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Working Group on Marketing,  
Price Policy and Storage

**MARKETING, PRICE POLICY AND  
STORAGE OF FOOD GRAINS  
IN THE SAHEL**

A SURVEY

**Volume II: Country Studies**

Submitted by

CENTER FOR RESEARCH ON ECONOMIC DEVELOPMENT  
UNIVERSITY OF MICHIGAN

Financed by

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August 1977

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ERRATA

Chad

- p. 2 line 5
  - p. 16 footnote 1, line 6
  - p. 30 line 15
  - p. 32 bottom of table
  
  - p. 47 footnote 1
  - p. 48 line 3
  - p. 51 Table IX, line 3
  - p. 56 line 23
  - p. 56 line 25
  - p. 58 line 4
  - p. 60 footnote 1, line 5
  - p. 61 line 9
  - p. 80 line 22
  - p. 84 Appendix 5, ONDR
- However, imports of wheat and flour...  
 ...must be less than for the rural areas.  
 Its monetary costs on this operation  
 year under each section should read, in  
 order: 1973, 1974, 1975, 1976  
 Conseil Militaire Supérieur.  
 (See Appendix 2)  
 "official" producer price 45 12(13.95) 45 ...  
 (See Appendix Table 7B)  
 (See Table XIV)  
 ...products, price increases for millet have...  
 See Appendix Table 8...  
Handling, protection  
 ...ONDR has...  
 Mr. S. Soullanriba, Director of Extension Services

The Gambia

- p. 13 line 13
  - p. 17 line 10
  - p. 75 line 10
  - p. 75 Table 4, line 3
- ... yields per acre from 1000 to 1500 lbs.  
 ...which will utilize modern inputs and reach, during  
 ...in June or July.  
unsubsidized price

Mali

- p. 6 line 15
  - p. 10 line 16
  - p. 10 line 17
  - p. 14 line 12
  - p. 43 Table XIX
  
  - p. 51 line 16
  - p. 68 line 19
  - p. 69 line 8
  - p. 84 footnote 1
  - p. 100 line 20
- ...Mopti and the bottom-land  
There are three prices...  
 ...parboiled whole rice. (See Diagram 1)  
 ...to a price schedule (French: barème)  
 table heading should read: Monetary Cost Return per workday  
 These credit bills are rediscounted at the Banque...  
 ...two channels: one private and one official.  
 ...has been distorted.  
 ...p. 84.  
 ...cases, the lack of adequate...

Niger

- p. 9 footnote 1
  - p. 11 footnote 3, line 2
  - p. 15 line 16<sup>6</sup>
  - p. 16 line 12
  - p. 17 line 5
  - p. 29 line 5
  
  - p. 39 line 18
  - p. 45 lines 17,18
  - p. 46-48 Table IV
  - p. 59 line 1
  - p. 62 line 19
  - p. 75 line 19
  - p. 120 line 2 after Table 2
  - p. 121 line 2 after Table 4
  - p. 126 Glossary
- FAC-..., the French foreign assistance agency  
 ...illustrates. During the team's visit, ...  
 ...than twice the figure of 2000 CFA/ton...  
 ...of the 2000 CFA/ton reported...  
 ... (see page 15).  
 The commission to UNCC has been raised from 1100  
 CFA/ton in 1975/76 to 1500 CFA/ton in 1976/77.  
 Of interest is only r, the coefficient of correlation  
 ((Cov.(AB)/[Var.(A)·Var.(B)]<sup>1/2</sup>)  
 the unit of measurement should read CFA/ton-km.  
 should be Table VI  
 ...the problem but there are...  
 (see page 56)  
 (see Appendix Table 10)  
 ...cooperatives buy the paddy from...  
 ...which it buys at 38 CFA/kg...  
 add: SNIT Société Nationale des Transports Nigériens,  
 National Transportation Company

Senegal

- p. 17 footnote 1
  - p. 20 line 20
  - p. 27 line 20
  - p. 30 line 15
  - p. 39 line 26
  - p. 48 diagram
  
  - p. 49 line 22
- This is true at any realistic...  
 ... as well as by country of origin, ...  
 BUD is a private enterprise.  
 ...for first quality grain cotton...  
 ...there are 13 wholesale depots.  
 broken arrow should appear between "Approved  
 Wholesaler" and "Trader"  
 ...due to the small volume of these purchases.

