphasize assisting the rural poor through rural-based agricultural development. Furthermore, USAID will carry this work out on a sectoral basis rather than in any single geographic region. This Project is directly related to these priorities.

The direct beneficiaries of this Project will be the institutions and agencies in the Government involved in agricultural research and agricultural policy development. The Project will help them improve their ability to carry out their agricultural development objectives. The ultimate beneficiaries will be the estimated 360,000 small farming units directly affected by improvements in technical recommendations and decisions made with regard to the agricultural sector.

III. TECHNICAL AND ADMINISTRATIVE FEASIBILITY

A. Technical Analysis

In order to guide and administer research efforts, the Government of Senegal created SERST in 1979.

Under this administrative structure, the Minister for Science and Technology, who heads SERST, reports directly to the Prime Minister and has responsibility for planning, administering, coordinating, and evaluating nearly all research in the country. The SERST has four main divisions, one of which is the Scientific and Technical Directorate,

which administers the Senegalese research organizations, and includes the Senegalese Institute for Agricultural Research (ISRA), which is charged with overall responsibility for agricultural (both crops and animals) and oceanographic research in the country. Naturally, implementation of this Project will fall under SERST, and specifically with ISRA for the aspect of decentralized research.

In order for Senegal to properly develop its various ecological zones, it must have a base of information on which to proceed and on which to depend for development planning. Essential to the development of information applicable to each zone is the creation within each zone of a research entity capable of performing and documenting research and research results. This Project aims to put in place basic infrastructural and equipment support at three research centers, and four research stations. It will also establish, at ISRA's new headquarters in St. Louis, the infrastructure necessary for the Socio-economic Studies section.

Financing will also be utilized for agricultural policy studies under the direction of SERST. This will yield information vital to agricultural sector planners and policy decision-makers in formulating realistic directions within agriculture and in setting priorities in agricultural research. These studies, while carried out under SERST, will be coordinated and used by other ministries as well, such as the Ministry of Rural Development, the Ministry of Plan, and the Ministry of Finance.

B. Administrative Analysis

See Section I for a discussion of the SERST organization. ISRA, the implementing agency for the decentralized research aspect of this sub-project, is a major component of SERST, and in the decentralization scheme will have its headquarters operation moved from Dakar to St.Louis in Northern Senegal. See Figure 1 for the proposed organizational structure of the ISRA organization.

ISRA is a well administered and effective organization which should have no great difficulty in assuming the administration of the decentralized research scheme. As for the construction element, ISRA already has experience in the contracting procedures established by the Government, and has the technical capacity in its Research Support unit to undertake execution of the bidding and contracting procedures. Most all architectural plans exist as standard types of construction, and the additional plans necessary can be easily obtained from local sources. Construction supervision will be handled by ISRA with assistance from the Ministry of Housing.

ISRA is also well aware of its responsibilities to staff and supports the physical units of decentralized research. In order to assure this staffing, ISRA has established a plan which will serve as the basis for personnel placement under decentralized research. To facilitate staffing centers located in more remote areas, incentive premiums will be offered to researchers at these locations.

Support for ISRA operations is assured each year in an operating budget presented to the Government for approval. ISRA has anticipated its requirements as a result of the demands of decentralized research, and the yearly ISRA budgets will reflect these total requirements.

IV. Financial Plan

A. Explanation of cost elements.

This project will finance construction of ISRA facilities for the new Economics and Sociology Department , for the Farming Systems Department, and for the development of several regional Research Centers. The project also provides furnishings for the facilities and operating costs to support researchers, administration and maintenance. The cost estimates for the construction were developed by the World Bank as part of the IADS/World Bank study of research decentralization. The construction utilizes existing standardized designs which have already been used in Senegal.

Equipment costs are calculated to provide modest furnishing for all facilities. Operating costs developed under this project relate also to the Agricultural Research and Planning Project (685-0223). These costs were calculated to provide operational support for researchers, for administration, and for maintenance of facilities. ISRA will pay the salaries of the researchers, including those trained under the Agricultural Research and Planning Project.

B. Timing

The Expenditure Schedule by Year shows the timing of all construction. This timing is further elaborated in the Implementation Plan, Section V. This timeframe was developed by ISRA with consideration of the overall program to decentralize agricultural research, which is estimated to cost $95 million over the next six years. The Title III design team reviewed this schedule and found

it reasonable in terms of its own internal consistency and in terms of its supplementary relationship to the Agricultural Research and Planning Project and the overall Government plan to decentralize research.

C. Summary Cost Estimate and Financial Plan

($ 000)

1. Economics and Sociology Department		1,640.0
a) Infrastructure		
- Departmental Headquarters at St-Louis	490.0	
- 8 houses for researchers at St-Louis	510.0	
- 1 office at Kolda	40.5	
- 1 office at Dahra	40.5	
- 1 house for researcher at Kolda	63.75	
- 1 house for researcher at Dahra	63.75	
Subtotal		1,208.5
b) Equipment		
furnishings for buildings		
- Headquarters at St-Louis	110	
- Kolda	16.5	
- Dahra	16.5	
Subtotal		143
c) Operating Costs		
- salaries for researchers	ISRA	
- operational support for researchers	178.5	
- maintenance and administration	110.0	
Subtotal		288.5

2. Farming Systems Department .....$ 1,011.5

a) Infrastructure

- offices for researchers:		
1 at Djibélor	20.5	
1 at Kolda	20.5	
4 in Eastern Senegal	81.0	
1 at Dahra	20.5	
1 at Fanaye	20.5	
- houses for researchers:		
1 at Djibélor	63.75	
1 at Kolda	63.75	
4 in Eastern Senegal	255.0	
1 at Dahra	63.75	
1 at Fanaye	63.75	
- Warehouses:		
1 in Eastern Senegal	40.0	
Subtotal		$ 713.0

b) Equipment

Furnishings for above buildings		93.5

c) Operating Costs

	ISRA	
- salaries for researchers	155.0	
- operational support for researchers	75.0	
- administration and maintenance		
Subtotal		$ 205.0

3. Development of Research Centers .....$ 1,302.5

a) Infrastructure

- main offices:		
1 at Séfa	67.5	
1 at Kolda	67.5	
1 at Dahra	67.5	
1 at Richard-Toll	67.5	
- 1 infirmary at Dahra	67.5	
- improvements at centers in Senegal River area	200.0	
- houses for area directors:		
1 at Fanaye	50.0	
1 at NDiol	50.0	
- 8 houses for herders	40.0	
Subtotal		$ 677.5

b) Equipment	125.0	
furnishings for above buildings	500.0	
agricultural materials		
Subtotal		$625.0

4. Subtotal for project $3,954.0

contingency (10%)	395.0
Inflation (10% py)	401.0
TOTAL	$ 4,750.0

D. Expenditure Schedule by Year ($ in thousands)

	Yr 1	Yr 2	Yr 3	Total
1. Economics and Sociology Dept				
a) Infrastructure	$ 581	$ 500	$ 127.5	$ 1,208.5
b) Equipment	-	18	125	143
c) Operating Costs	67.5	97.5	123.5	288.5
Subtotal	$ 648.5	$ 615.5	$376	$ 1,640
2. Farming Systems Department				
a) Infrastructure	$ 396.5	$275.5	$41	$713
b) equipment	22.5	12	59	93.5
c) Operating Costs	45	55	105	205
Subtotal	$ 464	$342.5	$ 205	$ 1,011.5
3. Development of Research Centers				
a) infrastructure	$ 107.5	$ 202.5	$ 367.5	$ 677.5
b) Equipment	162	106.5	356.5	625
Subtotal	$ 269.5	$309	$724	$1,302.5
Project Subtotal	$ 1,382	$ 1,267	$ 1,305	$ 3,954
contingency (10%)	138	126	131	395
inflation (10% py)	-	127	274	401
Project Total	$ 1,520	$1,520	$ 1,710	$ 4,750

V. Implementation Plan

A. Schedule of Activities

March 1980	Project Agreement signed
May 1980	Site selection for construction
June 1980	Request for bids for construction design Request for bids for commodities
July 1980	Suppliers selected for commodities
August 1980	Contractors selected for construction design. Commodities ordered
October 1980	Contract let for construction design
November 1980	Commodities received
December 1980	Completion of construction design
January 1981	Request for bids for construction
February 1981	Mid-year review
March 1981	Contractors selected for construction Requests for bids for 2nd phase construction
May 1981	Contracts let for construction Contractors selected for 2nd phase construction
August 1981	Contracts let for 2nd phase construction First Annual report
November 1981	Commodities ordered
February 1982	1st phase construction completed Commmodities received
May 1982	2nd phase construction completed
August 1982	Contracts let for 3d phase construction Second annual report Commodities ordered

May 1983	3rd phase construction completed Commodities received
August 1984	End of Project - Final Report - Evaluation

B. Coordination of Activities

The responsibility for implementation of the project will lie with the Director of ISRA under the general authority granted him through the Minister for Science and Technology (SERST). Construction will be implemented following normal Government of Senegal contracting and supervisory procedures. These procedures involve the solicitation of bids and competitive selection of construction inspection under a national service.

ISRA has a Research Support Services Department which assists in the administration of its research facilities. Under the reorganization plan of ISRA a Technical Support Unit will be established in this department to implement civil works and provide architectural and engineering reviews. This unit would include an architect, an engineer, and supporting staff. If this unit is functioning at the time project implementation starts, it will provide construction design and supervisory services; if not, these will be provided by other Government services or contracted. Anyway, ISRA proposes to use standard design plans which have been used elsewhere in Senegal so that major design will not be needed. Design plans will be reviewed by the Management Commission and USAID prior to the solicitation of bids.

The procurement of equipment and supplies under this project will also be managed by the Research Support Services Department

under the supervision of the departmental head and the Director of ISRA. The equipment and supplies are available locally and will be purchased following standard Government procurement practices. Each component order will be approved by the Director of ISRA and the Management Commission..

2. Coordination of Implementation

While ISRA will be responsible for all implementation actions, SERST and the Management Commission will coordinate and monitor project implementation. According to normal operating ~~procedux~~ practices, each project action will be described in regular correspondance sent to SERST by ISRA. A copy will be forwarded to the Management Commission. Regular project reporting will use a standard Government progress report format. Monthly reports will cover commodity shipments and fund generation and quarterly reports will review project implementation and disbursements. USAID staff, particularly the Engineer, Controller and Agricultural Officer will assist in technical monitoring and will review implementation progress monthly.

V. Evaluation Plan

A. Description of Plan, Timing and Scope

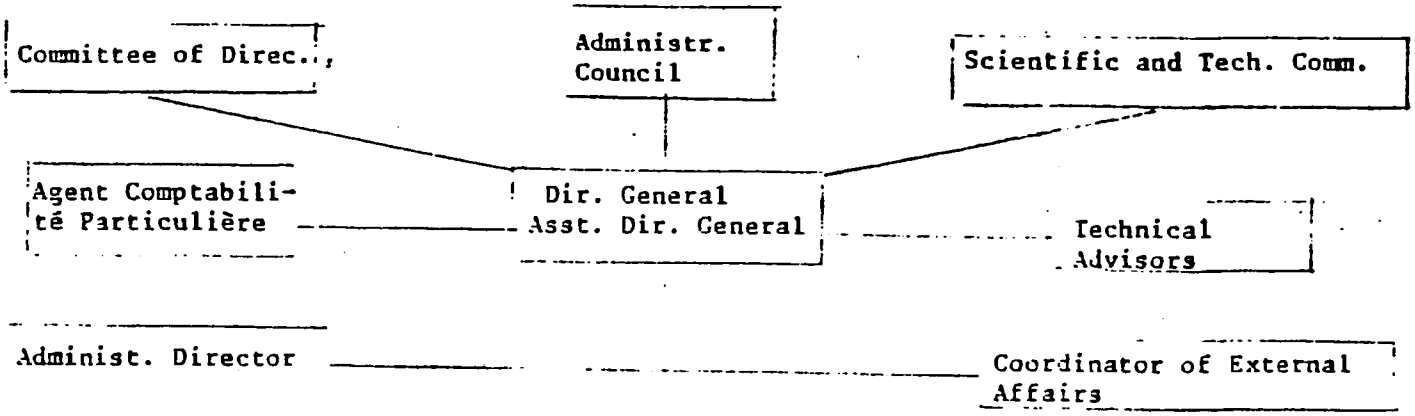
The evaluation under this project will need to concern itself with three elements: first, progress in construction and equipment purchase will have to be evaluated against the scheduled timing presented in section IV. Verification of these elements can be obtained through

the Administrative Control Section of ISRA which has responsibility for maintaining records on these type activities.

Secondly, evaluation of the research underway and improvements in research resulting from upgrading of the research centers will have to be undertaken. It will necessarily be a subjective analysis which could reveal trends in the improvement of research, but which in the short course of three years cannot show definitive indications. Within ISRA, there is a Scientific and Technical committee which has responsibility for evaluating research underway, and which will be the office within ISRA principally concerned with gathering information on the effectiveness on the research being performed at the research stations.

Thirdly, the evaluation under this project will need to be concerned with the adequacy of the level of overhead and personnel support financed from Title III to the Socio-Economic Section. These overhead and personnel levels should be adequate to assure the proper implementation of the Agricultural Research and Planning Project 685-0223.

Figure 1: Proposed Organization of ISRA Headquarters



CROP SCIENCE	ANIMAL SCIENCE	FARMING SYSTEMS	NATURAL RESOURCES	ECONOMICS & SOCIOLOGY	RESEARCH SUPPORT SERVICES
- Cereal Crops	- Animal Health	- Farming Systems Fanaye Bambey Kaolack Djibélor	- Oceanography and Fisheries	- Macro-Economics+	- Technology Transfer and Training
				- Farming Systems Support Unit + a) production economists b) sociologists	- Manpower Development
- Industrial Crops	- Livestock Systems northern eco-zone				- Experiment Station Development and Management
- Diversification Crops	- Livestock Systems southern eco-zone	- Support Research Fanaye Bambey	- Forestry		- Central Laboratories
- Horticultural Crops					- Information & Publications
					- Statistics & Data Processing
	- Livestock Systems Intensive Production				

+: Proposed USAID assistance in the Economics & Sociology Dept

RURAL TECHNICAL SCHOOLS

1. Project Description

A. Purpose

The purpose of this project is to increase the efficiency and efficacy of Senegalese development agencies and technical services working in rural areas. By providing important assistance to two Senegalese rural technical training schools for upgrading facilities, purchasing equipment, improving curricula, and supporting operations, this project will help establish sufficient numbers of adequately trained middle-level technicians who staff the rural development agencies and technical services which serve the rural population.

B. Background

1. Role of Rural Technical Schools

The rural technical schools in Senegal are the country's principal source of rural development technicians. Over 90% of Senegal's extension, cooperative, agricultural, livestock and forestry service technicians are graduates of these schools. Professional technical training at the higher and middle levels is the responsibility of the Minister of Higher Education. The Ministry directs three training institutions. The Rural Development Institute (l'Institut de Développement Rural) provides training comparable to BS and MS levels for senior agricultural technicians. The National School for Applied Economics (l'Ecole Nationale d'Economie Appliquée) trains middle-level personnel in land-use planning, animation, cooperative administration, planning, statistics and practical intermediate-level education. The National School for Rural Technical Personnel (l'Ecole Nationale des Cadres Ruraux) trains middle-level personnel for the agricultural, livestock and forestry services.

The Rural Development Institute is being expanded and upgraded under an ongoing project. The World Bank is financing construction and basic equipment as part of that project. On the other hand, the two middle-level training schools, National School of Applied Economics (ENEA) and National School for Rural Technical Personnel (ENCR) face continuing problems because of dilapidated facilities, lack of equipment, and lack of support for practical field applications. They are not being assisted by any major on-going project. This project addresses the middle-level manpower constraints to accelerated rural development by funding improvements at ENEA and ENCR.

2. History

The National School of Applied Economics (ENEA) was founded in 1963 with the aim of training middle-level development agents. The ENEA training program is inter-disciplinary with emphasis on rural development. The two and three-year training cycles are based on the need to produce skilled development agents who have a concrete understanding of the rural milieu, its systems of production, and its ecological and socio-cultural foundations. As part of their training, ENEA students also work in villages to analyze and research local development problems.

As of 1979, ENEA had graduated 631 development technicians. The distribution of areas of training is as follows:

Community development	114
Land-use planning	97
Cooperation	182
Planning	153
Statistics	85

Over 84% of these agents have continued in the Government agencies for which they were trained: Human Development, Land-use Planning, National

Cooperative Development, Rural Development, Plan and Cooperation, and Regional Development Agencies. AID has had direct contact with many of the administrative field workers who have been graduated from ENEA and finds that they are well-motivated, well-trained and, most important, appear to have been largely accepted by the rural population with whom they work.

The National School for Rural Technical Personnel (ENCR) was founded in 1960 to train technicians for the agricultural, livestock and forestry services. The training cycle was extended from 2 to 3 years in 1971, and in 1977 the practical training program was strengthened by requiring 4 months of fieldwork away from the school. This fieldwork places the students in direct contact with the rural milieu and with their future professional roles.

Since its founding, ENCR has trained 525 technical specialists in five areas. The distribution is as follows;

Water and Forest Service	99
Livestock Service	110
Agriculture Service	288
Rural Engineering Service	18
Fisheries Service	10

Training of engineers and fishery specialists was discontinued in the early 70's and moved to another location. The importance of ENCR is apparent when one considers that 17 of the 24 regional directors of the agricultural, livestock and forestry services, and that 73 of the 81 sub-regional or departmental directors, are ENCR graduates. Graduates of ENCR also direct many activities of the Regional Development Agencies and the Senegalese Agricultural Research centers.

3. Present Situation

ENEA is presently staffed by 18 full-time professors, 80% of whom have university or post-graduate qualifications and half of whom are Senegalese.

ENEA also uses outside lecturers and consultants for special courses and seminars which are held at the school. The present full time enrollment is about 160 students, a hundred of which live at the school. The number and type of specializations offered are determined by specific requests made by the Ministries and RDAs served by ENEA.

Recruitment for the school occurs every three years for inspectors, statistics engineers and education specialists and every two years for the technical agents. ENEA has considered extending the training cycle of technical agents to three years but has not done so because of the pressing need for these agents. Eighty percent of the students are recent school graduates, at the BEPC level (17-26 years old) for technical agent studies, and at the Baccalaureat level (18-26 years old) for engineer and inspector studies. Candidates must pass a written exam and be selected by the National Orientation Commission. The remaining 20% are recruited among mid-level civil servants with at least 4 years of on-the-job experience. These candidates must also pass a written examination and be selected by the National Orientation Committee.

The directly recruited students (80%) are provided scholarships and must sign an agreement to work for the Government for 15 years after completing their studies. They cannot change their areas of specialization without the specific authorization of the Minister of Higher Education. The civil servants (20%) continue to draw their salaries and are placed back in their respective services after graduation.

The training strategy of ENEA is to alternate theoretical background in the classroom with practical work in rural areas. A considerable amount of the work is carried out by groups in seminars and interdisciplinary teams. The fieldwork is done in cooperation with local Governmental organizations requesting

interns. The interns collect information on historical, social, economic, organizational, fiscal, and political aspects of an area and develop this into monographs and project suggestions that assist the Government of Senegal in defining and promoting development policies and projects.

ENCR is supposed to have a staff of 10 full-time professors, 10 visiting teachers, and 2 field instructors, but presently has only 6 full time and several temporary professors. Under Decret No. 77-016 which established the present structure of the school, the full time teaching staff are to come from professors under the Ministry of Higher Education who are assigned to ENCR and the temporary staff from professionals in the agricultural, livestock and forestry services who are assigned to teach the courses of specialization. In fact, a manpower shortage in the Ministry of Higher Education and the technical services has resulted in many unfilled teaching positions at ENCR as well as the closing of the forestry section for several years. Some of these positions are filled through French technical assistance, but some still remain vacant.

The present enrollment of ENCR is about 120 students, substantially less than the 150 student capacity of the school. This less-than-capacity enrollment is due to the lack of professors and equipment at the school. There is a continuing demand from the technical services for graduates, but ENCR is currently unable to meet the demand.

The number and type of specialization are determined by Ministry and Rural Development Agency requests in the same way as they are done for ENEA. The admission procedures for ENCR are also similar to those of ENEA with 50% of the students entering as recent high school graduates through competitive examinations; about 20% enter after having worked in Government Civil Service at least

4 years. After passing the examination students are selected by the National Orientation Committee. Scholarships are given to the students just entering government service and those already in government service continue to receive their salaries while at the school.

The training program of ENCR attempts to combine the theoretical with the practical and therefore uses classroom studies as well as practical field work in the teaching program. During the first year all students are enrolled in a core curriculum which includes public laws, agricultural and animal sciences, rural economy, general economics, development planning, statistics, ecology, management science, and research methods. Second and third year studies include courses and field work in an agricultural, livestock or forestry specialization. As with ENEA, all graduates of ENCR are obligated to government service for 15 years after completing their studies.

4. Relationship to Food Production and Rural Development

A manpower constraint is visible throughout Senegal's rural development system. This constraint is particularly acute at the middle-level where a large number of trained Senegalese technicians are needed to directly interface with the rural population to plan, implement and evaluate agricultural and rural development programs.

A 1978 CILSS study showed the large short-term (1981) need for technicians as follows:

Short-term Requirements for Agricultural Technicians 1/

Position level	Presently available	additional requirements by 1980-81
Agronomists (Ingénieurs Agronomes) (BS and MS levels)	43 Senegalese 59 Expatriates	+ 108 Senegalese
Senior Technicians (Ingénieurs des Travaux)	218	+ 98
Mid-level Technicians (Agents Techniques)	542	+ 727

Senegal is currently assessing longer-term needs. The Government plans for the decentralization of agricultural research, and the intensification of development efforts in the Senegal, Gambia and Casamance River basins underline the future need for considerable numbers of agricultural technicians. The requirement for technicians is not limited to providing additional bodies. It is essential that the new technicians be well-trained and that existing technicians have the opportunity to upgrade their skills and to become familiar with changing practices in dry-land agriculture, in range management, and in economic and social variables of farmer acceptance. Greater knowledge of irrigated agriculture is also required to insure effective utilization of the infrastructure now being developed. As ENEA and ENCR are the two mid-level institutions that train the technicians who staff regional and local development organizations, support to upgrade their training is vital to relieving manpower constraints and to implement effectively food production and rural development programs.

5. Planned Changes

ENEA occupies an old army base built in 1934 in the suburbs of Dakar.

1/ CILSS/USAID/BIT report, "Besoins en Formation des Cadres des Niveaux Supérieurs et Moyens dans le Domaine des Activités Rurales durant la Période 1978-1982". April 1978.

Much of the 9,000 hectares which comprised the army base have been taken over by the Senegalese housing authority (SICAP), but ENEA retains ownership of about 20 hectares. However, one school dormitory is located at the far end of the campus on land now owned by SICAP and is to be demolished. The remainder of the buildings are structurally sound but have been poorly maintained. To continue its training program ENEA needs a new dormitory and renovation of existing dormitories and classrooms. To activate the training unit for education specialists, to increase student capacity and to upgrade its teaching program, ENEA requires a new teaching unit/documentation center and new equipment. All these requirements are addressed by this project.

ENCR is located in Bambey on a campus with dormitories, classrooms, teacher housing and office space for a capacity of 150 students. The 22 hectare site has ample area for practice and demonstration fields. The infrastructure is adequate but is presently underutilized because of a lack of teachers, of laboratory and field equipment, and of vehicles for supporting the practical field work interships in rural areas of Senegal. A joint Franco-Senegalese review of ENCR teaching needs has resulted in increased French and Senegalese Government support for ENCR professors. A group of forestry students have been recruited and are studying the core curriculum this year. The forestry section of the school will have to be activated by November 1980 to accomodate these students. The joint Franco-Senegalese teaching assistance will insure that professors are available for the section.

C. Description and Project Inputs

ENEA improvements will consist of the renovation of 3 dormitories and 2 teaching units and the construction of 1 dormitory and 1 teaching unit/documentation center. The new dormitory will have the capacity for 70 students and

will replace existing dormitories which are going to be demolished.

Title III project funds will finance the renovation and construction. ENEA will receive additional government funds to finance equipment and maintenance of the new and renovated facilities.

ENCR improvements will consist of expanded teaching staff, infrastructural development, equipment and operating support. France is expected to modestly expand current technical assistance to support several additional teachers at the school. The Government of Senegal will maintain its support for teachers and other school operating costs which are not covered by French technical assistance or by this project. The Title III project will finance equipment, minor infrastructure, and some operating costs for field training and practical interships. Funded under this project will be teaching aids and equipment for each of the school's sections (agriculture, livestock and forestry); fencing and infrastructural renovations for each of the agricultural, livestock and forestry divisions of the school farm; vehicles and equipmen for the offsite practical internships; operating costs to include fertilizers, seed, gasoline and other maintenance costs. A detailed description of each cost element is provided in Section IV, the Financial Plan.

II. Relationship of Project to Title III Program Objectives, USAID Assistance Strategy and Government of Senegal Food Policies

A. Project Relationship to Program Objectives

Support to ENEA and ENCR appears the most effective means of increasing the efficiency and efficacy of Senegalese development agencies and technical services working in rural areas, since these two institutions are the primary source of staff for these organizations. Presently, funds

for assisting these schools are unavailable from other sources. For higher-level training, the World Bank is supporting infrastructure development of the Rural Development Institute and the Canadians are funding an engineering university, but no donor is directly addressing middle-level training as provided by ENEA and ENCR.

The priorities of the USAID program in Senegal, as outlined in the CDSS, emphasize assisting rural poor through rural-based agricultural development. This project directly promotes the CDSS and CILSS goal of promoting human resource development particularly in the area of middle-level planning, implementation and management of rural development projects. Because of the important role of ENEA and ENCR graduates in directing rural development programs, the project also promotes other CDSS rural development objectives.

B. Beneficiaries

The immediate beneficiaries of the upgraded training programs at ENEA and ENCR will be the students involved in the training. The ultimate beneficiaries will be the Senegalese farmers, who are the primary justification for the project. The technicians trained at ENEA and ENCR will serve both as trainers and supervisors of other agents and as direct technical advisors to farmers.

The small farmers of Senegal will be the prime beneficiaries since 95% of Senegal's agricultural production comes from farms of 3 to 10 hectares. These farmers are at the center of the cooperative system, rural development centres, and other government programs at the village level. Women will also benefit from the project. First, school admission is not restricted to males, and female rural technicians are being trained. Second, government technical assistance to women, earlier devoted to areas of health and literacy, is

expanding into areas of economic possibility like vegetable production, marketing, poultry, sheep raising, etc.

III. Technical and Administrative Feasibility

A. Technical Analysis

1. Description of Approach

In line with the project purpose of increasing the effectiveness of Senegalese development agencies and technical services working in rural areas, project planning viewed constraints to the operation of these agencies and services and found the manpower constraint to be a vital area. Furthermore, the manpower constraint was strongest at the middle-level where agents are trained by these rural technical schools. The training programs of ENEA and ENCR were found to be well structured but operating with reduced effectiveness because of poor facilities, equipment and operating support. This project addresses these areas as the most effective way of improving the quantity and quality of trained middle-level rural development agents.

2. Justification

ENEA facilities are structurally sound but in need of renovation. The planned renovation is only the minimum necessary to restore the school infrastructure to a healthy and safe level. The construction of a new dormitory will replace the dormitory to be torn down by SICAP and is essential to maintain the current level of enrollment. The construction of a new teaching unit and documentation center is required to allow full operation of the practical intermediate education unit which is not fully operational because of the lack of facilities. Thus, the project will result in a better quality teaching environment for training ENEA students and an expansion of ENEA to

provide more practical intermediate education specialists.

ENCR, on the other hand, has adequate infrastructure but lacks equipment for all teaching units, for fieldwork at the school and for the practical internships in other geographical areas. However, in order to function effectively, the school also requires teaching aids, laboratory and field equipment, vehicles and other supporting materials. These material needs are vital to the school and are not being addressed by another source. They are improvements necessary to support high quality teaching to a capacity enrollment and to provide for proper use of the fieldwork and practical internships components of the teaching program.

B. Administrative Analysis

1. Description of Organizations

ENEA is officially defined as an establishment for advanced professional education with the role of training middle-level agents in the fields of land-use planning, rural community development, cooperation, planning, statistics, and practical intermediate education. ENEA also provides continuing training for Government officials by organizing internships, seminars, refresher courses, and exchange programs.

The Director of ENEA is Dr. Cheikh Tidiane Sy. He is assisted by a Director of Studies (Directeur des Etudes et des Stages). The school is governed by a Board of Directors (Conseil de Perfectionnement) of which the Minister of Higher Education serves as President. Members of the Board include the President of Senegal, the Prime Minister, the Ministers of Finance, Rural Development, Human Development, and the Directors of the various ministerial departments directly concerned with the subjects taught by the school (planning, statistics, land-use planning, etc.) and the ENEA Director and

Director of Studies. The Board of Directors meets annually, normally in March. The Board is responsible for all matters concerning the school, the budget and its management, teaching methods, teaching organizations, and exams. The Board also acts as a coordinating body for assisting the Director of Studies in placing all students in appropriate jobs after the completion of their studies.

Two other Councils are responsible for specific aspects of the school's daily activities. The Council of Professors includes the Director and all the teaching staff and coordinates the teaching program and proposes changes or improvements to the Board of Directors. The Council of Discipline includes teaching staff representatives and present and former students and handles any disciplinary problems which may arise.

ENCR is likewise officially defined as an institution for advanced professional education with the role of training middle-level agents in the fields of agriculture, livestock and forestry. The school also arranges refresher training, seminars, and exchange programs for existing government agents in these fields.

The organizational structure of ENCR parallels that of ENEA. The Director, Hamidou Bocoum, is assisted by a Director of Studies in administering the school. A Board of Directors under the presidency of the Minister of Higher Education governs the school. This Board includes the President of Senegal, the Prime Minister, the Regional Governor, the Director of the Services for Agriculture, Livestock, Forestry and Agricultural Research, the Director of ENCR and the Director of Studies. The responsibilities of this Board are the same as those of the ENEA Board of Directors, and ENCR also has a Council of Professors and Council of Discipline with the

responsibilities described above for ENEA.

2. Evaluation of Organizational Capacity

Funds made available to ENEA and ENCR under this project will be administered by the Director of each school in accordance with the authority granted them by the Minister of Higher Education and under the guidelines established by the Minister and by this project.

ENEA already manages an annual operating budget of $200,000 plus numerous supplementary accounts for short-term training, infrastructure improvements, and contract services. The existing accounting and reporting systems are adequate. The Director, Dr. Cheikh Tidiane Sy, is a former ENEA professor who has studied in the U.S. and who has worked as a consultant to AID/W on human resource problems in Sahelian West Africa. Under the direction of Dr. Sy and his assistant, the Director of Studies, ENEA has been efficiently and effectively managed. ENEA has the administrative capacity to effectively implement this project.

ENCR has an annual operating budget of about $170,000 and adequate accounting and reporting procedures already in place. The Director, Hamidou Bocoum, has a strong technical background in agricultural sciences and formerly served as Livestock Service Director in the Fleuve Region. Since becoming Director in September 1977, Mr. Bocoum has, with the assistance of the Director of Studies, effectively managed ENCR. ENCR, likewise, has the administrative capacity to manage this project.

3. Project Impact on Administrative Capabilities

As both ENEA and ENCR have ample administrative capability to manage this project there will be no adverse administrative effects nor a need to provide additional administrative resources. The construction and renovation

work at ENEA will be done under contract and managed in the same manner in which other work at the school has been managed. The improvements to facilities at ENCR are straightforward involving no engineering design, and the needed equipment can be purchased locally following normal government procurement practices.

IV. Financial Plan

A. Explanation of cost elements

ENEA construction estimates are based on an analysis of estimated size and structure of the proposed dormitory and teaching unit/documentation center. The dormitory is expected to have a capacity for 70 students. A proposed design for the building is one which is now being constructed as a dormitory at the University of Dakar. Construction is estimated to cost $700,000. Construction of the teaching unit/documentation center will also cost approximately $700,000.

Renovations to improve the safety and sanitary conditions at the school will cover the classroom and offices for the teaching units as well as the conference room and administrative offices. The renovations will be masonry work to repair cracks and deteriorated surface areas in the concrete structures; modernization of the electrical and plumbing system; repair and/or replacement of broken windows, doors and other hardware; and interior and exterior painting. Total estimate costs of these renovations is $240,000.

ENCR assistance consists of equipment and materials for each of the three units of the school. This list was developed by ENCR as part of the Title III design effort. The prices are local currency costs of the equipment and materials in Senegal calculated at 200 CFA per U.S. Dollar.

Itemized Commodity Costs for ENCR

A. First year costs

1. Agriculture Unit

a) Teaching Materials

1 Drying cupboard	$ 2,300
1 ipidiascope	3,100

b) Major Equipment

1 hammer-mill reaper	3,700
1 motor pump	4,000
1 small power-driven Bouyer-SISCOMA	39,000
1 peanut lifter - SISCOMA	5,000
1 western hoe - SISCOMA	90
1 planter Eco. SISCOMA	180
1 polycultivator with bar tools-holder	2,300
1 Arara lifter with 3 blades	50
1 pair trained oxen	500
2 plough horses	470
1 manure spreader	470
Total for unit	$ 61,160

2. Livestock Unit

a) Teaching Materials

2 slide projectors	$ 2,300
2 projection screens	580
1 microscope, large size	3,000
50 student microscopes with 3 lenses	60,000
50 insect collection boxes	1,500
250 specimen bottles	2,700
various dyes for slide preparations	5,500
1 precision microtome	1,200

b) Laboratory Materials and Fieldwork Instruments

4 laboratory microscopes	18,400
2000 razor blades	190
2 balances with weights	1,350
3000 lamellas	310
1 refrigerator for biological products	1,000

12 CLAMP forceps (different sizes)	100
12 PEAN forceps (different sizes)	100
12 KOCHER forceps (different sizes)	110
2 heart-shaped forceps	190
2 T forceps	90
2 needle-point forceps	80
12 dissection forceps	210
12 rat-teeth forceps	290
1 polype forceps	230
6 hemostatic forceps	300
6 rennets (different sizes)	130
1 souding line	40
1 metal sounding line	90
12 sounding "carenas"	110
2 Tetonomes	70
2 saw-files	20
1 pair of handles for files	60
4 sounding trays (diverse)	10
4 stethoscopes	280
2 Trocars	100
2 Trocars coecum	60
Total for unit	$100,700

3. Forestry Unit

a. General Equipment

3 steel measuring tapes for distances up to 20 meters.	$ 440
2 steel measuring tapes for up to 50 meters.	400
2 levels Wild N 2 with tripod	5,700
4 target levelling rod	2,370
8 sighting marks	180
- Tropical wood collection	
Audio-visual equipment (7 films on:	
- forests, life and exploitation	1,050
- protection and restoration of soils	
- erosion	
- reforestation	
- brush fires	
4 drawing tables UNIC 150 X 150	6,700
2 Wild Theodolite T1 with tripod	16,000
1 Tacheometer Wild R.D.S with equipment	6,400
1 card index file	30
5 plomb lines, 6 leveling balls	150
2 sighting bars and 3 declinatories	1,000
Total for Unit	$ 41,140
Total for Year 1	$ 203,000

B. Second Year Costs

1. Agriculture Unit

a) Teaching Materials

1 collection of slides for vegetable production courses: plant protection, vegetable parasites, animal parasites	$ 60
1 microscopic slides for courses on vegetable production and plant protection	60
1 miniature explosions motor, 4 times	160
1 miniature electrical motor	120

b) Laboratory Materials

1 water bath with thermostat control	
4 pipettes with holder and 4 decanting baccarate	$ 21,000
20 gallons of Thimal 35	550
20 gallons of Zithiol	960
100 kgs of Zinosan	480
100 kgs of Cuprosa	450
20 gallons of Lindamal	340
- phytosanitary products for agricultural campaign	180
- purchase of vegetable seeds	60
- package of seed potatoes	60
- string, wire, miscellaneous metal items	120
5 kg wind shield supports	90
1 plastic tape for nursery breeding-bags (20 meters)	60
Total for Unit	$ 24,750

2. Livestock Unit

a) Conference Room Equipment

4 air-conditioning units	$ 4,210
- room equipped for projection	5,350
- screen	290
- slide projector - fixed slides	1,170
- movie projector - fixed films	8,190
- Epidiascope (equipment opert from room)	3,150
- Tape-recorder	2,400

b) Laboratory and Fieldwork Materials

2 cameras equipped for micro-photography	$ 6,800
6 straight scissors	215
6 curved scissors	215
2 cast-cutting shears	130
straight scapels	140
curved scalpels	140
2 ruminant trocars	50
1 "Pas d'âne chiens"	90
20 medical thermometers	80
3 med-sized mortar and pestle sets	170
1 electrical needle	140
3 instrument boxes	120
8 instrument trays (various sizes)	230
1 Rayman forceps	310
1 tweezers	20
- Burdizzo forceps: s.s. 1	160
m.s. 1	180
l.s. 1	310
1 chassaignac retractor	310
1 horse-tail cutter	310
1 dog-tail cutter	100
4 knives for autopsy	280
1 Spaniel (chain, key and cord)	500
2 long trays	160
200 plastic gloves	90
20 latex gloves (varying sizes)	120
10 "delivery" gloves	250
2 graters	230
- nylon suturing cord (assorted)	
- catgut suturing cord (assorted)	$ 1,080
- roles of gauge	170
- Leather of Florence (assorted)	50
- Compresses	170
- Absorbent cotton	100
- Animal bandages	100
- rubber apron	210
- Speculum P.A.	130
- Speculum G.A.	260
- Workman washbasins: P.M. (4)	130
M.M. (4)	130
G.M. (4)	130
- Sheets of sange: right (4)	90
Left (4)	90
double (4)	90
- Antiseptics	150
- suture clips	30
Total for Unit	$ 39,410

3. Vehicles

2 buses with seating capacity for 25	$ 80,000
1 station wagon	$ 10,000

spare parts for vehicles	10,000
Total for Vehicles	$ 100,000
Subtotal for year 2	$ 164,160
contingency (10%)	16,420
inflation (10%)	16,420
Total for Year 2	$ 197,000
Total funding for ENCR	$ 400,000

B. Timing

Construction of the dormitory for ENEA will be started in the first year of Title III funding. Construction of the teaching unit/ documentation center will begin in the second year and the renovations during the third year. All construction and renovations should be implemented as shown in Section V, Implementation Plan, and be completed by the end of the third year of the project.

The equipment and materials required for ENCR will be purchased in two installments approximately half in the first year and half in the second year of implementation. The timing of commodity purchases, as depicted in the Implementation Plan, is calculated so that the materials will be available at the start of the school year in mid-November.

C. Summary Cost Estimate and Financial Plan

ENEA

1. Construction of dormitory	$635,000	
contingency (10%)	65,000	
		$ 700,000
2. Construction of teaching unit/ documentation center	$584,000	
contingency (10%)	58,000	
inflation (10%)	58,000	
		$ 700,000
3. Renovations	$ 185,000	
contingency (10%)	18,000	
inflation (10% py)	38,000	
		$ 240,000
Total Funding for ENEA		$1,640,000

ENCR

1. Agriculture Unit		
year 1	$61,160	
year 2	24,750	
inflation	2,480	
contingency	2,480	
		$90,870
2. Livestock Unit		
year 1	$ 100,700	
year 2	39,410	
inflation	3,940	
contingency	3,940	
		$147,990
3. Forestry Unit		
year 1	$ 41,140	
		$ 41,140
4. Vehicles	$ 100,000	
inflation	10,000	
contingency	10,000	
		$ 120,000
Total Funding for ENCR		$400,000

D. Expenditure Schedule by year

Component	Year 1	Year 2	Year 3	Total
Construction ENEA dormitory	$ 700,000	-	-	$700,000
Construction ENEA teaching unit/documentation center		$700,000		700,000
Renovation ENEA			$ 240,000	240,000
Materials and equipment ENCR	$ 203,000	197,000	-	400,000
Total	$ 903,000	$ 897,000	$ 240,000	$ 2,040,000

V. Implementation Plan

A. Schedule of Activities

The following plan and schedule are proposed for project implementation:

March 1980	Project Agreement signed
May 1980	Site selection for construction (ENEA) Requests for commodity bids made (ENCR)
June 1980	Request for bids for design of construction (ENEA)
July 1980	Suppliers selected for commodities (ENCR)
August 1980	Contractors selected for construction design (ENEA) Commodities ordered (ENCR)
October 1980	Contract let for construction design (ENEA)
November 1980	Commodities received (ENCR)
December 1980	Completion of construction design (ENEA)
January 1981	Request for bids for dormitory construction (ENEA)
March 1981	Contractor selected for dormitory construction (ENEA)
April 1981	Start construction of domitory (ENEA) Request for 2nd yr commodity bids (ENCR)
June 1981	Request for bids for teaching unit construction (ENEA)
July 1981	Suppliers selected for commodities (ENCR)
August 1981	Commodities ordered (ENCR) Contractors selected for teaching unit construction (ENEA)
October 1981	Contract let for teaching unit construction (ENEA)
November 1981	Commodities received (ENCR)

May 1982	Completion of dormitory construction (ENEA)
June 1982	Request for bids for renovations (ENEA)
August 1982	Contractor selected for renovations (ENEA)
October 1982	Contract let for renovations (ENEA) Completion of teaching unit construction (ENEA)
April 1983	Completion of renovations (ENEA)

B. Coordination of Activities

1. Responsibility for Implementation

The responsibility for implementation of the improvements at ENEA and ENSR will be with the respective Directors of these schools under authority granted by the Ministry of Higher Education. Construction at ENEA will be implemented following normal Government of Senegal contracting and supervisory procedures. These procedures involve the soliciting of bids and competitive selection of contractors under a national commission and supervisory engineering and construction inspection under the national construction service.