UPPER VOLTA

- p. 69 line 9
  - p. 94 line 20
- ...these are matters...  
 ...a correlation coefficient ( $r = \text{Cov}(AB) / [\text{Var}(A)]$ )

## Preface to Volume II

Because some readers of this volume may not have access to Volume I, it is worth repeating here some of the remarks made in the general introduction to the study. The study originated at the request of CILSS/Club du Sahel Working Group on Grain Marketing, Price Policy and Storage. At its Dakar meeting in July, 1976, the Working Group requested that a "diagnostic survey" be undertaken, in order to bring together existing information on marketing, price and storage, and to identify main issues. This study was undertaken in response to that request. It was financed by the Sahel Development Program of the Agency for International Development.

The country studies in this volume are based on field trips, on the study of documents and reports gathered in the field as well as from multilateral and bilateral aid agencies, on a survey of published literature and on responses to questionnaires sent to the CILSS countries in August, 1976.

The field trips took place between November 1976 and February 1977. At least three work-weeks were spent in each country; in most cases, it was closer to a month. During the ensuing write-up in Ann Arbor, the team benefitted from the presence, for brief periods, of the President of the Working Group, M. Ibrahima Sy; the Rapporteur of the Group, M. Charles Leroy; and M. Serge Michailof of the Caisse Centrale de Coopération Economique, Paris. Also, the final report benefits from a review of preliminary findings, held during a Working Group meeting in Brussels, March 16-18, 1977.

Considerable autonomy has been given to the authors of the country studies. They, of course, had guidance of several sorts. The terms of reference set down a long list of specific questions about which information was to be sought. The entire team spent some 10 days together in the Upper Volta, and three of the four authors of country studies went to Niger together. In Niger, a more detailed set of analytic questions was worked out, and this was used to guide the inquiry in the remaining field work. In Ann Arbor, we have had much discussion, and each draft country study underwent extensive editing.

It nonetheless remains true that each country study is the responsibility of its author, and will reflect his perceptions and ideas to a considerable extent. Such a devolution of responsibility seemed desirable for several reasons. (a) The field work could only be organized by specializing individual team members in given countries; it would have been too difficult for any one or two individuals to visit all seven Sahel countries. (b) Attribution of individual responsibility has obvious positive effects on the authors' incentives. (c) Perhaps most important, the study of marketing systems is peculiarly subject to the preconceptions of the investigator. It therefore seemed preferable, as well as necessary, to allow each country study to reflect its author's understanding and insight, which is to say, also his biases. This has resulted in differences of emphasis and outlook in the country studies--differences which are

accounted for also by the fact that marketing and price policy problems arise in different contexts in each of the Sahel countries.

The authors responsible for the country studies are: Boubacar Bah, Mali and Mauritania; Elliot Berg, Upper Volta; Daniel Kohler, Niger and Chad; Clark Ross, Senegal and the Gambia. In addition to overall editing by me, Aimée Ergas made major editorial contributions, Judy Brooks assisted on the Upper Volta, Charles Steedman worked on Mali and Mauritania, and Annick Morris was responsible for the French translations. Greg Conboy and Bijan Amini helped with statistical material.

The major emphasis in all the country studies in this volume is on marketing and price policy. Each study discusses storage issues, but these receive less intensive attention than marketing and prices. The reason is that we were originally requested to survey only marketing and price policy; storage was to be the responsibility of another group of consultants. For various reasons the Club Working Group was not able to find storage consultants, so we did some work on storage, but necessarily gave it less attention than the other issues.

Finally, this is an étude diagnostique, a phrase for which there is no good English translation. It means an analytic survey, but without recommendations on policy. Authors of country studies were instructed to avoid drawing policy conclusions, but the line between assessment of options and recommendations on policy is difficult to draw. The basic purpose of these studies, in line with the mandate we were given by the Working Group, is nonetheless fact-finding: bringing together what is known, underscoring what needs to be known for more effective policy-making, setting out options and assessing these options in the light of existing constraints. The reader will therefore not find here detailed and specific recommendations on what grain marketing agencies such as ONCAD or OPVN ought to do, how they might be made more effective organizationally, whether and by how much millet and sorghum prices in Mali or Niger ought to be raised. These are the kinds of questions appropriate to more focussed policy studies, not to an étude diagnostique such as we were requested to do.