The procurement of equipment and supplies under this project will also be managed by the director of each school in line with the financial plan. The equipment and supplies are available locally and will be purchased following standard government procurement practices. Each [illegible] will be approved by the Ministry of Higher Education and the Management Commission.

2. Coordination and Monitoring of Implementation

While the Directors of the schools will be responsible for all implementation actions, the Ministry of Higher Education and the Management Commission will coordinate and monitor project implementation. According to normal school operating policies, each project action will be a subject of correspondence, meaning that a letter will be sent to the Ministry of Higher Education describing the action. A copy will be forwarded to the Management Commission. Ministry level coordination is assured each month since the directors of all institutions and divisions of the Ministry meet

the first of each month for a coordination meeting (Réunion de Coordination). Regular project reporting will use a standard government progress report format (Rapport de la Cellule). This report is updated following any project activity and will be sent regularly to the Minister of Higher Education and the Management Commission. USAID staff, particularly the Food for Peace Officer, Engineer, Controller and Human Resources Development Officer, will assist in the technical monitoring of the project.

VI. Evaluation Plan

A. Description of Overall Evaluation Plan

1. Project evaluation will occur at three levels: (1) implementation efficiency and effectiveness; (2) achievement of project purpose and (3) achievement of program purpose. At each of these levels the evaluation will present a measurement of progress toward planned targets, a determination of why the project is or is not achieving planned targets, and a determination of the continuing relevancy of the project.

Evaluation of implementation efficiency and effectiveness will be straightforward. For the preparation of this project substantial baseline data has been collected on the existing state of infrastructure, equipment teaching staff, curricula, etc. at each school. Planned projects inputs and timing are detailed in the Financial and Implementation Plans. Normal project monitoring and reporting will supply the information necessary to measure implementation progress and evaluate this progress against planned targets.

Evaluation of project purpose achievement will be more difficult since this project is primarily an institution-building effort with mostly qualitative outputs. However, certain measurements of improved training and

improved job performance of ENEA and ENCR graduates will be possible. First, a quantitative output will be the effective utilization of all training facilities at full capacity in line with the training strategy of each institution. Project implementation reporting will show increases in the number of students by specialization and changes in student participation in various components of the training program, particularly fieldwork at the schools and practical internships away from the schools.

Second, professor evaluations of student progress will provide a measure of the qualitative input of the project on the teaching program. Such assessments are a regular requirement at the schools.

A key assumption of the project is that improved training quality will result in improved on-the-job performance of agents and therefore, improved rural productivity. Project evaluation will not be able to effectively examine this assumption as agents trained after the school improvements will not be placed until after the project has ended. Even then, measurement of changes will come only from qualitative information and from macro-economic data on overall agricultural productivity and production. One should remember, however, that the Title III Program and particularly the support to decentralized research will play an important role in developing Senegalese capacity to more effectively collect and evaluate socio-economic data on rural productivity and agricultural production.

Evaluation at the third level, program purpose, will combine the evaluations of all component projects to assess the overall impact of the Title III effort. The information collected and assessments made for this project to evaluate implementation effectiveness and achievement of project purpose will contribute to the overall evaluation.

2. Timing and Scope of Evaluations

The timing and scope of the evaluations will be structured to correspond to Title III Program requirements. The Management Commission with USAID assistance will coordinate evaluations which will include a first-year mid-year review, annual reports and an end-of-project evaluation. The mid-year review will be an implementation status report while the annual reports will include an analysis of achieved versus planned implementation, recommendations concerning project continuation and/or desired changes to improve implementation. The end-of-project evaluation will fully regard the three levels of concern presented above in the description of the overall evaluation plan.

B. Execution of the Evaluation Plan

1. Implementing Agency Role

The primary role of ENEA, ENCR and the Ministry of Higher Education in the execution of the evaluation plan will be the timely completion and submission of the project reports described in Section V.B. The reports will be the basis for the mid-year review and the annual reports on project implementation. These institutions will also be responsible for providing other project-related information requested by the Management Commission and assisting in the execution of project evaluation.

2. Management Commission Role

The Management Commission role is one of monitoring, reporting and program coordination. The Management Commission will complete the mid-year and annual reports required under Title III and will coordinate project and program evaluations. It will have program level liaison and coordination responsibilities among the government ministries involved. Coordination

of ENEA and ENCR projects within the Ministry of Higher Education will be the responsibility of the Ministry.

3. USAID Role

The USAID function will be to serve as general USG project monitor to insure proper project implementation and disbursement. USAID technical staff will review construction plans, financial reports, and technical activities to assure that project implementation is progressing in line with the project plan. USAID will also participate in the evaluations to be conducted under Title III.

REFORESTATION AND DUNE FIXATION

I. PROJECT DESCRIPTION

A. Purpose

This 3-year, $6.9 million project involves planting of approximately 3,700 hectares of trees to prevent the movement of sand dunes from covering any additional fertile land along Senegal's northwest coast and to protect villages from shifting sands in the area. Action will involve three techniques: the stabilization of sand dunes along some 73 kilometers lying between Dakar and St-Louis, planting at the windward edge of some highly productive vegetable growing basins, and planting wind-breaks around villages in this region. The latter two actions will serve as a second line of defence against sand movement, as well as provide a source of fuelwood and fruit or nuts to the villagers in the area.

B. Role of Institution

The project will be implemented by the Service of Water and Forests (SWF) which has had experience in this type of activity beginning in 1948 and continuing until present. Present projects which SWF are undertaking are financed by CIDA (Canadian International Development Agency) and UNDP. The CIDA project covers a 22 km coastal strip from Gandole to Lompoul. The UNDP program will link with Lompoul and tie-in with the AID-funded Title III project at Mbour. The UNDP program will terminate in June 1980 and its funding will be assumed by the UN Sahelian office (UNSO). Both donors have been favorably impressed by SWF's past performance and are confident of their ability to implement the project.

The Government of Senegal (GOS) is also implementing an ongoing annual reforestation project in the Cap Vert region from its own resources. Because

of the past experience in similar type projects, the SWF will have no difficulty in providing qualified, seasoned personnel to carry out the Title III funded project.

2. History and Present Situation

In the coastal zone of northwest Senegal, paralleling the inland edge of the sand dunes which stretch for about 180 kms from Dakar to St-Louis, there are a series of low-lying, fertile areas (cuvettes or basins) called the Niayes. These areas dry out enough after the rainy season to produce excellent crops of vegetables without irrigation - a unique situation in Senegal.

However, due to strong west to northwest trade winds and to excess grazing of the vegetation which formerly restricted the movement of the dunes, the dunes have been moving inland. From 1930 to 1945 encroachment occurred at the rate of about 13 meters per year, or a total of almost 200 meters. Recent observations indicate that this movement has continued at about the same rate in the subsequent 34 years, meanwhile removing over 450 meters or about 9,600 hectares from production in the past 50 years. This is about 10% of the total fertile Niayes area.

Senegal's vegetable production has traditionally been centered in the Niayes Region. The plentiful supply of soft water there remains available to vegetables in a high water table throughout the dry season. Approximately 120 Km^2 (46 sq. m) on which some 9, 000 people live in 16 major and numerous smaller villages yields about 70,000 CFA (US $330) per person, per year, or a total of about 600,000,000 CFA ($3,000,000) from vegetables and fruits. Lake Retba and other lakes are a source of fish for villagers who cannot reach the sea. No monetary data are available, but filling in of the lakes would cause the loss of a source of protein,

for several thousand persons.

Other benefits of preserving the Niayes region include a supply of firewood and poles within a reasonable distance from the villages and additional income if planned recreation and tourist developments become feasible.

3. Relationship to food production and conservation of the natural resource base

This project integrates several forms of resource management: conservation of fertile soil and soft water; production of vegetables, fruits, nuts and livestock; reforestation to stop soil (sand) erosion which in turn would cover the fertile soil; creation of habitat for birds and small mammals and new sources of fuelwood and poles for villagers'use; opportunities for new employment both during reforestation, maintenance and harvesting of products; and possible recreational development after the dunes are stabilized.

4. Planned Changes

Aforestation of the Niayes will permit approximately 9,000 villagers in the area to continue vegetable production for home consumption and export to Dakar, the largest consumer market of vegetables in Senegal. Through improved technical services to the villages by the Agricultural Service, increased production of vegetables can be expected.

C. Description of Project Inputs

The project will finance necessary construction, equipment, vehicles, and personnel and operating costs to insure the successful planting of 3,700 ha. of trees within the project zone.

Three SWF teams comprising 34 persons in all will be required to implement the project. One team will be stationed at Kayar, which will also serve as the headquarters of the field activities; one at MBoro and one at Diander. Each of these

sites will house the chief of the zone, technical agents, and support staff. Project funds will be used to construct the centers.

Four wheel drive vehicles capable of operating in the difficult terrain along the coast will be provided. Also, lighter liaison vehicles for project staff will be purchased.

The SWF will post the required personnel at each of the three centers and the indemnities for this personnel will be financed by Title III generated funds over the three years of the project.

The planting of trees will be the largest input under the project. The cost for primary (1800 ha) and secondary (1400 ha) dune fixation will be $1,200 per hectare. Stable dune fixation (400 ha) will run at $750/ha.

II. Relationship of Project to Title III Program Objectives, USAID Assistance Strategy and Senegal's Food Policies.

A. Project Relationship to Program Objectives

The reforestation of the Niayes proposed in this report is one of several measures which Sahelian host-country governments and foreign donors have recognized as necessary to combat the effects of resource degradation in this resource-poor area of the world. In Senegal, the Government clearly supports this project as one of the priority actions of the SWF. The project is listed as a CILSS first-generation priority and is included in the Senegalese 5th National Development Plan.

The project is also consistant with CDSS and Title III program objectives. The CDSS cites the need to preserve Senegal's natural resource base that has suffered the vagaries of poor rainfall and attendant desertification over a long period of time, but especially since 1968, when major droughts affected the country. The project will halt dune encroachment over a 20,000 hectare area along the northern coast and will ensure the continued production of vegetables in this area.

The project fits well within the context of Title III objectives in that it will contribute to maintain agricultural production in the primary vegetable growing zone of Senegal.

In a country where soft water is a premium for nine months of the year, and where the area of fertile land has been shrinking rapidly over the past half century, the project is in keeping with CILSS priorities and with commitments made by AID in numerous multi-donor meetings on reforestation and natural resources managament.

No unduly burdensome recurrent costs should accrue to the GOS as a result of this project. Only indemnities to personnel and maintenance of vehicles and buildings will be required. Only labor for surveillance of trees to prevent unauthorized cutting and grazing will be necessary on the established plantations.

B. Beneficiaries

The primary beneficiaries will be the 9,000 villagers who reside in the area and cultivate the cuvettes.

In addition to the obvious benefits of preserving the vegetable gardens, the villagers, especially women, will also find year-round work during tree planting time and by selling handwoven fencing material to the project which is used to stabilize the dunes prior to planting trees. They will benefit through access to fuelwood which will be available beginning the sixth year after the first plantings are made.

Other beneficiaries will be the villagers who live in the area and cultivate truck gardens. Benefits will accrue through improvement of the environment as windbreaks around villages are established.

C. Issues

There are no outstanding issues to be resolved at this time. The SWF has wide experience in implementing this type of project and has the necessary personnel to carry it out. The project as designed can be completed within the three years proposed and the technical aspects are well within the competency of SWF to manage.

III. Technical and Administrative Feasibility

A. Technical Analysis: Description of Approach

In cooperation with local communities, SWF will select areas to plant, grow, distribute, give training in and supervise planting of seedlings. Title III funds are requested to cover the cost of establishing seedling nurseries, transportation of seedlings from nursery to planting site, the planting of the seedlings and the protection of the plantations until the seedlings are established. Local villagers will be hired as laborers for planting.

Filao, Casuarina equisetifolia is considered most suitable for sand and dune planting. It can tolerate salty soils and winds, quickly produces an extensive root system which can anchor the tree in high winds, grows rapidly in its early years and produces wood that is suitable for charcoal or fuelwood. On suitable soils in the lee of the filao, Eucalyptus camaldulensis will be planted to supply firewood and poles. Around the fertile basins, cashew trees will be planted as windbreaks and for production of a cash crop. Fuelwood production from cashews will supplement that from the filao and Eucalyptus.

In addition, windbreaks will be planted on the windward side of the villages. Cashews and neem (Azardiracuta indica) will be used for this purpose. The fire-resistant properties of cashews make them especially desirable for protection of villages and cultivated areas.

Production of trees in village nurseries will be necessary. The long expe-

rience of the villagers in growing plants will be helpful in choosing a nursery site and in growing the seedlings.

Planting will be governed by the rainfall which is only 400 to 500 mm/yr. Fencing should be completed before the first of July as planting must be begun between 20 July and 30 August at the beginning of the rainy season.

No serious problems are expected as a result of termite, other insect or pathogen damage. However, a phytosanitary surveillance by SWF personnel will be desirable.

The three teams that will implement this project will have the following responsibilities:

1) The team at Kayar will be responsible for fixing dunes as follows:

	Ha
Kayar - Lac Retba	200
Kayar north for 20 km	500
Around Lac MBouane (west of Noto)	400
Sub-total	1100

2) At MBoro, responsibilities will be:

MBoro south for 17.5 Km	440
MBoro north for 27.5 Km	690
Around Lac Diogo	500
Sub-total	1630

3) At Diander

Secondary dunes	500
Semi-fixed dunes	500
Sub-total	1000
Total	3,730 ha

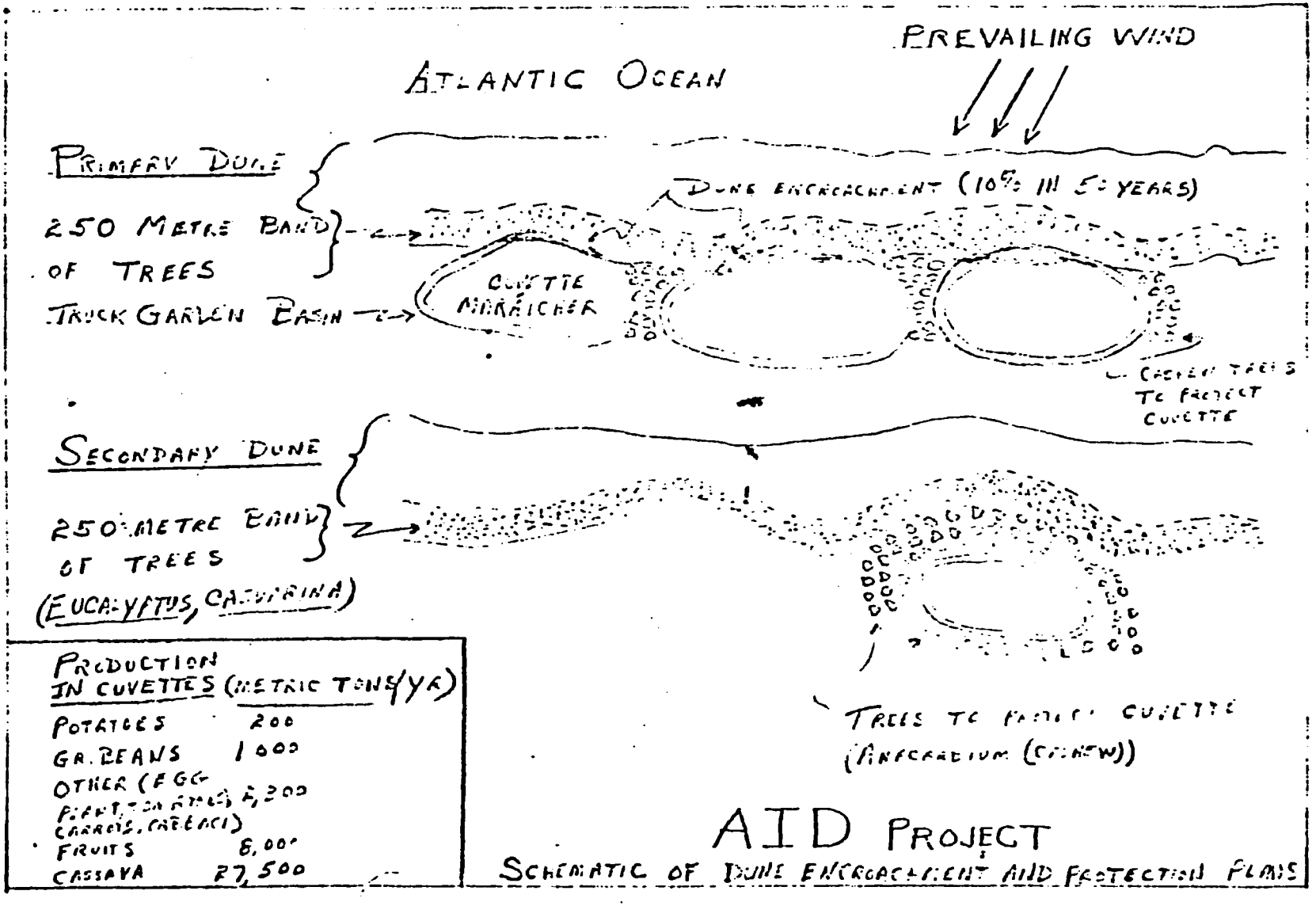
The technique of stabilizing by reforestation is a well established practice that has been developed by SWF over the past 30 years. First, fencing or Texand, an artificial fiber, is set in approximately 7 meter squares to act as sand traps. These traps set at a 45° angle to the prevailing winds reduce wind velocity and the sand is caught and held. The trees are then planted within the enclosures, and protected in this manner during the first year, or until their root systems are developed enough to withstand the force of the wind.(Table I)

A 73 Km band of trees 250 meters wide and running parallel to the beach and approximately 60 meters from the high tide line will be established on the live littoral dunes and around fresh water lakes that are prone to inundation by moving sands. A similar strip of trees comprising about 1,400 hectares will be established approximately on the live secondary dunes that run parallel to the coast approximately 3 Kms inland. The same method of sand stabilization will be employed on these dunes as on the live littoral dunes.

Approximately 500 hectares of windbreaks will be planted around villages and market gardens to protect these areas from the wind. Normal planting practices will be employed in this operation with active participation by the market gardeners who will be responsible for the care of the trees following planting.

Nurseries will be planted in various locations along the route of work to be performed during a year's campaign. There will be no established nurseries as such, because the filao can be transplanted within four months of seeding and the nurseries should be close to the actual planting areas. Seeds will be planted in small plastic bags which will contain fertilizer and a small amount of pesticide to prevent termite damage. Pesticide use will be minimal as there are few insects to attack the trees along the coast.

Prior to planting, the SWF will instruct the villagers in the purpose



AID PROJECT

SCHEMATIC OF DUNE ENCROACHMENT AND PROTECTION PLANS

TABLE I

Best Available Document

of the program. After planting has been completed SWF personnel stationed in the project zone will provide surveillance to prevent villagers and their animals from destroying or damaging the young trees. This is especially important during the first two years after planting or until the trees have established a firm root system. Prior to beginning the first year's campaign, SWF personnel will visit those sites which are most prone to dune encroachment. To the extent possible these sites will receive priority in the planting operation.

There is no reasonable alternative way of saving this area from the moving sand. Villagers cannot afford such a large scale project. They currently construct small fences around the cultivated areas, but this is not adequate to stabilize the dunes.