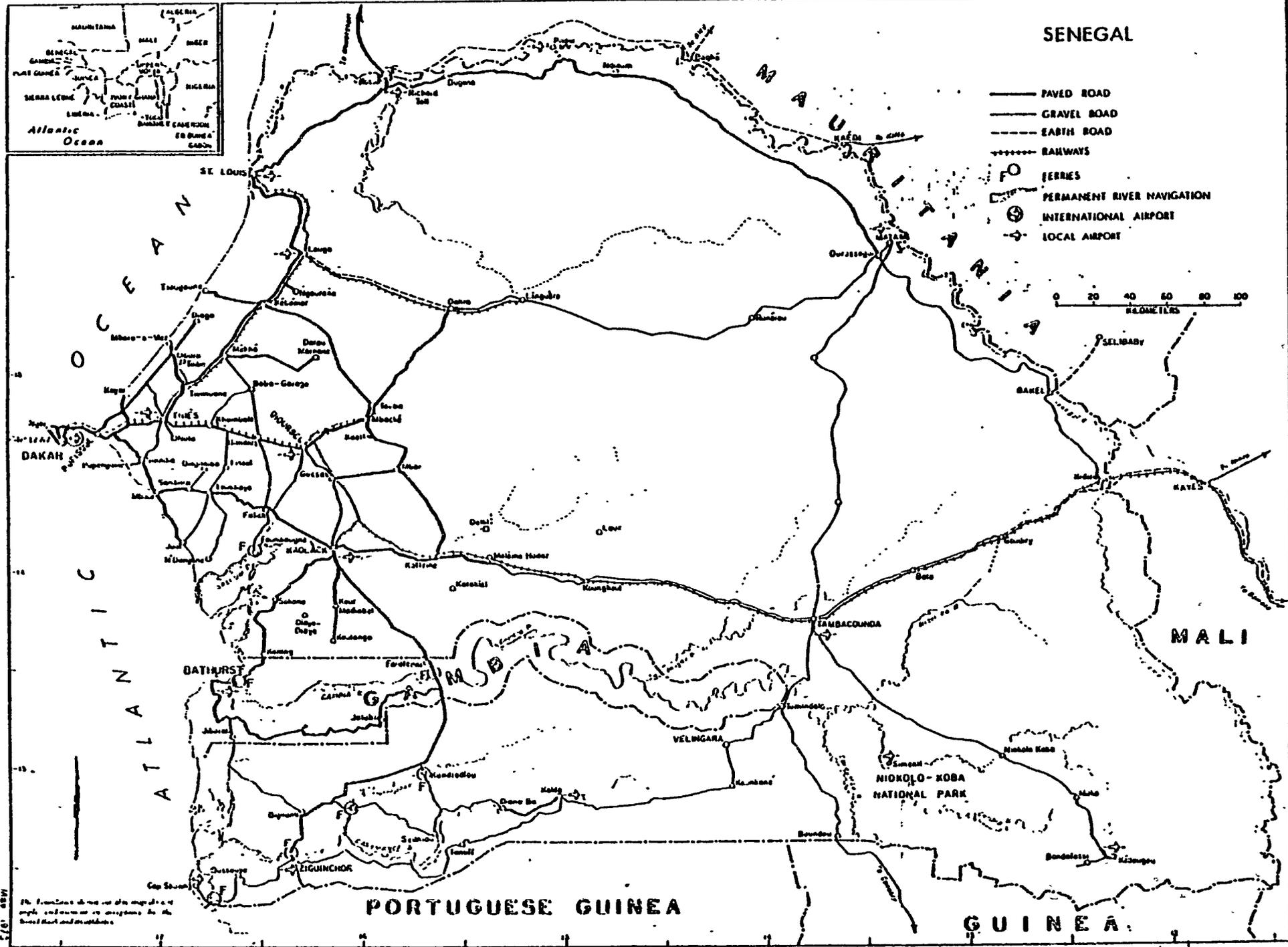
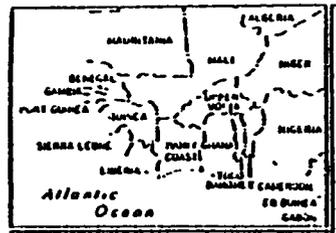
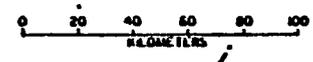
Elliot Berg  
Project Director

Ann Arbor, Michigan  
July 1977

**SENEGAL**

# SENEGAL

- PAVED ROAD
- - - GRAVEL ROAD
- - - - - EARTH ROAD
- +++++ RAILWAYS
- FERRIES
- ⊖ PERMANENT RIVER NAVIGATION
- ⊕ INTERNATIONAL AIRPORT
- ⊙ LOCAL AIRPORT



The boundaries shown on this map do not imply endorsement or acceptance by the United States Government.

1:50,000

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## I. INTRODUCTION

Senegal, with a population in excess of 5 million, covers an area of 200,000 km<sup>2</sup>. About 70 percent of this population live in rural areas and engage in agricultural activities. The \$400 per capita income masks a wide variation between an urban per capita income of \$900 and a rural per capita income estimated at \$220. Consistent with this differential is the fact that, while engaging 70 percent of the working population, the rural sector accounts for only 35 percent of GNP. Senegalese agriculture is characterized by small scale nonmechanized farming, with traditional land holding patterns.

The Senegalese economy, in contrast to other Sahelian countries, is marked by its integration with the world economy. It is specialized in production and export of groundnuts. In an average year, its people consume some 600,000 tons of domestically produced millet and sorghum, and over 200,000 tons of rice, over 50% of which is imported. With existing prices and Senegalese cost of production of groundnuts and rice, this pattern of specialization and trade is economically advantageous for Senegal. The movement toward greater food self-sufficiency may thus involve some cost to Senegal, unless relative prices and costs change so as to favor domestic rice production.

Internal marketing circuits for agricultural products reflect Senegal's specialization. The Office National de Coopération et d'Assistance pour le Développement (ONCAD) has a legal monopoly on the collection of groundnuts for export. Further, ONCAD is responsible for the marketing of imported rice, utilizing licensed traders as its agents.

Domestically-produced rice is not extensively marketed in any organized fashion. The marketing of millet and sorghum, the staple cereals of Senegal,

is legally entrusted to ONCAD. Due to certain structural problems, as well as to unattractive prices, ONCAD cannot enforce its monopoly position. Private, traditional channels handle most of the millet and sorghum.

Domestic grain prices are very much a function of world prices. With the producer price of groundnuts relatively more favorable than that of millet/sorghum, the Senegalese farmer tends to prefer groundnut production. Millet and sorghum production and marketing are limited by the greater groundnut profitability. The presence of imported rice in sufficient supply prevents the millet and sorghum price from rising to a level where millet/sorghum production would be competitive with groundnut production. Further, seasonal price variations in cereals are dampened by rice imports through ONCAD. Expansion of local rice cultivation is also hindered by the lower price of imported rice. Thus, the two key prices for Senegalese agricultural decision-making are the producer price for groundnuts and the consumer price for imported rice. These prices together determine the attractiveness of domestic grain production for Senegalese farmers.

The Senegalese development strategy up to now has been based on integration into the world economy, reflected in its specialisation in groundnut exports and its dependence on rice imports. Relative prices on world markets make specialisation and trade economically advantageous for Senegal. To move closer to food self-sufficiency would require a change in the relative attractiveness of groundnuts (lower producer prices) and higher producer prices for rice and other cereals. But a policy of increasing cereals prices relative to groundnut prices, if not matched by similar changes in the world cereal markets, will involve a reduction in the real income of the nation.

This study of cereals marketing for Senegal will explore this situation in greater detail. The main focus of this paper is on cereals markets and price policy as they bear on food self-sufficiency for Senegal. We conclude

from the following analysis that marketing arrangements have not been significant obstacles to the attainment of greater food self-sufficiency and that the economic profitability of groundnuts frustrates national objectives for self-sufficiency. We also conclude that, at current world prices, it is more beneficial for Senegal to sell groundnuts and buy cereals than to reallocate domestic resources to produce cereals.<sup>1</sup>

This of course does not mean that Senegal can ignore the possibility of greater food self-sufficiency. The point is that there may be significant short-run economic costs in doing so, unless (1) the world market for edible oils follows a downward trend relative to costs of imported grain; (2) increasing productivity of domestic grain production transforms relative costs of producing groundnuts in favor of foodgrains; (3) increased grain production can be marketed at a remunerative price.