B. Administrative Feasibility

1. Organizational Structure

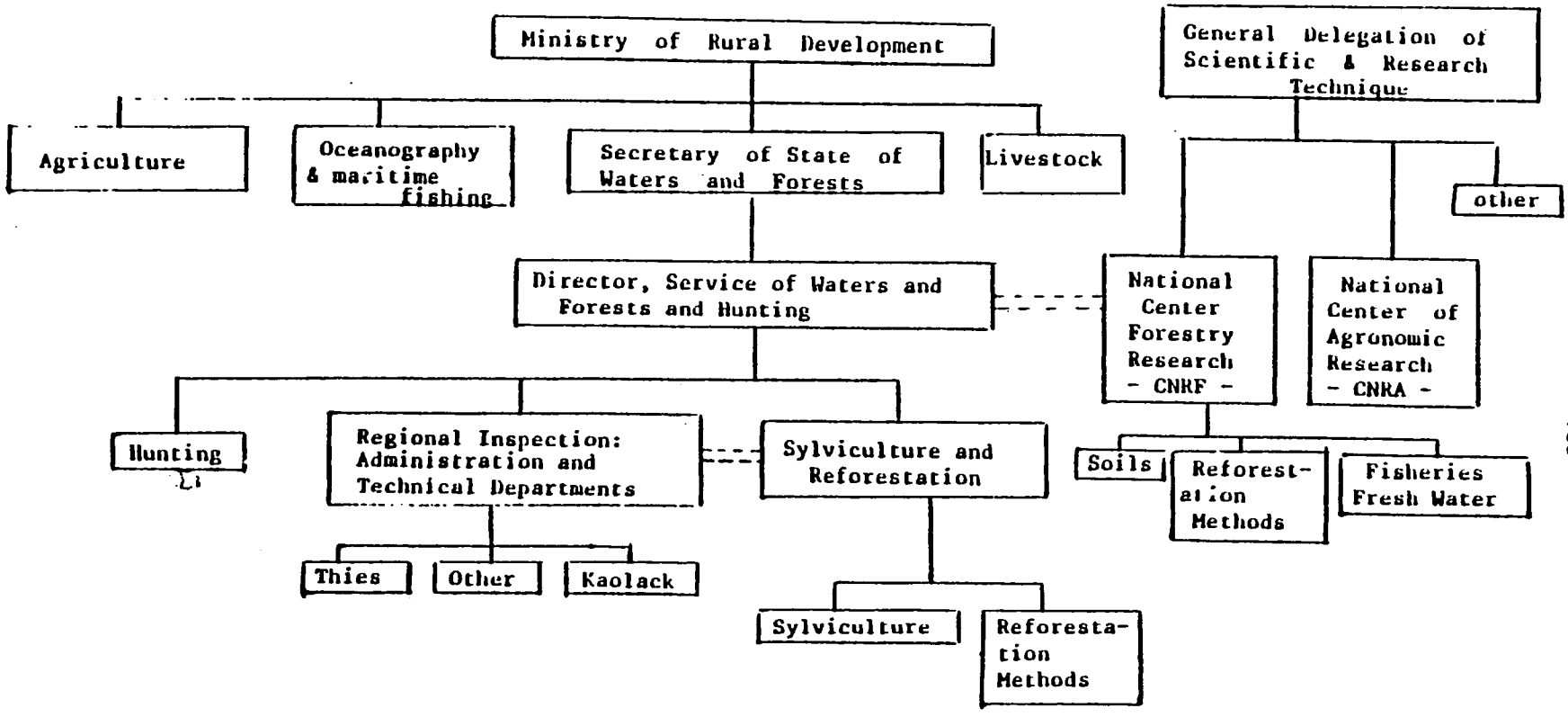
The Government has designated the Service of Water and Forests (SWF) as its primary agent in development of the project. The SWF is one of several technical extensions of the Ministry of Rural Development with responsibilities for:

- forests, wooded spaces and natural ecosystems,
- fisheries management and planning,
- soils protection.

This is an indication of the priority Senegal is attaching to the conservation and management of natural resources. As a result increased responsibilities have been given to SWF by official decree.

While SWF is relatively small, it has an excellent cadre of competent and dedicated personnel, and has been judged by USAID/Senegal and visiting technical teams to be one of the most competent of the Government technical services. Project implementation, under the general direction of the Director of the Service of Water and Forests, will be carried out by a project director who will coordinate

- Service of Waters and Forests in Senegal -
(Government Organization as of 23 March 1978)



Legend

= = = = = = Work cooperatively.

activities between SWF headquarters in Dakar and the three technical teams stationed at Kayar, Diander and Mboro. They possess adequate, well-trained personnel.

The technical teams, headed by a forestry Engineer, and staffed with technical agents will be responsible for managing the field operations. It will be these teams which select nursery sites, hire laborers to fence and plant the dunes and provide the technical backstopping to ensure the project is implemented.

It will also be at the field level that coordination between SWF and the Agricultural Service is established. These two services will work together to determine the actual level of vegetable productivity in the area, methods to improve productivity and demonstrating methods of cuvette protection, i.e. planting windbreaks around the truck gardens of cooperating farmers. This cooperation has been practiced in similar projects and has proven valuable to the success of each as it involves the local inhabitants in the development of the area. Funds for this activity are provided in the project.

2. Organizational Capacities

Three field headquarters will be constructed with project funds. Contracts, using standard Government procedures, will be let for the actual construction. Procedures to be used in this process are well defined within the GOS administrative system. Their regulations require bidding on any purchase of goods and services above $1,500. The regulations stipulate the process that must be followed, which includes requests for proposals, evaluation by an interministerial committee, review of the construction designs by the Rural Engineering Service, and final approval by the evaluation committee.

The same method of contracting has been used for AID bilateral projects in Senegal and has been judged as entirely adequate to meet tests of competitiveness and fairness in selection.

This is not a complex project although timing of inputs will be important. With the past experience that SWF has had and with the competent personnel already in place, there should be little difficulty in carrying the implementation to an effective conclusion.

IV. Financial Plan

A. Cost Elements

1. Dune Fixation

The costs to be financed by the Title III funds for dune fixation are consistant with those encountered in similar projects implemented by SWF. These costs include:

a) Land preparation (costs/hectare)

- Fencing 3,000 meters $ 0.18	$540.00
- Fence posts/ha 300 posts/ha or 225m X $0.05	11.25
- Other costs/ha	10.00
- Labor costs/ha 7 persons days X $4.50	31.50
Sub-total Land Preparation	$592.00

2. Plant Production

The trees will be planted at 2.5 meter intervals or a total of 1,600 plants/ha. Nursery costs for production of each tree is $0.15. Experience has shown that 20% of the plants are rejected or lost at the work site. Thus, 1,920 plants are actually required.

- Trees/ha 1,920 X $0.15	$288.00

- Planting/ha 25 person days/ha X $4.50	$112.50
- Surveillance .5 person days/ha X $4.50	2.50
- Other costs (equipment, hoes, shovels, etc.)	125.00
Sub-total plant production	$528.00
Total cost/ha	$ 1,120.00
Contingencies	80.00
Grand Total	$1,200.00

B. Plantations on Stable Dunes

Work required on stable dunes is less than on the live littoral dunes. It is not necessary, except in the cases where the interior dunes have begun to move again, to undertake the partitioning of the enclosures. It is estimated that only 20% of the costs associated with fencing on the live dunes will be required on the stable dunes. The other costs are identical. The costs are thus:

- Land preparation/ha	$190.00
- Plant Production/ha	288.00
- Planting	112.00
- Surveillance	2.25
- Other costs (equipment, etc)	125.00
- Contingencies	32.75
Total	$750.00

The total costs of this component of the project amount to $4,215,000. This is broken down as follows:

- 1,800 hectares live coastal dunes $1,200/ha X 1,800	$2,160,000
- 1,400 hectares secondary live dunes $1,200/ha X 1,400	1,680,000
- 500 hectares of stable dune plantations $750/ha X 500	375,000
Total	$4,215, 000

2. Equipment

The only equipment to be purchased by Title III funds is vehicles. All terrain, 4-wheel drive vehicles will be used at the work sites for transporting the work crews, nursery stock and equipment. Lighter liaison vehicles for staff who will be travelling frequently to the work sites as well as to urban areas for materials, meetings, etc. will also be required.

Motorcycles will be used by technical agents in daily activities. The following vehicles will be purchased:

- 6 light liaison	$100,000
- 15 all-terrain trucks	825,000
- 12 motorcycles	15,000
Total	$940,000

3. Personnel ($250,000)

The project will pay indemnities for one forestry engineer, four public works engineers, and 17 technical agents. The cost of these indemnities totals $100,000. Salaries will be paid for 5 secretaries, 5 mechanics, and 10 drivers for a total of $150,000.

4. Construction ($400,000)

Ten buildings will be constructed at the three operational centers at Kayar, Mboro and Diander. The Center at Kayar will comprise 4 buildings: an office and dwelling for the project director; an office, and housing for an engineer and two technical agents; and two other buildings to house four technical agents. The centers at Mboro and Diander will be similar to that of Kayar except the office and housing for the project director will be omitted. Four buildings will be constructed at MBoro and two at Diander.

5. Extension of Vegetable Growing Techniques ($600,000)

$200,000/year has been budgeted to provide SWF and the Agricultural Service the means to extend improved vegetable growing practices to market gardeners in the project zone. These funds will be used to collect baseline data on present cultural practices in the area, determine what practices should be used to improve these practices and eventually to provide inputs to assist farmers in improving production. These costs will be more clearly defined at the beginning of the second year of the project.

B. Timing of Inputs

Construction and purchase of equipment should be accomplished as soon as possible after funding is available. Contracts should be let and actual construction begun by October, 1980. Vehicles should be on hand by January, 1981 at the latest. Certain actions such as fencing should be completed by July so that planting can be effected in July and August at the onset of the rainy season. Nurseries should be started in February or March as it takes 4 to 6 months for saplings to attain the necessary height for transplanting.

There will be three major campaigns during the project. During the first

year, 400 ha will be planted, 1,450 ha the second year and 1,850 ha the third. The first year's goal is less than subsequent years' as there will need to be some leeway to account for problems that arise during the initial stages of work and to allow for delays in contracting and equipment purchases.

The work is divided between the 3 centers by year as follows:

	1st year	2nd year	3rd year	Total
Kayar	100 ha	400 ha	600 ha	1,100 ha
MBoro	200 ha	600 ha	800 ha	1,600 ha
Diander	100 ha	450 ha	450 ha	1,000 ha
Total	400 ha	1,450 ha	1,850 ha	3,700 ha

C. Summary Cost Estimate and Financial Plan

A total of $6.9 million will be used by this project from Title III funding. This funding will be disbursed as follows ($000):

By Input

1. Dune Fixation		
A. Live Dune Fixation		
- Primary Dunes 1,800 ha at $1,200/ha	$2,160	
- Secondary dunes 1,400 ha at $1,200/ha	1,680	
B. Stable Dune Fixation 500 ha at $750/ha	375	
Sub-Total		$4,125
2. Construction		$ 400
3. Vehicles		
Liaison	$ 100	
4-wheel drive	825	

Motorcycles	15	
Sub-total		$ 940
4. Personnel		$ 250
5. Extension Services		$ 600
6. Contingency		$ 495
TOTAL		$ 6,900

D. Expenditure Schedule by Year ($000)

Item	80/81	81/82	82/83	Total
1. Dune Fixation				
- Live dunes	$ 420	$ 1,500	$ 1,920	$ 3,840
- Plantations	40	150	185	375
2. Construction	400			400
3. Vehicles	940			940
4. Personnel	80	85	85	250
5. Extension services	100	250	250	600
6. Contingencies	100	195	200	495
Total	$ 2,080	$ 2,180	$ 2,640	$6,900

V. Implementation Plan

A. Schedule of Activities

The following plan and schedule are proposed for project implementation:

1. Project Agreement signed	March, 1980
2. Contract Proposal solicited (buildings)	May, 1980
3. Request for Commodity Bids made	May, 1980
4. Contractor(s) selected	July, 1980

5. Construction Contracts let	Sept, 1980
6. Commodity Contract let (vehicles)	Sept, 1980
7. SWF posts project staff	Sept, 1980
8. Survey to determine priority areas completed	Oct-Nov, 1980
9. Vehicles received	Nov, 1980
10. Planting plan established	Dec, 1980

11. January, 1981

    - Nursery sites slected
    - Nursery wells dug
    - Seeds selected
    - Dune fixation materials ordered
    - Posts ordered
    - Nursery material and bags ordered
    - Laborers for work sites recruited
    - Construction of material reception centers begun
    - Composts and manure delivered to sites

12. February, 1981

    - Posts delivered
    - Post setting begun
    - Tree bags filled
    - Nurseries completed
    - Agricultural survey begun

13. March, 1981

    - Fencing of dunes begun
    - Nursery activities continue

14. April, 1981

    - Nursery activities continue

- Fencing continues
- Seed planting begun

15. May, 1981
    - Nursery activities continue
    - Fencing continues
    - Young plants up and watered
16. June, 1981
    - Protection work continues
    - Nursery work continues
17. July, 1981
    - Nursery work continues
    - Protection of dunes completed
18. August, 1981
    - Planting begins (August 15 is target date, depending on rains).
19. September-October, 1981
    - Planting ends
    - End of work for year
    - Map of area showing work completed produced
    - Evaluation of 1980-81 campaign
20. November, 1981
    - Preparation of the 1981-82 campaign which should begin in December 1981-January, 1982.
21. The 1981/82 and 1982/83 campaigns will follow the same plan as the 1980/81 campaign borrowing on experience gained during the first year's activities. 1,450 ha will be planted in 1981/82 and 1,850 in 1982/83.

B. Coordination of Activities

Overall coordination of activities will be the responsibility of SWF

headquarters in Dakar. Specific actions, such as contracting for construction and vehicle purchases will be done through the Dakar office as it has the expertise to do this. The project director will coordinate between Dakar and the field operations to assure timely purchase of land preparation material, recruitment of laborers and nursery commodities. The actual field work and day to day operations will be managed by the three field offices.

SWF will prepare quarterly reports on progress, problems and the possibility of attaining the planting goals outlined in the implementation schedule. A yearly report, at the end of each campaign will be provided in October summarizing the campaign, detailing expenditures and funding requirements for subsequent years' campaigns. Copies of each report will be provided to USAID/Senegal.

USAID/Senegal, from time to time, but at least twice yearly, will request meetings with Project direction and field staff to monitor activities. USAID participation will be composed of the Food for Peace Officer, Mission Engineer, and Forestry Specialist. The latter two will make on-site visits to the field operations to advise and monitor construction and plantation methods.

Also, from time to time, a committee composed of USAID, CIDA, UNSO, and SWF will meet to discuss problems of implementation and share experience to improve the execution of the projects being undertaken by SWF.

V. Evaluation Plan

A. Description of Plan, Timing and Scope

It should not be particularly difficult to verify achievement of project outputs, i.e. the successful production of 3,300 hectares of trees on a 250 meter wide strip along 73 Km of sand dunes between Kayar and MBoro; the planting of 400 ha of trees around market gardens; and adequate seeds and saplings available to plant

the required hectarage.

SWF will submit quarterly reports to the Title III management commission and to USAID, describing work progress and problems encountered, and overall performance will be reviewed by the commission and monitored by USAID.

In addition to the quarterly reports, the annual report will be used to measure progress and determine what corrective measures, if any, are required to implement the project on schedule.

An in-depth evaluation should be conducted at the end of the second year's campaign. The purpose of this evaluation will be to determine how successful the implementing agency has been in meeting targets, protecting trees, survival rate of trees planted, village participation in the program and success of agricultural service in improving agricultural techniques in the Niayes.

The proposed evaluation plan follows:

(1) Base line data

- Dunes encroaching at 13 meters/year
- Approximately 30,000 MT of fruits and vegetables are produced each year
- Few windbreaks are planted
- Agricultural practices are not advanced
- Animals destroy dune cover
- SWF staff not present in area to assure control measures

(2) Targets

- 3,300 ha of dunes reforested
- Vegetable and fruit production continues at present output or increases
- Farmers are utilizing more modern methods of vegetable production
- 400 ha of windbreaks planted around gardens and villagers are aware of

importance and their maintenance

- Increasing of women's incomes

- Animals are controlled

- SWF staff assigned to area to control access to reforested areas

- 80% of trees planted survive first year

(3) Progress Indicators

- Project records and evaluation reports detail costs and implementation achievement

- Quarterly and annual reports of SWF give production targets, planting rates, and personnel assigned

- On site visits by USAID staff technicians

- Agricultural Service documents indicate amount of vegetables produced, farmers participating and value of produce

(4) If targets are not reached, then studies of causative factors would be required. Such target failures could be:

- Failure of trees to survive due to poor quality seeds, or inadequate rainfall

- Failure of the Government to assign qualified personnel to project

- Failure to reach production targets due to labor shortages, and input availability

- Failure of villagers to perceive benefits from program and do not assist in plant protection activities.

RURAL DEVELOPMENT FUND

I. PROJECT DESCRIPTION

A. Purpose

The Rural Development Fund will support small rural projects directed to conserving the natural resource base, and improving food production, processing, distribution and marketing. These small projects are intended to encourage local initiative, benefit small farmers, and strengthen the role of local institutions, particularly Rural Communities For the present, they will be limited to the Sine Saloum Region, the most important peanut and millet producing area of Senegal.

B. Background

Most rural development activities in Senegal are now centered around the Rural Community organization.

Since the Government began an Administrative Reform program in 1972, there has been a gradual increase in local level participation in the political process. The Reform provided for local decision-making on the allocation of tax revenues and on the allocation of land through elected Rural Community Councils (described page 18). A rural community is composed of villagers in a small area who elect a council which is endowed with the power to initiate local projects and to commit local taxes in their support. The budgets are small, but have permitted meaningful community projects related to improved water, health stations, and crop production and processing.

Any project addressing local development must involve the Rural Communities. Their elected councils consider and pass judgment on all requests for use of the land, and they are the appropriate local forum to consider requests for financing and land use.

In addition, there are several Governmental institutions which reach the Rural Communities to assist with agricultural production and rural development. These are the cooperative system, the Regional Development Agencies (RDAs), ONCAD and the Rural Development Centers (RDCs) (described pages 11, 16, 18, 70 and 71).

Normally included in a RDC will be representatives of the Forestry, Livestock, Water Supply and Community Development Services and Condition Féminine. The Agricultural Service is not normally included, since agricultural extension is handled through the RDAs.

With this abundance of institutional structure it is important to note, for purpose of the Rural Development Fund, that with the exception of a few small efforts by foreign private donors, rural private enterprise generally has been neglected. As the rural economy expands, however, the demand for agricultural related tools, equipment and supporting services will expand. The growth of a strong indigenous, locally based private sector will serve to increase revenues and diversify employment in rural areas. The rural development fund will support both private and public organizations which are essential for sustained local development.

Responsibilities for assisting individuals and groups of farmers are divided among the four organizations mentioned above. Each shows some promise for serving as an organizational means of developing local project initiatives but each also appears to have some drawbacks. The role of cooperatives is described, pages 16, 17 and 69, 70. The RDAs are primarily concerned with the provision of services for crop production, but are increasingly providing services to other subsectors, particularly livestock. Their staffs are normally well paid and equipped relative to Government Services. They are highly dependent on foreign sources of finance and have different degrees of financial and managerial autonomy, and of local effectiveness.

All RDAs undertake investment planning as well as project execution and SAED, SODEVA, and SOMIVAC have well-staffed planning units. ONCAD has had performance problems (page 48) as a result of poor management and inadequate financial control. ONCAD has, however, done a reasonable job given the high cost of delivering farm inputs and implements. Recent reforms in ONCAD have addressed past financial control and management problems and should improve ONCAD's effectiveness. Financing through ONCAD for local cooperative activities has been provided by the National Development Bank (BNDS). BNDS was established in 1964 to assist development projects in agriculture, livestock, fisheries, small industries, housing and handicrafts and has funded inputs supplied in kind to cooperatives. BNDS has not sought to make loans directly to small revenue producers because its has considered the guarantees on such loans unacceptable and the cost of debt collection too high.

These agencies have been a source of technical support for developing small rural projects and could serve as a technical source for development and implementation of activities funded by a rural development fund.

Senegal is following a rural based development strategy with two broad approaches (1) the diversification of agriculture according to ecologically different regions and capacities and (2) the process of decentralization, including local participation. The development of small rural projects could provide a supplementary means of promoting both these strategies. In a period of tightening fiscal controls, yet also a period of increasing rural development emphasis, new approaches are needed to stimulate and support local initiatives without expanding a costly governmental infrastructure. A rural development fund as proposed by this project appears one means by which growth of small rural activities could be encouraged, and off-farm employment in rural areas increased. The climate appears conducive to such an approach.

Small rural projects are a type of activity which focus on the growth potential of individuals and village-level groups. The projects are based on the concept that individual activity engenders growth, that such projects encourage an exchange between rural populations and governmental organizations thereby improving both, and that ultimately any significant improvement on the lives of the rural majority, only can be achieved by the sustained efforts of the rural majority. The small project process is a potential means for strengthening local level management capacity. It is also a management intensive process which depends on improvements in project

identification, design and implementation, in labor productivity, and in the use of available resources. The anticipation of such potential gains in relationship to necessary resource requirements has been fundamental to the design of this Rural Development Fund.

C. DESCRIPTION OF PROJECT

This project establishes a mechanism for channeling Title III funds directly to Rural Communities and local groups to support a range of natural resource conservation and food production, processing, distribution and marketing, development activities in the Sine Saloum area. This geographic concentration is calculated (1) to minimize central administrative and coordinating requirements, (2) to maximize the impact of available Title III funding, (3) to take advantage of the good management capacities of local Rural Communities (4) to take avantage of SODEVA's good level of technical support and that of the additional technical services available in the area, and (5) to benefit from commonalities in replicating these activities.