---

<sup>1</sup>See "Incentive and Resource Costs in Senegal," unpublished working paper of the West Africa Regional Integration Project of the World Bank (Bela Belassa, Director), Chapter 1.

## II. PRODUCTION, IMPORTS AND FOOD AID

### A. Overview

This chapter will describe the Senegalese agricultural sector with brief descriptions of the country's major crops. The importance of commercial imports of food grains and international food aid will also be discussed. The most important agricultural crop in Senegal is groundnuts, from whose export the country realizes a significant portion of total export earnings. Traditionally, Senegal has pursued, to some extent, a strategy of specialisation and trade, a strategy based on the principle of comparative advantage - exporting groundnuts and importing deficit food-stuffs, most importantly rice and, occasionally, millet/sorghum. Recently, the government has taken positive action to reduce the dependence on imported foods by stimulating local production of major food grains.

Tables I, II and III outline the government's progress in this regard.

Certain major trends, to be analyzed in greater detail in later sections, emerge from Table I. Acreage devoted to groundnuts has shown a fluctuating but upward trend with estimated groundnut acreage sharply increasing from 1975 to 1976. Millet and sorghum production has been quite variable, fluctuating between a low of 322,000 tons in 1972/73 and a high of 770,000 tons in 1974/75. This year's (1976-1977) production appears to have fallen sharply, due to the seemingly recurrent problem of a poor distribution of rains. From 1972-73 to 1975-76, domestic rice production enjoyed healthy annual increases and the record production of 1969-70 was equalled in 1975-76. However, as with millet and sorghum, poor natural conditions appear to have reduced this year's production. Maize production, with little appreciable increase in acreage, remains at roughly 48,000 tons. Finally, cotton production and acreage have remained approximately constant during the last three campaigns.

Table I.  
Production, Acreage, Yields  
Production, Surface, Rendement

	<u>Groundnuts</u>	<u>Millet/Sorghum</u>	<u>Rice</u>	<u>Maize</u>	<u>Cotton</u>
<u>1976/77</u>					
A	1330	952	81.2	47.4	43.8
P	1195	554	112.4	47.2	44.7
Y					
<u>1975/76</u>					
A	1017	900	80	48	43
P	1170	715	140	45	43
Y					
<u>1974/75</u>					
A	1152.1	1155.1	85.6	48.6	38.6
P	993	777	117	43.2	42.4
Y	862	673	1366	888	1098
<u>1973/74</u>					
A	1026.2	1093.5	64.6	39.2	28.6
P	674.9	510.8	64.3	33.8	33.1
Y	657	467	996	862	1155
<u>1972/73</u>					
A	1071.4	936.3	50.3	32.3	20.4
P	570	322.9	43.6	20.2	23.5
Y	532	344	866	625	1154
<u>1971/72</u>					
A	1060.3	974.6	83.7	48.9	18.3
P	988.5	582.7	108.2	38.5	21.2
Y	932	597	1242	787	1155
<u>1970/71</u>					
A	982.7	972.2	93.3	50.6	13.9
P	583	400.9	98.7	38.7	11.6
Y	593	412	1058	765	830
<u>1969/70</u>					
A	993.1	1037.3	104.3	55.4	9.8
P	778.8	634.8	140.8	48.8	11.5
Y	827	612	1349	881	1172
<u>1968/69</u>					
A	1191.0	1053.7	77.5	36.3	6.7
P	831.4	450	98.8	25.3	9.76
Y	698	427	1317	696	1458

A = Acreage 1000 ha Surface  
P = Production 1000 tons  
Y = Yields kg/ha Rendement

SOURCE: V<sup>e</sup> Plan Quadriennal de Developpement Economique et Social,  
July, 1976.