Requests for funding will come from the Rural Community or from the local farmer cooperative. Technical assistance required for project preparation and implementation will come from SODEVA, Eaux et Forêts, the technical services which have competent staff reaching down to the Rural Community level. Requests for project funding will be evaluated by the Secretariat of the Management Commission. Approval of projects and authorization of the disbursement of funds will rest with the Management Commission with USAID clearance required. A contractual

agreement will be signed for each activity to explicitly present project responsibilities and distribution of benefits. Implementation of the approved activity will be the responsibility of the Rural Community or cooperative which will manage funds and outputs in line with a contractual project agreement. Projects will be evaluated according to conformance to purposes of the Fund, economic productivity, and technical decentralization, beneficiary and managerial considerations. All these machineries are discussed in detail, in Section III, Technical and Administrative Feasibility.

II. RELATIONSHIP OF PROJECT TO TITLE III PROGRAM OBJECTIVES, USAID ASSISTANCE STRATEGY, AND GOS FOOD POLICIES

A. PROJECT RELATIONSHIP TO PROGRAM OBJECTIVES

The key elements of GOS food policy include increase food production, reduce cereals imports, improve rural incomes, and involve the rural population in development. How this Title III proposal supports the GOS and USAID development strategy has been described in PART II Sections A-D (p. 37-45).

The Rural Development Funds will be channeled to cooperatives, through the RDA's and thus support efforts to strengthen cooperatives and promote popular participation in the development process. The limitation of the fund to the peanut/millet basin of Senegal supports SODEVA, the specialized Regional Development Agency charged with development in that area; it also concentrates USAID funding resources because the USAID SODEVA Cereals II project operates in the same area with commensurate economies of management and supervision.

The activity areas of the fund will be exclusively agricultural in the broadest sense and include preservation of the agriculture resource base, food production, storage, processing, marketing and agriculturally related small scale industries.

B BENEFICIARIES

The single most important characteristic of the fund, however, will be its inherent ability to respond on an ad hoc basis to needs as they arise and are identified by the several thousand farmers participating (through their Rural Communities and cooperatives) in the development of the Sine. Saloum Region of Senegal.

C. ISSUES

There are no major policy issues. The concept of the Rural Development Fund is not new; it is closely related to an old and effective methodology for administration of PL-480 Title II Section 204 via a Mission Discretionary Fund. Sec. 204 legislation makes available U.S. owned local currencies in so called currency excess countries (eg. Egypt and India) which were authorized for expenditure on projects designed to alleviate the causes of the need for PL-480 food imports. The Mission Discretionary Fund authorized missions to approve certain projects under one million dollars.

III. COOPERATIVE, PROJECT AND TECHNICAL ELIGIBILITY CRITERIA

A. Cooperative Eligibility Criteria

The Rural Development Fund will assist cooperatives (and Rural Communes) in the SODEVA peanut basin which:

1. Present evidence of popular support for the principles of cooperation participation by the village membership including, but not limited to, evidence of freedom from factionalism, longevity of organization, interest and incentive to become engaged in activities exceeding the normal, routine and/or mandatory activities of coops., election and support of strong leadership.

2. Present evidence of sound and responsible fiscal management over a sustained period of time including freedom from indebtedness at the time of application for funds.

3. Have prepared and presented a project proposal which seeks partial funding by the Rural Development Fund and for which;

(a) a substantial majority of the cooperative membership have voted their support and pledged their personal participation.

(b) The cooperative itself has voted to setaside funds for the recurring expenses after the first year.

(c) The cooperative agrees to treat the grant by the Rural Development Fund as a five year "loan" only in so far as it will pay "interest" at 5% (x 5 years = 25% of total grant) into a SODEVA cooperative small project revolving fund bank account. This revolving fund will make funds available to all cooperatives in the area after the demise of the Rural Development Fund.

The rules and regulations for the establishment and custodianship of this account will be prepared by the Secretariat and approved by the Management Commission within 8 months of signing the Title III accord.

4. Has secured and presented the written approval of SODEVA and the Regional Credit Committee for

(a) approval of the applicant cooperative per se to participate in a rural development fund grant

(b) approval of the project proposal

Project Eligibility Criteria

The Rural Development Fund will assist projects which:

1. Preserve the natural resource base including, but not limited to, reforestation, soil conservation, range and forest conservation, conservation infrastructure and supporting activities.

2. Remove constraints to the increased utilization of millet among rural and urban families thereby completing the chain of technological infrastructural and organizational inputs necessary to achieve a reduction of cereals imports, increased utilization of domestic millet, improved living standards for the rural millet farmers, and diversification of the rural agricultural economy. Activities to be funded will include, but are not limited to, processing, blending, marketing and delivery of millet and millet based products.

C. ECONOMIC, TECHNICAL, BENEFICIARY AND MANAGERIAL CRITERIA

The following additional criteria will guide the Secretariat and Management Commission in their allocation of Rural Development Funds.

1. Economic Productivity - The project should include realistic and reasonable annual cash inputs and provide a reasonably high economic return to users.

2. Technical appropriateness - The project should include technical supervision appropriate to the technology employed.

3. Beneficiaries - The beneficiaries of the project should be clearly identified and constitute a significant portion of the rural community.

4. Managerial - The project should have a relatively short gestation period; it should be supported largely by local labor; the project facility should be relatively simple and require largely local maintenance resources.

IV. FINANCIAL ANALYSIS

A. TIMING

The fund will finance projects beginning in year 2 of Title III implementation. During the first year the Management Commission and its Secretariat will be established and trained in operation of fund activities. Evaluation criteria will be refined, standard contracts will be developed for disbursement of funds to local groups to assure fiscal accountability and desired benefit distribution, and monitoring and evaluation mechanisms will be further elaborated. One million dollars will be available in each of years 2 and 3 for finanding Fund activities.

B. EXPENDITURE SCHEDULE BY YEAR ($ IN THOUSANDS)

	Yr 1	Yr 2	Yr 3	Total
Rural Development Fund		1,000	1,000	2,000

V. IMPLEMENTATION PLAN

A. Schedule of Activities

The implementation plan for rural development fund activities is as follows:

Project Month 1-4	Establishment of Management Commission and Secretariat
Project Month 4-6	Elaboration of Fund procedures (evaluation criteria, technical support, monitoring, evaluation)
Project Month 4-8	Investigation of potential projects through SODAVA and SWF staff in Sine Saloum
Project Month 6-8	Dissemination of information on Fund activities and participation criteria to cooperatives and rural communes.
	Assistance in project design by SODEVA, SWF and others.
Project Month 9	Start of project submissions
Project Month 10	Start of Secretariat assessment of potential projects.
	Elaboration of Fund lending and contractual requirements.
Project Month 10-14	First projects approved. Contract form finalized and first contracts prepared.
Project Month 15-16	Funds available, project financing begins
Project MOnth 16 - 36	Continuing fund activities. Project design, assessment approval, implementation and evaluation.

Technical assistance SODEVA and SWF

Technical monitoring Management Commission and USAID

Mid-year reviews and Annual Reports as required.

B. Coordination of Activities

The Management Commission through its Secretariat will oversee the operation of the fund including project assessment, approval, monitoring and evaluation. The Secretariat will provide support as needed to refine the project development and implementation process. This could include use of consultants, special seminars or other training, and design and distribution of explanatory materials, and will require close liaison with the technical services like SODEVA and SWF and with cooperative groups and Rural Communities. SODEVA, SWF and other relevant services will provide technical backstopping for project development and implementation. Actual project implementation will be handled by the cooperative, rural communities or other local group having an approved project. Disbursement of funds for approved projects will be in line with the contractual agreement established for each project. Such agreements are already being used by village reforestation and other small projects in the Sine Saloum area. These contracts specify what is required of all parties and how project benefits and/or obligations are to be distributed.

The monitoring of each project will be similarly delineated in the project agreement. The Management Commission, local implementing group and technical backstopping service (SODEVA or SWF) will be parties to this agreement. The local implementing group will be required to provide

a detailed account of how all funds are spent as well as information on local project inputs, local participation in project, and project outputs. The Management Commission will develop a standard reporting format for the projects and will compile a monthly report on all project activities. USAID staff will assist the monitoring through a mission technical monitoring committee and through general contacts with SODEVA and SWF in the project area. USAID will also participate in project evaluations.

VI. EVALUATION PLAN

A. Description of Overall Evaluation Plan

Project evaluation will regard (1) the efficiency and effectiveness of the implementation of activities financed by the Fund, and (2) the effectiveness of the financed activities in achieving project purposes. At each of these steps the evaluation will present a measurement of progress toward planned target, a determination of why the activity is or is not achieving planned targets, and a determination of the continuing relevancy of the activity.

The evaluation of the implementation of each activity financed by the fund will be fairly straightforward since the assessment criteria used by the Commission to choose projects will also establish the evaluation criteria. The data presented to justify conformance to purposes of the Fund, and to satisfy economic, technical, beneficiary, and managerial criteria will form baseline data for the activity. Regular implementation monitoring will be required to address the criteria and update information under each category.

Evaluation of project purpose achievement will be more difficult since this will require a composite lack at all activities financy by the fund. Much of the data on productivity, decentralization, local management capacity, etc., will be qualitative. However, project related data should provide indications as to project participation, production or yield effects, and economic effects which will allow for some outcome evaluation. Additional evaluation data may be developed through the technical support activities of SODEVA and SWF.

Finally, an evaluation will have to address the structure of the Rural Development Fund and the effective of the Management Commission in administering the Fund. This type of evaluation should be conducted each year by USAID and the GOS with outside evaluation assistance. The evaluation will be important to direct changes in Commission activities, in activity assessment criteria, in activity monitoring or in activity agreements so as to minimize central administrative problems as project implementation constraints.

b. Execution of the evaluation plan

The evaluation plan will be executed in accord with the overall Title III reporting format of mid-year reviews and annual reports. As stated above, the evaluations of the Rural Development Fund will view activities financed by the Fund as well as the operation of the Fund itself. While the Commission will coordinate the evaluation, USAID and outside evaluation expertise will participate to insure an impartial evaluation of the administration of the Fund by the Commission.

C. IMPLEMENTATION ARRANGEMENTS

1. Government of Senegal Organization

There are several Government Ministries and decentralized agencies involved in the rural sector which deal in the type of activities defined under Sections 103 and 104 of the FAA and those envisioned by the PL 480 Title III legislation. Thus, it is not organizationally practical to establish total project implementation responsibility under any one of the Ministries. Consequently, the program will be implemented under the overall policy guidances of a Senegal Management Commission which will be established for the express purpose of coordinating, reporting, and evaluating the execution of all projects to be financed with funds generated by this Title III proposal.

2. Organization and Responsibilities for the Program

a. Management Commission

The Management Commission will be composed of seven members. The chairperson shall be appointed by the Minister of Plan and the Commission will consist of one member each from ministries or agencies concerned with Title III Food for Development Project. This would include the Ministries of Rural Development, Higher Education, Finance, and Plan; the Forestry Service; ONCAD, and the SERST of the Prime Minister's Office. Each of these representatives will have direct management responsibilities for the projects within their sector. The Commission will have a Secretariat with a small staff to assist it in performing the coordinating, reporting and evaluating role of the Commission. The principal functions of the Management Commission will be the following:

- to review and approve project implementation guidelines applicable to the activities to be financed;

- to approve all projects and their specific implementation plans;

- to approve evaluation criteria designed for the projects to be implemented;

- to recruit and establish the compensation of the staff of the Secretariat of the Management Commission;

- to approve the recruitment of technical consultants, as needed, for project specific research, expert outside opinions, and evaluations;

- to submit an annual report on projects financed by Title III as required by Section 306 of PL 480.

- to engage in any other activities deemed necessary for the effective and timely execution of the program and/or jointly requested by the GOS, through its Minister of Plan, and USAID/Senegal.

b. Secretariat of the Management Commission

The Secretariat will have the following responsibilities:

- to prepare for submission to USAID (1) monthly commodity shipments and fund generation reports; (2) quarterly compliance, project implementation and disbursements reports;

- to draft the Annual report which the Management Commission must officially approve and release presenting a comprehensive statement of progress achieved under the Food for Development Program, a specific accounting for funds generated, their uses, and the outstanding balances at the end of the most recent fiscal year, and recommendations for modification and improvement in the Food for Development Program in Senegal;

- to approve evaluation systems for the different projects;

- to assist, as necessary, the Government Ministries and other executing agencies in the implementation of evaluation systems measuring project progress and impact on the target group; and

- to carry out any other activity delegated by the Management Commission.

c. Special Account for Title III Funds

In accordance with the Title III agreement, the Government of Senegal will open a special account in Citibank/Senegal to handle funds generated by the Food for Development Program. Citibank/Senegal will provide monthly reports on the activities of the account to the Secretariat of the Management Commission. Official authorization for the assignment/reservation of Title III generations under which actual disbursement can take place will depend on the approval of annual project implementation plan by the Management Commission with the concurrence of USAID/Senegal. After official authorization has been made for disbursement for a project, Citibank will pay invoices for project expenses after their approval by the Direction des Investissements of the Ministry of Finance. This will insure that funds are used for the designated purposes as determined by the Management Commission.

3. Program Management Budget Requirements

To facilitate project implementation, the Management Commission Secretariat staffs should be highly competent individuals chosen for their capability and remunerated accordingly. It is proposed that the total operating costs of these units be funded from Title III generations.

Illustrative Annual Budget for Program Management

Annual Operating Expenses:

Salaries	$ 70,000
Consultants	2,500
Office rent	6,000
Utilities and Telephone	2,000
Office supplies	4,500
In-country travel	1,500
In-country per diem	5,000
Miscellaneous expenses	4,500
Inflation factor	4,000
Total	$ 100,000
3-Year operating expenses	300,000
Capital expenditures (office furniture, equipment)	100,000
Total Program Management Budget	$ 400,000

Estimated cost by years (U.S. $000)

Year:	1	2	3	Total
	$ 200	$ 100	$ 100	$400

4. USAID Monitoring

Monitoring will be performed at two levels:

a. Routine technical monitoring, as needed, will be maintained between the Secretariat of the Management Commission, the concerned Ministries and the different USAID offices depending on the subject requiring resolution, i.e., Office of the Controller regarding accounting practices and disbursements; Engineering on building plans and specifications; and

b. Monthly, by a Mission Project Implementation Committee composed of representatives from various interested Ministries and the USAID offices.

ANNEX I

I. GENERAL ECONOMIC, FISCAL AND MONETARY INDICATORS

1. BASIC ECONOMIC DATA AND INDICATORS

1. Per Capita income (1976) — $390

2. Annual rate of real growth per capita income (1960-74) — 0.7%

3. Population (1976) — 5.115 million

4. Population growth per annum — 2.7%

5. Structure of the economy

	Value 1975 (billion CFAF)	% of CDP 1975
Agriculture (crops)	122.8 (76.8)	30.2 (18.9)
Industry (Veg. oil)	97.5 (34.6)	24.0 (8.5)
Services (Commerce)	138.9 (81.8)	34.2 (20.1)
Other	47.2	11.6
GDP	406.4	100.0

Source: BCEAO

6. Crop Production - 1,000 tons

	1974/75	1975/76	1976/	1977/78	1978/79	1979/80
Peanut (for peanut oil)	798.2	1177.8	960.3	459.0	900.0	650.0
Cotton	42.1	39.0	45.2	37.1	-----	-----
Corn	43.2	48.9	52.8	45.5	47.0	-----
Millet	795.0	621.0	553.8	491.0	806.0	496.0
Rice	116.9	133.8	112.3	83.7	127.0	115.0
Cowpeas	22.1	24.5	16.4	15.0	15.0	-----

2. POPULATION OF SENEGAL '000's OF PERSONS

REGIONS	1976			1981		
	Rural	Urban	Total	Rural	Urban	Total
CAP-VERT	158	832	990	135	1129	1264
CASAMANCE	615	126	741	663	155	818
DIOURBEL	342	86	428	360	105	465
FLEUVE	421	110	531	445	133	578
LOUGA	385	35	420	420	44	464
SENEGAL ORIENTAL	263	25	288	297	33	330
SINE SALOUM	883	131	1014	995	169	1164
T H I E S	530	173	703	586	224	810
TOTAL	3587	1518	5115	3901	1992	5893

Source:

1976 Figures and Total Population Projections from Projections Demographiques de la Population du Senegal.

November 1976. A. K. Diop.

3. PER CAPITAL INCOME BY REGIONS IN SENEGAL, 1975

Region	Population (1976 census)	Total Regional Product (billion CFA)	Per Capita income ($) (1)
CAP VERT	990,320	182.7	802
CASAMANCE	740,700	23.5	138
DIOURBEL	427,560	11.3	115
FLEUVE	531,510	16.2	133
LOUGA	420,140	7.6	79
S. ORIENTAL	287,790	8.3	125
S. SALOUM	1,013,530	31.1	133
THIES	703,020	50.3	311
SENEGAL	5,114,630	331.0	281

(1) rate of exchange of 230 FCFA per US $1.00 (1975)

Source: Vth Plan

4. FOREIGN DONOR GRANT ASSISTANCE TO SENEGAL (1973/74 - 1977/78)

Unit: million GFAF

Sector	73/74	74/75	75/76	76/77	77/78
Ag/Rural	1,211	1,974	6,983	6,065	10,048
Health	509	1,840	914	1,016	3,326
Education	6,300	6,130	11,833	9,103	12,385
Total all areas	10,448	12,258	22,696	20,895	32,280
Percentage of total					
Ag/Rural	12	16	31	29	31
Health	5	15	4	5	10
Education	60	50	52	44	38

SOURCE: UNDP

5. TAX STRUCTURE IN SENEGAL, 1973/74-1976/77

Source	1973/74	1974/75	1975/76	1976/77
Direct taxes	14411	18845	24783	19617
Indirect taxes	31857	40265	47838	58064
Other receipts	1805	2143	2810	3938
Total fiscal	48074	61303	75431	81619
Misc.revenues	489	500	2568	2023
Misc.receipts	2591	6450	2084	2038
Contributions	457	305	359	346
Reimbursements	-	70	23	13
Total	51610	68728	80466	86014

6. GOS TAX REVENUES IN CONSTANT (1971) CFAF

Unit: million CFAF

Deflator	Year	Current receipts	Constant (1971) receipts
840	1962/63	34548	41031
842	1963/64	33906	39421
870	1964/65	36735	42224
885	1965/66	35825	40480
895	1966/67	35379	39530
890	1967/68	35840	40270
950	1968/69	36193	38088
970	1969/70	38935	40137
1.000	1970/71	41417	41417
1.040	1971/72	45126	43390
1.120	1972/73	46169	41222
1.310	1973/74	51610	39397
1.600	1974/75	68728	41000
1.700	1975/76	80466	47333
1.890	1976/77	86014	45510

SOURCE: V Plan, BCEAO

7. ANALYSIS OF SENEGAL'S BALANCE OF PAYMENT

	1972	1973	1974	1975	1976
		(Billion CFA F)			
1. Goods and Services					
Trade Balance					
Export	56.8	47.7	100.3	107.8	120.1
Import	-79.5	-92.7	-147.8	-131.1	-163.6
Balance	-22.7	-45.0	-47.4	-23.3	-43.5
Services (net)	6.0	9.7	16.3	-13.1	7.9
Transfers	12.8	12.7	15.3	17.9	13.4
Current Accounts	-3.9	-22.6	-15.8	-18.5	-22.2
2. Capital flow					
Public (net)	2.9	14.0	11.6	56	16.7
Private (net)	4.2	- 2.5	- 0.4	12.2	-1.7
Basic Balance	3.2	-11.1	-46	-0.7	-3.8
3. Omission/errors	-3.5	1.4	4.1	-1.3	3.4
Change in reserves	-0.3	-9.7	-0.5	-20.0	-0.4

Source: BCEAO, World Bank for 1976

8. MONETARY SURVEY AS OF JUNE 30, 1978

(in billion CFA.F)

	1972	1973	1974	1975	1976	1977	1978
Net foreign Reserves	-2.8	-3.2	-3.0	-24.8	-17.2	-22.2	-32.9
Credit to Economy	50.2	53.3	74.5	108.7	131.0	161.2	178.9
Money Supply	45.9	46.9	64.9	79.3	103.7	144.1	138.2
Quasi Money	1.4	3.3	4.0	4.5	10.1	16.0	7.8

Source: BCEAO

9. PRINCIPAL EXPORTS AND IMPORTS OF SENEGAL 1972 - 1976

	1972	1973	1974	1975	1976
Exports					
Quantity (000)	2,636	2,306	2,951	2,710	2,893
of which: Peanut Products	558	248	301	519	672
of which: Phosphate Products	1,484	1,484	2,016	1,582	1,783
Value (billion FCFA)	54.4	47.7	100.3	107.8	117.0
of which: Peanut Products	28.8	15.3	34.0	40.3	65.4
Phosphates	5.4	5.6	26.0	23.7	19.3
Imports					
Quantity (000 tons)	1,396	1,624	1,515	1,424	1,052
of which: Cereal	286	427	336	217	186
Petroleum Products	605	696	718	720	290
Value (billion CFAF)	79.5	92.7	117.8	131.1	163.6
of which: Cereals	6.8	14.7	22.1	11.1	12.6
Petroleum Products	4.0	5.2	15.5	14.8	8.9

Source: B.C.E.A.O.

10. ANALYSIS OF THE VTH PLAN (1977-81) OVERALL RELATIONSHIP TO DEVELOPMENT OF THE RURAL/AGRICULTURAL SECTOR

The Vth Plan has an investment envelope of 409.6 billion CFAF for the four year (1977-1981) period. Of this amount, the following table shows the breakdown of this investment directly supporting rural/agricultural development (% of total Plan in parenthesis). As can be seen, 45% of the Vth Plan investment is directly related to agricultural/rural development.

			(Billion CFAF)
I.	Primary Sector		
	Crops	48.2	
	Livestock	15.7	
	Forestry	28.3	
	Fisheries	11.9	
	Rural Hydrology	6.9	111.0 (27%)
II.	Secondary Sector		
	Industry	21.9	28.0 (7%)
III.	Tertiary Sector		
	Transport	21.9	21.9 (5.3%)
IV.	Social Sector		
	Health	5.1	
	Education	2.8	
	Promotion Humaine	1.8	
	Information	1.9	
	Research/Studies	11.0	22.6 (5.5%)
		Total	184.4 (45%)

11. EVOLUTION OF THE PRIMARY (AGRICULTURAL) SECTOR IN THE FOUR YEAR PLAN

The primary sector of the four year plans consists of subsectors of crops, livestock, forestry, fisheries and rural hydrology. The breakdown of the evolution of the amount projected in these areas is seen in the following table for the Fourth, Fourth revised, and Fifth four year plans.

Unit: million CFAF
(% of total sector in parenthesis)

Plan	IV	IV revised	V
Crops	24,810 (60)	47,561 (65)	48,216 (44)
Livestock	4,844 (12)	7,202 (10)	15,665 (14)
Forestry	2,686 (6)	3,955 (5)	11,591 (11)
Fisheries	9,000 (22)	14,860 (20)	28,347 (26)
Rural Hydrology	-	-	6,921 (5)
Total	41,240 (100)	73,578 (100)	111,040 (100)
% of Total Plan	23	23	27

As can be seen the amount devoted to crops has fallen in percentage (60 to 44%) while the percentage planned for other sectors has increased, particularly forestry which more than doubled. In addition, the amount of the plan devoted specifically to agriculture increased from 23 to 27%.

The actual financing of the fourth four year plan revised is seen below:

Unit: million CFAF
(% of primary sector in parenthesis)

Crops	24,412 (70)
Livestock	1,693 (5)
Forestry	1,290 (4)
Fisheries	7,282 (21)
Total	34,677

Compared with the projected Plan, it can be seen that crops and fisheries have a greater share of investment than planned, while livestock share was only half as much as planned.

11. (CONTINUED)

As of January 1, 1978, (the latest report of the Ministry of Plan) the following financing has been found for the primary sector of the V Plan.

Unit: billion CFAF

	Planned Investment	Financing Received	Percent Financed
Crops	48.2	22.2	46
Livestock	15.7	4.5	29
Forestry	11.6	0.3	3
Fishery	28.5	11.1	39
Rural Hydrology	6.9	2.1	30
	111.0	40.2	36

12. SENEGAL'S COMMERCIAL FOOD IMPORTS 1970 - 1978 (000 S TONS)

YEAR	MILLET/SORGHUM	RICE	MAIZE	WHEAT	1/ OTHER	TOTAL
1978	NA	228	15	103	NA	346
1977	36	229	15	103	NA	
1976	48	236	15	120	102	419
1975	3	102	10	102	111	368
1974	21	207	27	87	116	458
1973	98	192	52	105	146	536
1972	10	170	10	95	157	433
1971	30	188	33	112	151	426
1970	0	119	5	112	139	468

1/ principally milk products, vegetables, fruit, sugar and canned goods.

13. TOTAL CEREAL AVAILABILITY BY CROP, 1975 - 1979

(000 S TONS)

YEAR	1/ CATEGORY	MILLET/SORGHUM	2/ RICE	MAIZE	WHEAT	TOTAL
1979	DP	900	83	47	-	1030
	CI	NA	259	NA	NA	259
	FA	11	2	5	5	23
	T	911	344	52	5	1312
1978	DP	554	73	53	-	680
	CI	NA	228	15	103	346
	FA	81	14	21	77	193
	T	635	315	89	180	1219
1977	DP	621	87	49	-	757
	CI	36	229	15	103	383
	FA	26	-	16	20	62
	T	683	316	80	123	1202
1976	DP	795	76	43	-	914
	CI	48	236	15	120	419
	FA	16	-	2	12	30
	T	859	312	60	132	1363
1975	DP	511	42	32	-	585
	CI	3	103	10	102	217
	FA	0	0	5	6	112
	T	514	144	47	108	813

1/ DP = Domestic production
CI = Commercial imports
FA = Food aid
T = Total

2/ Domestic paddy rice adjusted to millet rice by factor of 0.65.

14. COMMERCIAL RICE IMPORTS BY COUNTRY OF ORIGIN
(Thousands tons milled rice)

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Thailand	68.5	137.0	166.5	74.5	36.7	32.0	90.9	84.6	41.5	196.6
Pakistan	-	-	-	7.2	32.4	41.5	87.0	34.3	87.5	62.6
Brazil	-	25.2	-	22.2	31.5		29.7	11.9	33.8	-
U.S.A.	0.0	0.1	0.2	17.3	18.5	11.0	-	56.1	36.1	-
Argentina	-	-	-	-	2.6	-	3.5	40.6	5.2	-
Burma	-	-	-	-	-	-	-	-	23.9	-
Other F.W.	-	-	-	16.5	-	-	9.5	1.0	-	-
Sub total	68.5	162.3	166.7	137.7	121.7	84.5	220.6	228.5	228.0	259.2
Cambodia*	50.7	13.0	-	0.5	-	-	-	-	-	-
USSR	-	0.6	3.2	7.7	67.8	17.2	-	-	-	-
PRC	-	11.6	-	46.0	17.6	-	14.9	-	-	-
Sub Total	50.7	25.2	3.2	54.2	85.4	17.2	14.9	-	-	-
Total	119.2	187.5	169.9	191.9	207.1	101.7	235.5	228.5	228.0	259.2

Source: ONCAD

*Cambodia is grouped with the Communist countries for purposes of this table.

15. SENEGAL'S USUAL MARKETING REQUIREMENTS (UMR) FOR RICE
(Thousands tons milled rice)

Note: USG legislation prohibits PL 480 concessionary food sales or grants from displacing the recipient's normal commercial imports (usual marketing requirements, UMR) from other countries friendly with the United States. The UMR of a given commodity in a given year is defined as the average of the previous five years' imports from Free World (non-Communist) suppliers. These import figures are found in the previous table, Commercial Rice Imports by Country of Origin.

1971/75	1972/76	1973/77	1974/78	1975/79
162.3	166.7	137.7	121.7	84.5
166.7	137.7	121.7	84.5	220.6
137.7	121.7	84.5	220.6	228.5
121.7	84.5	220.6	228.5	228.0
84.5	220.6	228.5	228.0	259.2
672.9	731.2	793.0	883.3	1,020.8
UMR	UMR	UMR	UMR	UMR

1976	1977	1978	1979	1980
134.6	146.2	158.6	176.7	204.2

16. AVERAGE PRESENT CEREAL CONSUMPTION BY REGION AND BY RURAL AND URBAN POPULATION.

(By Product) (Kg/Person/Year)

	RURAL POPULATION				URBAN POPULATION				
REGIONS	Millet	Paddy Rice	Corn	Total	Millet	Paddy Rice	Corn	Wheat	Total
CAP-VERT	-	-	-		19	158	4	69	250
CASAMANCE	127	93	19	239	14	192	5	39	250
DIOURBEL +	158	10	-	168	92	116	4	35	247
F L E U V E	123	40	13	176	30	129	5	78	242
SENEGAL ORIENTAL	151	16	28	195	60	119	16	50	245
SINE SALOUM	173	24	1	198	50	161	3	36	250
T H I E S	163	3	1	167	73	116	4	53	246
LOUGA +	158	10	-	168	92	116	4	35	247

(+) The Louga region has been assigned the same figures as Diourbel due to the recent division of the former region of Diourbel into Louga and Diourbel.

ANNEX II: RICE SUPPLY AND DEMAND ANALYSIS

A. Introductory Observations

Rice has long been a common staple in Senegal. It ranks second only to millet and sorghum as the foremost cereal grain produced in the country.[1/] Rice production is almost three times as great as maize while domestic wheat is non-existent. In terms of consumption, rice is again second only to millet and sorghum. Senegalese consume two and one-half times as much rice as wheat (entirely imported) and almost four times as much rice as maize. Rising consumer demand in recent times has caused the Government of Senegal to pursue efforts to promote rice production. Thus, the point merits underscoring from the outset: rice has long figured as a local crop and an integral part of the Senegalese diet.

B. Supply Characteristics of Domestic and Imported Rice in Senegal

The structure of the grain economy in Senegal has served important points related to rice supply. While rice accounts for 26% of all grain consumed in Senegal, only 24% of total rice demand is satisfied by local production. Similarly, rice imports comprise 56% of all of Senegal's imported grain with all the balance of payments implications this sizeable figure signifies. In fact, rice imports exceed 200,000 tons annually, costing an estimated $50 million in foreign exchange.

1/ Senegal's major crop and foreign exchange earner is of course groundnuts. Groundnuts and groundnut products have various uses, primarily groundnut oil and groundnut cake. Even that portion (approximately 2%) directly consumed by the producer falls considerably short of rice consumption.

Costs of rice imports were equivalent to 2.7% of the country's GDP in 1976. Rice comprised 63.8% by value of all cereals imported in 1976 and 6.9% of total imports that year by value. Rice import costs were equivalent to 28.1% of the goods and services balance of payments deficit in 1976.[2/]

What skews the structure of rice demand in Senegal is the fact that 60-70% of all rice imported is destined for the major urban center of greater Dakar. For a number of reasons, chiefly a function of price, the large part of domestic rice supply is consumed by the producers themselves. Senegal's primary rice growing areas[3/] are located around its geographic periphery, precisely those areas farthest and relatively most isolated from the major consumption centers. Indeed, the overriding reason domestic rice does not reach urban markets in greater quantity is the distance involved.

ONCAD purchases the paddy at harvest at the announced guaranteed price, paying the farmer after his (or the cooperative's) inputs and credit costs are deducted. ONCAD's price is often no more than a reference price for parallel market prices which are significantly higher (varying with the season). Due to this insufficient selling price, farmers are reluctant to sell much of their

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2/ Most recent years available, BCEAO. Statistiques Economiques et Monetaires No. 273-juin 1979.

3/ These are the Fleuve (Senegal River Valley) extending upstream into Senegal Oriental (the country's southeastern and relatively least developed region) and the Casamance (Casamance River Valley) to the south, almost separated from the rest of Senegal by the geo-political location of The Gambia.

non-consumed rice to ONCAD (other than to cover debts or credits) and there is indication ONCAD itself is unwilling to enter the domestic rice market. With estimated official rice purchases not exceeding 8-10% of production, ONCAD becomes effectively either the purchaser by necessity (supplier of cash), by proximity to a rice project, or purchaser of last resort.

Recognizing the limitations of producer price policy for encouraging domestic rice production, the Government of Senegal emphasizes policies that seek to increase the aggregate supply of rice produced through technical improvements, chiefly spread through the regional development agencies (RDAs). These agencies provide various levels of land development and water control and disseminate improved inputs and agricultural practices, thereby taking an active role in paddy production. A great deal of the production effort takes place through the medium of donor-financed development projects, giving the RDAs direct access to technical expertise and foreign funds for capital development. For example, small scale irrigated rice perimeter projects have been successfully implemented at Bakel in the Fleuve region and Sedhiou in the Casamance region. An example of highly capital intensive projects are the proposed multi-million dollar dams at Diama and Manantali. These projects will eventually result in the full water control irrigation of 350,000 hectares, many for rice cultivation.

Before addressing the impact of Title III rice on urban consumption in a country which already cannot produce for its urban markets, we turn to the rice demand structure.

C. Demand Characteristics of Rice (Domestic and Imported) in Senegal

Senegal's inability to supply domestically grown rice to the urban consumption centers is largely a function of price differentials. At the same time, urban demand for rice is largely a function of consumer grain preferences. Demand preference will be analyzed by marketing habits and the composition of urban grain consumption. Official Senegalese policy as enunciated in the Food Investment Strategy is to reduce costly rice imports, by a dual approach: increasing local production (increasing rice self-sufficiency) and replacing considerable rice demand by millet and maize (a shift in consumption habits). Thus, the central issues on the urban rice demand side are: the type and quantity of rice demanded, and the extent to which millet and maize can be substituted for rice. We address the latter issue first.

1. Composition of Grain Demand

Rural diets in the populous central region are based on millet but supplemented by rice. The urban consumer on the other hand, having access to a more diversified food supply, has a rice based diet which is supplemented by millet.

A micro-economic study performed by the University of Michigan, Purdue University[4/], and the Centre de Recherche Economique Applique (University of Dakar) under contract to AID, recently investigated these urban demand patterns using a relatively small but demographically valid sample of

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4/ Ross, Clark G., Grain Demand and Consumer Preferences in Dakar, Senegal (Purdue University, University of Michigan, University of Dakar: January 1979)

75 households[5/] in the greater Dakar region. The study took an intensive look at household grain purchases over a period of five months.

a. Millet

Survey results show that 69 of the 75 survey households bo[illegible]let (in varying quantities, at different frequencies), usually in the [illegible] of whole grain rather than millet flour or prepared couscous. Consumers buying grain millet found it more economical to have it milled and transformed into flour themselves. Millet purchases are generally stable throughout the year except during Ramadan when two-thirds of the sample stated that their purchases and consumption increased. The typical household consumes millet-based meals only about 2.5 times per week or 10 times per month. This point becomes germane to the millet-maize-rice substitutability question when we observe that no household consumed millet at the noon meal, claiming reasons of too long a time for preparation of millet and too heavy a meal for the middle of the day. Almost all millet is consumed in the evening.

b. Maize

The study concludes that consumers purchase very little maize. That maize which is purchased is usually destined for "secondary" consumption, to be mixed with other grains or for maize porridge. It is uncertain whether households preferring millet and rice strongly disliked maize or were simply unaccustomed to maize-based meals. The latter explanation seems more plausible

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5/ Households were defined by the numbers of people eating meals together.

in that 41 of the 75 households never purchase maize and only 7 of those remaining consume an excess of four kilograms weekly

c. Rice

Daily consumption of rice was found to seldom vary during the year, with 69 households eating rice once a day and 6 households regularly eating rice twice a day. The urban population eats rice primarily at midday with fish or vegetables, almost never in the morning but occasionally in the evening. Conversely, all households eat millet only at the evening meal. All households eat rice at midday followed by an evening meal of millet, rice or other food.

Retail grain prices are uniformly set nationwide by le Comite des Grands Produits Agricoles (CGPA), 80 CFAF per kilogram in the case of rice. Despite the legal enforcement of the price ceiling, consumers can be expected to pay an under-the-counter premium (an additional 10-15 CFAF) for their preferred rice if supplies run low. The black market for rice in the Dakar area is generally believed to be "manageable" in the sense that higher prices cannot be sustained indefinitely. If prices increase too drastically, lower income families will tend to fall out of the bidding.

This last point was born out by carrying out demand equations[6/] using monthly household rice consumption as the dependent variable and income and household size as the independent variables. The result for the income variable was that rice demand was not quite as income inelastic as had been

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6/ Both simple linear and double logarithmic.

assumed and that household income had a more significant influence on rice demand than on millet demand.[7/] Nonetheless, the derived income elasticities for rice demand are still quite low. As for household size, the marginal influence on rice demand of an additional adult only slightly exceeds that of an additional child--the implication being that rice figures about as importantly in children's diets as for adults.

The point to bear in mind, however, with regard to either officially or parallel market priced rice is that all income groups purchase rice regularly. Supplies are generally adequate at the legal price of 80 CFAF/kilo to satisfy demand. In other words, enough rice will be available for all income groups despite subtle consumer preferences for certain rice qualities. Given the preponderant bias toward a rice-based midday meal, all rice supplied at normal levels will be sold.

Finally, there is one recent indication that the price elasticity of demand for rice may not be very great over the long run. As part of the major price-support policy reform announced in November, 1974 to reduce the effective consumer subsidy for grain purchases and to stimulate domestic agricultural production, the CGPA sharply increased the retail price of rice from 60 CFAF to 100 CFAF per kilogram. Total rice purchases initially dropped off but quickly recovered to the level experienced prior to the price increase.[8/]

7/ Millet demand, however, was found to have a negative relationship to increased incomes.

8/ Later declines in the world market price for rice were passed along to the Senegalese consumer in the form of a domestic price reduction to the current 80 CFAF per kilo in December, 1976.

2. Implications for Fifth Plan Objectives

Rice then forms the staple grain in the typical Dakarois diet. All sample households purchase rice--those who are economically able purchase in bulk quantities and poorer households buy their rice daily.

The policy implications of this dietary pattern are quite clear: the Government of Senegal will find it difficult over the short term to induce a consumption shift from rice to millet or maize, or from imported rice to domestic rice.

Cultural preference for rice is strong. Greater institutionalized milling or pre-cooking of millet to both lower costs and ease time of preparation have not yet met consumer acceptance. Further development is required. Maize remains a relatively unknown grain in urban diets. Only a major campaign to popularize maize (or millet) meals might bring about a shift in consumption patterns.

Changing from imported to domestic rice is economically disadvantageous. In order for domestic rice to be economically competitive with imports, the world market price for rice would have to undergo a sudden and substantial increase which is unlikely. Nor will the price differentials likely be lessened through decreased transportation costs for domestic rice.

The clear conclusion, then, is that urban demand for imported rice will remain constant, and not abate over the short term.

3. Urban Demand Projections

This presentation of the role of rice imports in Senegal differentiates between rice consumption in urban and rural areas. Traditionally, urban consumers in Senegal have been supplied through imports while most of the domestically produced rice has been consumed in rural areas, mostly by the farmers themselves. Thus, a Title III rice program will primarily supply Senegal's urban markets and to some extent, non-rice-producing areas in the center of the country.

The table below projects the supply and demand of rice in urban areas, highlighting the relative roles of imported and domestic rice:

PROJECTIONS OF MILLED RICE SUPPLY AND DEMAND IN URBAN AREAS

(Thousand Tons)

		1978	1979	1980	1981	1982	1983
1.	Urban Demand	210.0	217.5	225.0	232.0	240.9	248.4
2.	Domestic production	54.2	82.6	97.5	104.0	111.8	120.3
3.	Seed and waste	5.4	8.3	9.8	10.4	11.2	12.0
4.	Available for consumption	48.8	74.3	27.7	93.6	100.6	108.3
5.	- rural demand	61.5	6.3	64.6	66.2	67.8	69.3
6.	- urban (residual stocks)	0	11.3	23.1	27.4	32.8	39.0
7.	Import needs (#1 - #6)	210.0	206.2	201.9	205.4	208.1	209.4
8.	- of which Title III			20-22.0	20-22.0	20-22.0	

The key assumptions underlying this table are as follows:

a. For the base year (1978)

(1) Urban demand is based on estimated availabilities in recent years, i.e., about 200,000 tons of imports and 10,000 tons of domestic rice marketed in urban areas by the Caisse.

(2) Domestic production for 1978 and 1979 is based on a trend production. Production for 1980 and 1981 is based on the trend line from a normal production level of 100,000 tons in 1974/75 to 160,000 tons in 1980/81 (see Table in Part I, Section C, p. 37).

(3) Rural demand is a very rough guess on average production in recent years and how much of that production was marketed in urban areas.

b. For future years

(1) Urban demand is projected to grow by 3.5% a year. This is a conservative estimate but it is the growth rate used in the recent SONED study[9/] and is close totthe trend for rice imports during the 1970/71 - 1976/77 period.

(2) Domestic production is projected to grow at 8% per year going from 100,000 tons of paddy in 1974/75 to 160,000 tons in 1980/81, and at 12% after 1980/81.

(3) Rural demand is projected to grow by 2.5% per year or slightly faster than the rate of rural population growth.

9/ SONED, Etude sur la Commercialisation et le Stockage des Cereals au Senegal, July 1977.

(4) Urban consumption of domestic rice is a residual figure and import requirements are the difference between urban demand and the available surpluses from rural areas.

The point to emphasize with respect to these projections is that rice imports can only be reduced to the extent that domestic production can provide surpluses for urban consumers which meets urban taste preferences. Increasing domestic rice supply is clearly the intent of the Government of Senegal and several major programs in the Fleuve and Casamance regions have been initiated to achieve this objective. However, there are several related constraints. The first, of course, is the difficulty of increasing production at the rapid rate required; in the above table we assume a rate of 8% per year which, despite being ambitious, has very little impact on import requirements during the Fifth Plan period. Second, there is the problem of marketing. A large portion of the increased rice production will be in the Casamance and at present there are no organized marketing channels between that region and Dakar. This problem can be resulved but it will take some time. Finally, there is the question of prices. Costs of rice production in Senegal are such that domestic rice cannot compete with imported rice unless it is subsidized. When ONCAD markets domestic rice in the Dakar area, it operates at a loss. If ONCAD is to have any incentive to market 40,000 tons of domestic rice in 1980/81 (as compared to about 8,000 tons at present) this situation will have to change.

In any event, even under fairly optimistic assumptions regarding consumption and domestic production, prospects are for continued imports of rice at close to the levels of recent years. In view of the serious balance of

payments and budgetary problems continually facing Senegal, USAID/Senegal recommends as large a Title III rice program as possible consistent with the PL 480 Usual Marketing Requirements and with the need to avoid creating excess supplies that could lead to disincentives to domestic production. Based on the data in Table 13 of Annex I, it appears reasonable that the UMR for non-Communist countries is approximately 204,000 MT per year, in which case a 22,000 - 25,000 tons Title III program would be appropriate.[10/]

D. Impact of PL 480 Rice Program on the Senegalese Economy

1. Overall Benefits to be Realized from the Title III Program

Benefits accruing from the Title III program are several. From the vantage of national development, Part II of the proposal describes in detail the six projects and policy studies to be funded from rice sales revenues. From an accounting perspective, the proposed program will impact favorably on Senegal's balance of payments and its budget.

a. Availability and Price of American Rice

Senegal has requested lower quality, 80 percent brokens rice[11/] for the PL 480 shipments. Rice grains which are broken during milling are usually separated out through a screening process as 100% brokens. It is this rice which is mixed with whole grain rice to arrive at the desired grade,

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10/ The USDA office of the General Sales Manager has set the range of a PL 480 rice shipment between 25,000 and 42,000 tons annually.

11/ The term "percentage brokens" refers to the percent of broken rice grains per unit measure and does not refer to the length of the grain, such as short grain or long grain rice. Additionally, the percentage brokens always indicates the maximum percentage broken grains allowable for a given trade.

such as 80% brokens. Alternatively, some milling processes are directly adjusted to produce the desired percentage brokens (usually low percentage brokens), thereby requiring no separating of whole and broken grains. End October 1979 FAS prices at American ports on the Gulf of Mexico were approximately $176 per metric ton for Fancy Brewers' 80 percent brokens rice and between $176 and $246 per ton for Second Heads 80 percent brokens.

The volume of 80% brokens in the United States is characterized by low supply relative to higher quality low percentage brokens rice. According to the Rice Millers Association, the volume of 100% brokens for the seven year period, 1971-77, averaged 444,505 metric tons. By comparison to the average US rice production during the same period, approximately 4,662,500 tons, it appears that roughly 10 percent becomes 80-100% brokens. Applying this rough measure on the January 1980 USDA rice crop estimate of a record 6.2 million tons would give a theoretical availability of 620,000 tons of high percentage brokens, one of the highest volumes in recent years. The Rice Millers Association has indicated that finding 20-30,000 tons of 80% brokens presents no problem from the supply side.

As high percentage brokens command a much lower price, there exists a significant and often vigorous commercial demand, chiefly from Anheuser-Busch and other American brewers[12/] but also from manufacturers of pet foods and breakfast cereals. Public Law 480 invests the Secretary of Agriculture with the authority to determine both which commodities (including commodity quality)

12/ Brewers' demand for "Brewers Mix" (80 to 100% brokens) grew steadily from 226,780 MT in 1970 to 317,504 MT by 1977, morethan 70 percent of the seven year average supply of 100% brokens.

and which countries are eligible for food aid. The Department of Agriculture has not decided on the use of US high percentage (80 to 100%) brokens for Senegal under PL 480. While the Commodity Credit Corporation (whose executive board is chaired by the Secretary of Agriculture) might authorize the purchase of 80% brokens for concessional food aid use, the USDA advises that the uncertainty surrounding its availability precludes advance guarantee for multi-year programming.

Higher quality U.S. rice is naturally more expensive. The Department of Agriculture projects that 1980 prices of US 20 percent brokens rice will range from $320 to $350 per ton.

The price differential between US 80 and 20 percent brokens has no bearing on the annual Title III program level. The United States will still supply $7 million worth of rice on an annual basks for the life of the program. The volume of the shipment will depend on the rice type available and the market price at time of purchase.

b. Senegal's Ability to Recoup its Costs

The Caisse de Perequation et de Stabilization des Prix (CPSP)[13/] sells its rice to authorized retailers at 74,595 CFAF/kg who sell to consumers at 80 CFAF/kg. Thus the Caisse will gross CFAF 74,595 for each ton of rice sold, or about $373.[14/] The chief factor determining how much this figure

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13/ On November 26, 1979, the Government announced a proposal for the restructuring of institutional functions between ONCAD and the CPSP, including the transfer of rice import operations from ONCAD to the CPSP. Final recommendations from the Prime Minister's office are expected in February 1980. Until such time as the CPSP announces any changes on ONCAD's former operations, these are assumed to remain the same.

14/ Based on $1.00 - 200 CFAF

represents net revenues is the purchase value of the rice. Associated costs of freight, insurance and financing can be considerable, depending on the country of origin. Local landed costs, comprising a minor part of total costs, remain constant for all rice imported.

The Government places a variable levy on its imported rice so that revenues have always covered the cost of commodity purchase, freight charges, landed handling, storage and distribution. In fact, domestic sales of low-grade rice (80-100% brokens) usually imported from Asia have become a significant earner of government revenues. The Caisse would obviously prefer to maintain this lucrative margin for all the rice it imports.

Senegal's local cost price schedule[15/] for imported rice is shown below:

Insurance	$ 5.59
Frais financiers S/Credoc	2.68
Frais financiers S/Credoc mobilise	5.00
Customs, port fee, handling	13.88
Transfer and storage	1.90
ONCAD margin	4.99
TOTAL/MT	$34.04

The insurance and finance charges will be treated as costs incurred in foreign exchange.

To determine the Caisse's net revenues margin, one adds commodity and freight costs to the above local costs of approximately $34.04. For example, Senegal contracted to purchase a shipment of 100 percent brokens rice from Pakistan in December 1979 for $225 per ton, including freight and transport insurance. Total costs in this case would be approximately $259 per ton which,

15/ These prices are based on the Mission's readjustment and update of ONCAD's cost-price schedule submitted to USAID/Senegal on November 29, 1978. The CPSP, now responsible for rice imports, is presently analyzing the entire cost-price schedule. USAID/Senegal will continue to refer to the ONCAD cost-price schedule until the CPSP completes its analyses.

Insurance costs for commercially imported rice in calendar 1979 averaged 1,118 CFAF/MT or $5.59/MT. This represents a significant increase of 29% over the figure submitted in 1978.

Frais financiers S/Credoc refers to bank charges (including interest) to open up a line of credit to make a commercial rice purchase. The cost shown, ($2.68MT) represents an average per ton charge.

Frais financiers S/Credoc Mobilise refers to the incremental fee a bank charges the Caisse for holding a portion of Senegal's rice imports in a permanent rotating reserve. This reserve represents a 2-3 month supply of rice or about 15-20% of Senegal's annual needs. This charge, $5.00/MT, is higher than the preceeding charge because these imports are held for a longer period (before being rotated out of the reserve and released for purchase) and thus it is a longer period before the bank loan is repaid. The actual charge exceeds $5.00 per ton. However, each ton of commercially imported rice is assessed this figure on the basis of average annual cost.

(These two frais financiers costs would not be valid for PL-480 rice. Hence, they will be removed from the PL 480 cost price schedule.)

Customs, port fee and handling (essentially unloading of cargo) are self-explanatory. It is uncertain in the case of food aid rice whether the GOS would charge itself customs. As a precaution, however, this cost entry will not be reduced.

Transfer and storage refer to the average cost per ton for movement of rice to ONCAD's wholesale points.

ONCAD margin covers all other costs not listed elsewhere, including port and storage security for the commodities and personnel costs. Essentially, it is an overhead charge. This cost will be maintained in the absence of a new cost listing furnished by the Caisse.

when substracted from the Caisse's selling price of approximately $373, yield a margin of $114 per ton. Had Caisse been able to maintain this revenues margin on each of the approximately 260,000 tons of rice imported from Asia last year, total revenues on rice imports would have totalled more than $29.6 million.

The preceeding example clearly represents the best (most profitable) scenario for the Caisse. To calculate the cost of PL 480 rice, one substracts the financing charges but adds an approximate freight charge of $80 per ton.[16/] Using an illustrative price of $220 per ton for US 80 percent brokens, calculations show a net revenues gain for ONCAD of approximately $46.64 per ton as follows:

Commodity cost		$220.00/MT
Freight		80.00
Local charges	34.04	
-financing fees	7.68	
	26.36	26.36
Total Cost		$326.36/MT
ONCAD's revenues		373.00/MT
- total cost		-326.36/MT
Net difference		$ 46.64/MT

Since the supply of US 80 percent brokens cannot presently be guaranteed, the CPSP will incur a revenues shortfall of any shipment of US 20 percent brokens rice at either end of the price range estimated by USDA.

16/ Senegal does not qualify for US waiver of freight charges because it is not on the UNCTAD list of relatively least developed countries as determined by per capita GNP. PL 480 requires that a minimum of 50% by volume of a recipient's annual commodity purchase be transported by American flagships. In the event of higher shipping costs for American vessels, the Commodity Credit Corporation will pay the difference between the average shipping costs of American and non-American ships as contracted by the recipient country. Thus, it is possible that Senegal would pay somewhat less than $80 on the average for freight charges. However, there is no opportunity cost for Senegal once American rice is landed in Dakar. All local costs for handling, storage, distribution and overhead are constant, whether charged for US, Thai or Pakistan rice.

$320.00/MT	commodity cost	$350.00/MT
80.00	freight	80.00
+ 26.36	local charges	+ 26.36
$426.36	total costs	$456.36
$373.00	ONCAD's revenues	$373.00
-426.36	- total cost	-456.36
-$53.36/MT	Net loss	-$83.36/MT

In the very unlikely event that no US 80 percent brokens are available during any program year, Caisse's revenues shortfall could be as high as $1.167 million for a $7 million purchase of 21,875 tons of 20 percent brokens at $320 per ton or $1.667 million for a purchase of 20,000 tons at $350 per ton. These two figures would represent local currency shortfalls equivalent to 16.7% and 23.8% respectively of the $7 million annual program level.

c. Financial Impact of Title III Program for Senegal

In balance of payment terms, PL 480 rice will save scarce foreign exchange equal to the PL 480 program level set by the United States Government at $7 million per year, or $21 million for a three-year Title III program. This sum represents $21 million in local currency resources to finance additional development efforts.

United States legislation and guidelines for Title III do not require that the importing of PL 480 rice become a profitmaking venture for the recipient country. However, in order to qualify for full loan foregiveness, legislation requires that the recipient deposit the full local currency equivalent of the rice value (FAS) in dollars into the Title III account.

This requirement alone presents no problem. Given current official prices, revenues from the sale of US PL 480 rice to licensed retailers will exceed the commodity purchase cost of $7 million by approximately a) $1,158,825 in the case of rice at $320 per ton and b), by $459,500 for rice purchased at $350 per ton.

The difficulty which arises for Senegal is that revenues will not cover the entire bill for freight, insurance handling, storage, distribution and overhead charges.

Thus, the effect of the Title III program on Senegal's import operations and the Caisse's finances is not as straight forward. It will depend on the government's financial transactions and economic policies to circumvent any revenues shortfall in the event the Caisse has to purchase US 20 percent brokens rice exclusively. At issue here are two related trade-offs:

i) The trade-off between spending foreign exchange or local currency for rice imports. Senegal's options are, alternatively, a saving of foreign exchange in the amount of the entire value of the rice purchase ($7 million) by successful implementation of the Title III program, or an expenditure of foreign exchange (close to $7 million) to purchase rice commercially but with a considerable profit (approximately 40 percent) in local currency revenues by resale of cheaper Asian rice imports.

ii) The trade-off between acquiring development revenues and general revenues. Under terms of the Title III program, Senegal will gain revenues specially earmarked for development projects. The sale of commercially imported rice will earn the Government of Senegal more revenues in the absence of Title III rice but without guarantee of their use for development projects.

A discussion of both trade-offs follows:

i) The trade-off between spending foreign exchange or local currency for rice imports.

Sound economic policy for developing countries prescribes saving foreign exchange and building up a national reserve. By definition, foreign exchange (hard currency) is more readily tradeable in international business transactions than the local currency (or soft currency) of most developing countries. For developing countries with limited foreign exchange earning exports, foreign exchange holdings are at a premium.[17/] To developing countries, the possibility of substantial savings of foreign exchange makes it one of Title III's most attractive features.

Senegal is a member of the Union Monetaire Ouest-Africaine (UMOA) or CFA monetary group together with five other West African states, all former French colonies. By monetary agreement, the CFA franc is pegged to the French franc at the rate of 50 CFA francs to one French franc. As a country whose currency has guaranteed convertibility, Senegal does not find itself quite so limited by access to foreign exchange as do many developing countries.

Nonetheless, Senegal's net foreign reserve position has seriously eroded since 1975. Foreign reserve holdings, which showed a small deficit for most of the early 1970s, stood at a negative 23.8 billion CFA francs in March 1978. This deficit increased to a negative 58.1 billion by March 1979, the latest date available.[18/]

17/ Economic analyses of development projects in LDCs, for example, will often increase the value of the foreign exchange component to its shadow or real "market" price, very often in the neighborhood of 10 to 20 percent.

18/ See Banques et Monnaies, BCEAO no. 274, July 1979.

This deficit has been financed in large measure (about 66.6 percent)[19/] by drawdowns of the foreign exchange reserve held in common by the UMOA states, particularly the large holdings of Ivory Coast.

As such a collective monetary system can only tolerate one major or perhaps two minor deficit members simultaneously, Senegal has been obligated to redress its foreign reserve position and finances in general. To qualify for a one-year stand-by arrangement with the IMF to make purchases in an amount equivalent to SDR 10.5 million,[20/] Senegal pledged to undertake a range of economic and financial measures: increase certain import duties in fiscal 1978/79, decrease capital expenditures by almost 75%, reduce the Treasury deficit, substantially curtail the growth of domestic credit expansion with the help of the central bank (BCEAO), and monitor external borrowing carefully by requiring no new debts be contracted without the prior approval of the Ministry of Finance and Economic Affairs. The Government of Senegal has also pledged to review and reduce operational costs of the Price Equilization and Stabilization Fund (CPSP*) and ONCAD and to improve their financial transactions. The government also received approval in principle for an extended Fund facility during 1980 to support a medium term comprehensive program aiming at stable economic growth. Part of this program includes tax reform, mid-term re-examination of Development Plan objectives, and the formulation of supporting fiscal, monetary and incomes policies.

19/ The other sources have been the Government of Senegal Treasury and eurodollar loans from international banks.

20/ This agreement was signed March 30, 1979.

* Aslo referred to as Caisse; see acronym glossary.

The record to date appears to be mixed. Major shortcomings are the failure to contain credit expansion and reduce the deficit projected in the 1979/80 balance of payments in face of the drop in the volume of export products. Against this background, Senegal is not likely to miss the opportunity offered by Title III to improve its economic and financial position.

ii) <u>The trade-off between acquiring development revenues and general revenues</u>

Under Title III, the use of rice sales proceeds for development objectives is guaranteed. In a commercial purchase, it is not.

Title III stipulates that commodity sales revenues be directly earmarked for clearly stated and objectively verifiable development projects or policies. There is obviously no such requirement for the revenues accrued from the sales of commercially imported rice. In principal, all profits are channeled to the CPSP which then subsidizes certain farm inputs, and stabilizes prices of certain food and other consumer items. In practice, ONCAD used to keep these revenues itself for indefinite periods of time. Although the CPSP has now become the direct repository of rice revenues, the government occasionally borrows CPSP funds to cover emergency needs. It is uncertain whether its accounting system eventually reimburses the CPSP.

Even if CPSP funds are not misallocated, the overriding advantage of Title III funds for development lies in the fact that development activity plans cover a multi-year period and specify in advance the precise use of the local currency revenues. A longer term perspective is maintained.

d. Economic and Financial Options for the Title III Account

Senegal has several options by which it can recover the shortfall between total import costs and the revenues generated by the sale of Title III rice.

The option most frequently mentioned is a mixed annual purchase of US 80 and 20 percent brokens. Despite the uncertainty surrounding the supply of US 80 percent brokens, it is possible that some 80% brokens will be available on a year by year basis. To the extent Senegal can purchase a mixed shipment of US 80% and 20% brokens, Senegal will increase its revenues in CFA francs from the sale of rice.[21/]

The following are options in the event of complete non-availability of US 80 percent brokens rice. These options reflect the two trade-offs just discussed. In probable order of increasing acceptibility to the government, these options are:

1. Do not deposit amount of total local currency revenues shortfall in Title III account. Repay deficit portion to US in dollars as required by PL 480 agreement.
2. Pass PL 480 rice revenues shortfall along to consumers.
   a. in form of retail surcharge on PL 480 rice at the approximate rate of 11 CFA/kg for entire shipment of rice at $320/MT; or
   b. in form of retain price increase of 1-2CFA/kg applied universally to all imported rice.

21/ Senegal could conceivably not incur a revenues shortfall at all, given an optimum mix in rice price differentials within a $7 million budget, for example, revenues will marginally exceed costs on the mixed purchase of 12,200 tons of 20 percent brokens at $320 per ton and 14,020 tons of 80 percent brokens at the illustrative price of $220 per ton for 80 percent brokens.

3. Deposit full local currency equivalent of US rice value in Title III account, using a small percentage (5-7%) of profits on imports of cheaper Thai and Pakistan rice to make up PL 480 rice deficit. Repay no dollars to US.

Under the first option, Senegal absorbs the gap between total cost and sales revenues by not depositing the full CFA franc equivalent of $7 million into the Title III account. Depending on the cost per ton of US rice, Senegal deposits the CFA equivalent of approximately $5.333 million to $5.833 million into the account. Senegal qualifies for dollar loan foregiveness in the amount deposited. However, Senegal forfeits loan foregiveness of the deficit amount and is obligated to repay the United States between $1.167 million and $1.667 million, as the case may be.

Under the second option, Senegal recovers the total costs incurred by importing PL 480 rice and still deposits the full CFA franc equivalent of the rice value in the Title III account. It is able to do this by passing the cost of the revenues shortfall onto the consumer. Senegal can either place a price surcharge of 15 - 23% on PL 480 rice or spread the shortfall over all imported rice by a nominal price increase. Such a step would be consistent with the Government of Senegal policy of verite de prix which eliminates subsidies on the consumer prices of basic food staples such as rice, sugar and groundnut oil. It would also be consistent with objectives of the Food Investment Strategy which seeks to gradually reduce the level of rice imports and substitute domestically produced rice and other crops for the con-

sumption of imported rice.[22/] Naturally, there are political ramifications to food prices increases. The exact magnitude of a rice price increase would have to be given consideration within the context of overall government policies on wages and incomes. Under this second option, Senegal qualifies for total loan foregiveness and saves the entire $7 million in foreign exchange.

The third option is the least disruptive. Senegal deposits the full CFA equivalency into the Title III account. Any shortgall between total costs and revenues generated will be transferred from a small portion, approximately 5 to 7 percent, of the revenues from the sale of cheaper imported high percentage brokens rice.[23/] Under this option, Senegal saves the entire program level of $7 million in foreign exchange but makes up the deficit with less scarce local currency. The choice is clear: save foreign exchange, spend local currency.

The most compelling reason for Senegal to take PL 480 rice is to examine the financial alternatives in the absence of Title III.

22/ Quite aside from the discussions of the price of PL 480 rice, there is economic merit in considerations of an overall price increase on imported rice. The significant revenues Senegal reaps from its rice imports are used by the CPSP in support of pricr stabilization of key consumer goods and agricultural inputs. Consumer rice prices have been held constant since December 1976, yet general consumer prices in Senegal rose by 17 percent for the two years alone between October 1977 and October 1979 (see Le Soleil, January 21, 1980). Maintaining fixed rice prices during a period of considerable worldwide inflation and domestic price increases means that this valuable source of revenue risks decreasing in real terms.

23/ Such a transfer does not represent a net loss to Senegal. The internal transfer of some 5 - 7% of Senegal's rice proceeds from the CPSP to the Title III account simply commits the use of that sum in advance for national development programming.

For the same $7 million budget, Senegal purchases more Asian rice but incurs greater foreign exchange costs. Senegal can buy approximately 31,111 tons of Pakistan 100% brokens rice at $225 per ton or approximately 30,172 tons of Thai 100% brokens rice at $232 per ton, both charges including freight. Additional charges of insurance and financing bring the total foreign exchange costs up to $7.4 million for either purchase. By comparison, freight and insurance charges for Title III rice incur at most only $1.72 million to $1.88 million in foreign exchange costs.

This draw-down of foreign revenues for the purchase of Pakistan or Thai rice is somewhat offset by increased revenues generated in local currency. These revenues range from approximately 650 million CFAF ($3.25 million) to 709 million CFAF ($3.54 million). As indicated, purchase of US rice will entail a revenue shortfall in covering total costs ranging between 233 million CFAF ($1.167 million) and 333 million CFAF ($1.667 million).

On balance, the trade-off between costs and benefits favors Title III. Even comparison of the most favorable purchase price (Pakistan 100 percent brokens at $225/MT) with the least favorable (US 20 percent brokens at $350/MT), shows the following financial summary:

1. To purchase Pakistan rice, Senegal spends $7,412,818 in foreign exchange and 211.74 million CFAF to earn net revenues of approximately 709 million CFAF, use unspecified.
2. To purchase US rice under Title III, Senegal spends $1,720,000 in foreign exchange, invests 333 million CFAF and saves $7 million in CFAF equivalent for development purposes.

The comparative costs and benefits of the most and least favorable rice purchase price are shown in the following table:

	PAK at $225/MT (100% brokens)	US at $220/MT (80% brokens)	US at $350/MT (20% brokens)
1. Volume of rice purchased with $7m budget	31,111 tons	31,818 tons	20,000 tons
2. Rice cost/MT in CFAF	45,000 CFA	44,000 CFA	70,000 CFA
3. Entire cost/MT in CFAF	51,806 CFA ($259.04)	65,272 CFA ($326.36)	91,272 CFA ($456.36)
4. - of which foreign exchange	$238.27 (92.0%)	$305.59 (93.5%)	$435.59 (95.4%)
5. GOS sales price per MT to retailers	74,595 CFA	74,595 CFA	74,595 CFA
6. Surplus or shortfall per MT (#5 - #3)	+22,789 CFA	+9,323 CFA	-16,667 CFA
7. Total profit or deficit on $7m rice purchase (#1 x #4)	+708,988,580 CFA (+$3,544,943)	+296,639,210 CFA (+$1,483,196)	-333,540,000 CFA (-$1,667,700)
8. Foreign exchange costs incurred in rice purchase (#1 x #4)	$7,412,818	$9,723,263	$8,711,800
9. Amount of $7m rice purchase convertible to grant	-unconvertible-	$7,000,000	$7,000,000
10. Amount of grant guaranteed for development objectives	----------	$7,000,000	$7,000,000
11. Net foreign exchange cost (#8 - #9)	$7,412,818	$2,723,263	$1,711,800

Based on $1.00 - 200 CFAF
February 1, 1980

The only advantage to purchasing Pakistan rice above is the greater volume - 31,111 tons instead of 20,000 tons. However, holding the volume purchased constant at 20,000 tons also favors purchase of Title III rice over the less expensive Asian rice.

		A. Most favorable price PAK 100% brokens $225/MT	B. Least favorable price U.S. 20% brokens under Title III $350/MT
1.	Commodity cost (expressed in CFA)	900,000,000 CFA	1,400,000,000 CFA
2.	Other foreign exchange costs[2/] (expressed in CFA)	53,080,000 CFA	342,360,000 CFA
3.	Local costs	83,080,000 CFA	83,080,000 CFA
4.	Total costs in CFA	1,036,160,000 CFA	1,825,440,000 CFA
5.	Sales revenues in CFA	1,419,900,000 CFA	1,419,900,000 CFA
6.	Net surplus or shortfall (#5 - #4)	+383,740,000 CFA (+$1,918,700)	-405,540,000 CFA (-$2,027,700)
7.	Loan conversion to grant	----------	+1,400,000,000 CFA
8.	Net resource transfer (#6 - #7)	+383,740,000 CFA (+$1,918,700)	+994,460,000 CFA (+$4,972,300)
9.	Margin of Title III resource transfer over resource transfer of commercial purchase (#8B - #8A)	+610,720,000 CFA (+$3,053,600)	

1/ includes freight for Pakistan rice

2/ includes freight for U.S. rice

It is clear that the net gain for 20,000 tons Title III rice ($3,053,600) which leaves the CFA equivalent of $7 million for development is the preferable option over the most favorable commodity purchase price. Title III brings quantitatively greater benefit. There are several scenarios (and any number of their combinations) which will increase the Title III benefit:

1. availability of less expensive US 80% brokens rice for partial or complete program level;
2. availability of US 20% brokens rice at the lower projected price of $320/ton instead of $350/ton;
3. a lowering of freight costs due to Senegal's right of contracting transportation of up to half the commodity volume to the lowest cost bidder.
4. an increase in the official wholesale price on PL 480 rice alone or all imported rice universally.

Lastly, there is a question of what is meant by "loss of net resource transfer benefit." Prices of US rice are higher due to unavailability of cheaper, low-grade quality rice and higher American carrier freight costs. Anytime costs exceed revenues or decrease the usual magnitude of revenues, there is a resource loss in real terms or in terms of income foregone (opportunity cost).

In the case of PL 480 rice, the government will have to make up at most the CFAF equivalent of the $1.667 million shortfall in revenues under cost of order to gain $7 million in local currency for development. Who should pay the revenues shortfall, the government or the consumer or both? In either case, the economy will collectively absorb a partial loss of resource transfer, whether the government subsidizes the shortfall from other revenues or whether it passes the shortfall onto the consumers in form of a rice price increase.

Summarizing, the economic and financial impact of the Title III program one sees that under the least favorable scenario in which no US 80% brokens rice is available and the entire annual purchase consists of the more expensive US 20% brokens, it is unlikely that the Government of Senegal can recoup all of its costs. Its local currency sales revenues will, however, exceed the dollar purchase cost of the rice in the United States, thereby meeting Title III legislative requirements. If handled carefully, Senegal will be able to deposit into the Title III account the full local currency equivalent of the dollar value of PL 480 rice. Senegal will not have to forfeit conversion of any part of the commodity loan to grant form nor repay any revenues shortfall to the United States in dollars. A Title III purchase of US rice, even at the higher price estimate, will incur only about one-third the costs in foreign exchange as will a commercial purchase of comparable quantity of inexpensive Asian rice. Title III allows the CFA equivalent of $7 million to be used for additional development projects and studies.

2. Rice Quality Issue: 80 Percent Versus 20 Percent Brokens Rice

The only outstanding issue regarding the impact of PL-480 rice program is the question of rice quality, a function of price and preference. It has been claimed that Senegalese consumers will only eat (less expensive) high percentage brokens rice and that 20-22,000 tons of (more expensive) American 20 percent brokens rice may not sell in Senegal.

To give focus to this discussion, it bears repeating that Senegal has a dual market structure for rice: the market for domestic rice and that for imported rice. The brokens quality of the domestic rice varies considerably, from 40-80 percent brokens. The bulk of this rice is consumed in the region of its production. On the other hand, most of the rice consumed in the non-growing regions, especially the urban areas, is imported rice. It is claimed that Senegal normally imports only 80-100 percent brokens rice. The conventional explanation is that this demand preference was largely exogenously determined by the French who "dumped" the cheaper brokens rice into Senegal from either the Office du Niger project in Mali or from Indochina during the period of colonial rule. The demand for high percentage brokens presumably took hold and increased simultaneously with the expansion of Senegal's urban population.

Given the acquired acceptance by the urban Senegalese consumer for high percentage brokens rice and the apparently low exposure to any rice but brokens rice, will 20-22,000 MT of U.S. 20 percent brokens rice sell in Senegal? Actual consumer preferences and recent import figures indicate that it will.

a. Consumer Demand for Rice as a Food Staple

It is clear that there is a generally consistent demand for rice among all income groups of the urban population. Title III rice will help Senegal meet its rice import requirements in conjunction with USAID's projected growth rate of urban rice demand (see p.9). Given the firm consumer demand for rice in conjunction with the Government of Senegal policy regulating both supply and price, the worst possible scenario would be forced consumption but dissatisfied consumers. However, experience suggests that consumer dissatisfaction is likely to occur.

b. Quantity Composition of Recent Rice Imports

Secondly, inquiry at former rice importer ONCAD into the quality of recent imports reveals that Senegal imported 56,085 metric tons and 36,129 metric tons of U.S. Standard Number 5 medium grain 20 percent brokens in 1977 and 1978, respectively. These figures represent 25.7% and 17.5% of Senegal's imported rice for each of those years. Furthermore, it is believed that the imports from Argentina in 1977 and those from Brazil in 1977 and 1978 contained only 30-40 percent brokens. Therefore, low percentage brokens rice is not an unknown quality among rice consumers. ONCAD sold this rice to authorized retailers at 74.5 CFAF/kg who then sold the rice to consumers at 80 CFA/kg --the same price as the less-expensive 80 percent brokens. ONCAD confirms that there is no evidence this rice did not sell on the market.

c. Characteristics of Consumer Rice Preference

Thirdly, the result of a direct examination into urban rice demand characteristics indicates that in any event, it is the economy of the rice-based meal and not the percentage of brokens which is the chief criterion for consumer acceptance.

The Ross study already cited found that 92% of its survey sample preferred imported rice. Seventy percent of these preferred a Thailand rice called Siam for its acclaimed characteristics of short time of preparation, cleanliness, low quantities of oil and water absorbed in cooking, and taste. Other types of rice display some, but not all, of these characteristics and therefore pose a question of relative trade-offs for the consumer. Nearly half the households sample were not familiar with Senegalese rice because so relatively little of it reaches urban markets. However, the vast majority of those who had eaten Senegalese rice (percentage brokens unspecified) were favorably disposed to it.

The same survey asked its sample group to rank the two characteristics most important to consider when buying rice. Results are shown as follows:

First Choice	Second Choice	Characteristics	Goal-Hierarchy Ranking
58	1	Rice Volume	1.000
4	29	Oil Consumption	.926
8	2	Percentage Brokens	-
4	10	Taste	.453
1	10	Length of Preparation Time	.270

(23 households listed only one characteristic)

By and large, Dakar consumers are perceptive shoppers, knowing what rice best fulfills the mix of desired characteristics. Percentage brokens in the rice does not seem to be the chief consideration. Interpretation of the data above suggests that the economy of the meal has high priority as both rice

volume and oil volume consumed bear directly on the ultimate cost of the meal.[24/] This incidently underscores the need for Senegalese policy-makers seeking to expand domestic markets for Senegalese rice to introduce and develop economical local rice varieties having broad consumer acceptance.

3. Bellmon Amendment

The "Bellmon Amendment" is Section 401.(b) of Public Law 480. It states,

> "No agricultural commodity may be financed or otherwise made available under the Authority of this Act except upon determination by the Secretary of Agriculture that (1) adequate storage facilities are available in the recipient country...(2) the distribution of the commodity in the recipient country will not result in a substantial disincentive to domestic production in that country."

a. Storage and Handling Capacity of Recipient

ONCAD is in charge of storage and handling of all cereals at various levels of the production and marketing chain except rice. During this transition period, transferring rice import responsibilities from ONCAD to the CPSP, it is not known what arrangements will be made for the use of ONCAD's storage facilities for rice. However, the storage and handling capacity for imported rice should not present any serious problems for three major reasons. First, nearly 100% of the Title III rice shipment will be distributed to major urban consumption centers where storage facilities already exist. Second, Senegal has already demonstrated its capacity to adequately handle some 200,000 tons of imported rice per annum. Third, the CPSP can spread its rice import dates of purchase and delivery over the year so as not to put too great a stress on existing port storage facilities.

b. Domestic Production Disincentive Negative Determination

Rice brought into Senegal under Title III program will not act as a disincentive to Senegalese farmers to increase their own level of rice production if: (1) the Government of Senegal maintains its domestic price support at the present level while increasing domestic purchases, and

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24/ Rice is often eaten together with vegetables or fish. For meals with fish, rice represents the less expensive ingredient. Rice demand, therefore, may be considerably more influenced by the price of the complementary ingredient, fish, than by its own price.

(2) Senegal either reduces commercial imports in proportion to increased domestic production or at least/not appreciably increase commercial imports. The stated objectives of the Government as indicated by the Plan and the FIS are to carry out both measures.

4. Conclusions

In summary, the issue whether Senegal can sell and absorb 20-22,000 tons of U.S. 20 percent brokens rice in the absence of 80 percent brokens dissipates because:

(1) There is a constant growth in consumer demand for rice and Title III rice will not raise the aggregate supply levels beyond the projected growth rate;

(2) Senegal has imported 20 percent brokens rice during the past several years and evidence indicates this rice sold on urban markets;

(3) The primary rice characteristics Senegalese consumers look for are not the percentage of brokens, but characteristics of economy, and

(4) There exists a number of options for Senegal to avoid a possible shortfall in local revenues generated by the sale of PL-480 rice and which result in a revenue surplus for ONCAD.

The broader issue here is not so much the Caisse's ability to turn a profit on Title III rice but the net impact for development accruing to Senegal from the rice sale proceeds. Significantly, the Ministries of Finance and Plan and the Prime Minister all fully support the Title III proposal as a development tool with national scope. For its part, USAID/Senegal is firmly convinced of the Government of Senegal's sincerity and ability in carrying out its proposal and once again recommends favorable consideration.

COMPARISON OF COSTS AND BENEFITS FOR PURCHASE OF 20,000 TONS OF RICE

	A. Most favorable price PAK 100% brokens $225/MT		B. Least favorable price under Title III U.S. 20% brokens $350/MT	
Commodity cost 1/	$ 4,500,000	900,000,000 CFA	$ 7,000,000	1,400,000,000 CFA
Other foreign exchange costs 2/	$ 265,400	53,080,000 CFA	$ 1,711,800	342,360,000 CFA
Local costs	83,080,000 CFA	83,080,000 CFA	83,080,000 CFA	83,080,000 CFA
Total costs in CFA		1,036,160,000 CFA		1,825,440,000 CFA
Sales revenues in CFA		1,419,900,000 CFA		1,419,900,000 CFA
Net profit on deficit (#5 - #4)		+383,740,000 CFA (+$1,918,700)		-405,540,000 CFA (-$2,027,700)
Loan conversion to grant		----------		+1,400,000,000 CFA ($ 7,000,000)
Net resource transfer (#5 - #6)		+383,740,000 CFA (+$1,918,700)		+994,460,000 CFA (+$4,972,300)

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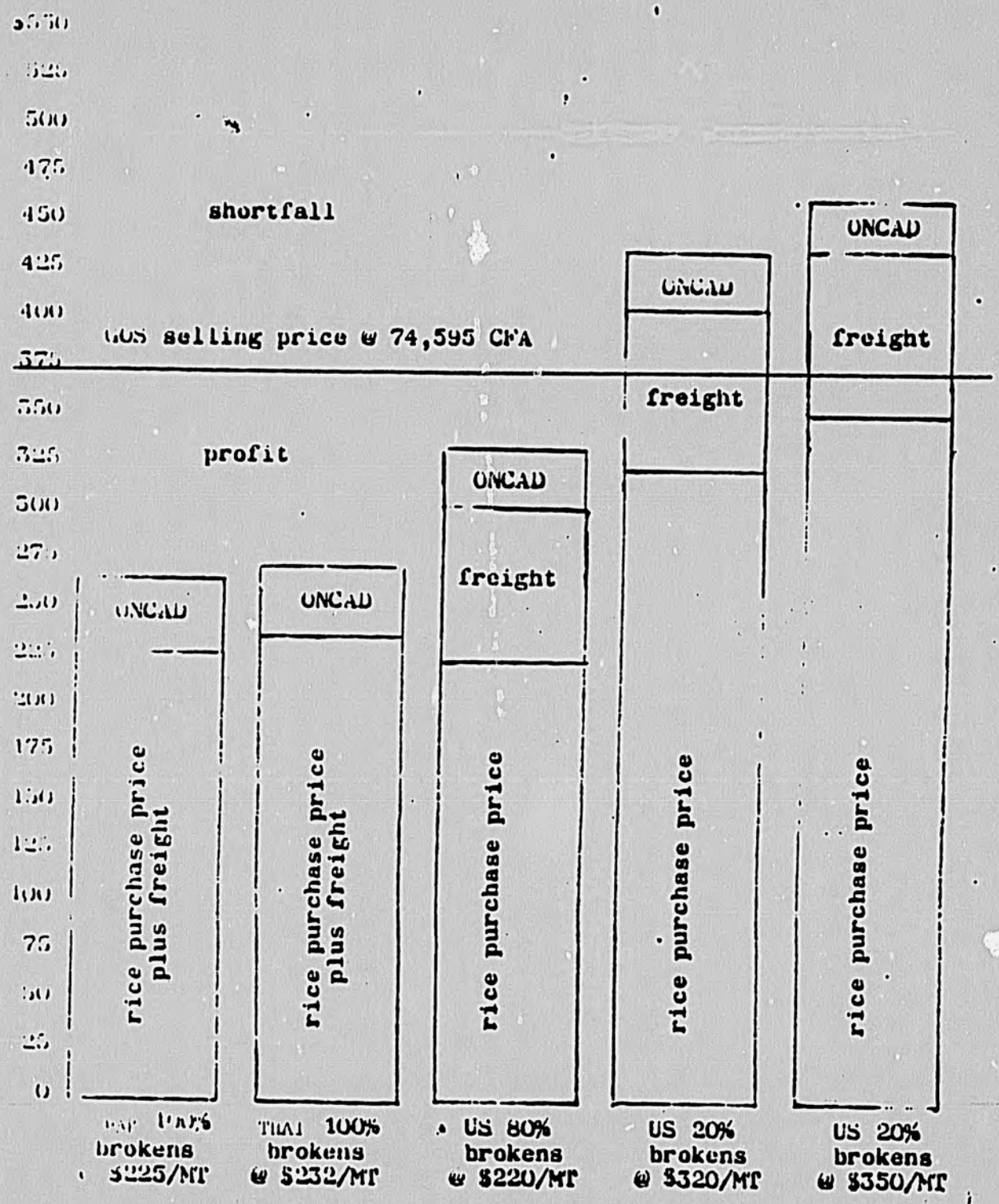
includes freight for Pakistan rice

includes freight for U.S. rice

	A.	B.	C.	D.	E.
	PAK at $225/MT (100% brokens)	THAI at $232/MT (100% brokens)	US at $220/MT (50% brokens)	US at $320/MT (20% brokens)	US at $350/MT (20% brokens)
lume of rice purchased th $7m budget	31,111 tons	30,172 tons	31,818 tons	21,875 tons	20,000 tons
ce cost/MT in CFA	45,000 CFA	46,400 CFA	44,000 CFA	64,000 CFA	70,000 CFA
tire cost/MT in CFA	51,806 CFA ($259.04)	53,208 CFA ($266.04)	65,272 CFA ($326.36)	85,272 CFA ($426.36)	91,272 CFA ($456.36)
of which foreign exchange	$238.27 (92.0%)	$245.27 (92.1%)	$305.59 (93.6%)	$405.59 (95.1%)	$435.59 (95.4%)
S sales price per MT o retailers	74,595 CFA	74,595 CFA	74,595 CFA	74,595 CFA	74,595 CFA
ofit or deficit per MT 5 - #3)	+22,789 CFA	+21,387 CFA	+ 9,323 CFA	-10,677 CFA	-16,677 CFA
tal profit or deficit on $7m ce purchase (#1 x #6)	+708,988,580 CFA (+$3,544,943)	+645,288,560 CFA (+$3,226,443)	+296,639,210 CFA (+$1,483,196)	-233,559,380 CFA (-$1,167,797)	-333,540,000 CFA (-$1,667,700)
reign exchange costs incurred rice purchase (#1 x #4)	$7,412,818	$7,400,286	$9,723,263	$8,872,281	$8,711,800
ount of $7m rice purchase nvertible to grant	-unconvertible-	-unconvertible-	$7,000,000	$7,000,000	$7,000,000
ount of grant guaranteed for velopment objectives	----------	----------	$7,000,000	$7,000,000	$7,000,000
t foreign exchange cost #8 - #9)	$7,412,818	$7,400,286	$2,723,263	$1,872,281	$1,711,800

based on $1.00 = 200 CFA
January 19, 1980


shortfall
GOS selling price @ 74,595 CFA
profit
ONCAD
freight
rice purchase price plus freight
rice purchase price
brokens
@ $225/MT
100%
@ $232/MT
US 80%
@ $220/MT
US 20%
@ $320/MT
US 20%
@ $350/MT

217