Table II, utilizing official production figures and adding commercial imports and food aid, attempts to show, by source, how Senegal meets its cereal needs. It would appear that annual grain consumption currently approaches 1,200,000 tons in Senegal. Certain reservations are called for, however, in using these figures. The production in a given year may not be entirely consumed in that year. Both on-farm storage and clandestine millet/sorghum exports to the Gambia could create a divergence between annual production and consumption. It is the same with commercial imports and food aid. These latter two figures represent quantities entering the country during a particular time period and not necessarily quantities consumed during that same time period. Also, the rice imports recorded are official, legal imports and neglect rice imported from the Gambia, which enters Senegal clandestinely. As a result, recorded rice imports probably understate total Senegalese consumption of imported rice. For instance, between 1969-70 and 1970-71, as well as between 1971-72 and 1972-73, significant decreases appear in the annual totals. It is unlikely that total grain consumption fell by such magnitudes during these years. Rather, an uneven timing of import arrivals, the massing of import stocks during preceding years, or the liquidation of peasant stocks undoubtedly satisfied a portion of the shortfall indicated by the statistics. Some of the indicated shortfall may also be due, of course, to uncertainty in the production data.

Total local grain production appears highly variable. Commercial imports, which declined for the three years 1972-1974, have begun to increase again. With this year's grain production sharply falling from 900,000 tons to 713,000 tons, a further increase in commercial imports seems unavoidable. Negotiations for a major importation of sorghum from Argentina, perhaps 70,000 tons, are currently being conducted. Also rice imports of at least 130,000 tons can be expected. Even with these

Table II. Cereal Balances (000s tons)  
Céréales: Provenances (milliers de tonnes)

		Millet/Sorghum Mil/Sorgho	Rice <sup>a</sup> Riz	Maize Mais	Wheat Blé	Total
<u>1976/77</u>	DP	554	72.8	47	0	673.8
	CI	70 <sup>b</sup>	130 <sup>c</sup>			NA
	FA					53.8 <sup>d</sup>
	Total	624				
<u>1975/76</u>	DP	715	91	45	0	851
	CI	43	130	0	105	278
	FA	NA	0	NA	0	30*
	Total	758	221	47.4	105	1159
<u>1974/75</u>	DP	777	76.1	43	0	896.1
	CI	5	124	0	94	223
	FA	0	0	5.5	6.2	11.7
	Total	782	200.1	48.5	100.2	1130.8
<u>1973/74</u>	DP	511	41.6	34	0	371.6
	CI	34	141.3	0	81.3	256.6
	FA	21.5	2.2	28	5.4	57.1
	Total	566.5	185.1	62	86.5	900.3
<u>1972/73</u>	DP	323	28.6	20	0	371.6
	CI	26.4	188.5	0	62.1	277
	FA	15	3.5	46.6	43.4	108.5
	Total	364.4	220.6	66.6	105.5	757.1
<u>1971/72</u>	DP	583	70.2	39	0	692.2
	CI	10.4	169.9	0	95.4	275.7
	FA	0	0	1	0	1
	Total	593.4	240.1	40	95.4	968.9
<u>1970/71</u>	DP	401	64.35	39	0	504.35
	CI	28.9	187.5	0	112	328.4
	FA	.7	0	2.1	0	2.8
	Total	430.6	251.85	41.1	112	835.55
<u>1969/70</u>	DP	635	91.65	49	0	775.65
	CI	0.2	110.6	0	108.4	219.2
	FA	0	8.6	9.6	4	22.2
	Total	635.2	210.85	58.6	112.4	1017.05

DP = Domestic Production, Production Intérieure  
CI = Commercial Imports, Importations Commerciales  
FA = Food Aid, Aide Alimentaire

\*estimation

<sup>a</sup>The local rice figures presented in Table I have been multiplied by .65, representing the percentage of edible rice after transformation. Les chiffres de production intérieure concernant le riz présentés dans le Tableau I ont été multipliés par 0,65, ce qui représente le pourcentage du riz combustible après transformation.

<sup>b</sup>under discussion with Argentina. en pour parler avec l'Argentine.

<sup>c</sup>minimum assumption. assumption minimale

<sup>d</sup>committed as of Feb. 1, 1977. chiffre en vigueur au 1<sup>er</sup> février 1977.

sizeable imports, the total cereal supply would only approach 900,000 tons, below the 1,200,000 that appears to be annually consumed in Senegal. A clearer appraisal of recent trends in grain self-sufficiency in Senegal is shown by Table III, which indicates the percentage importance of each source for satisfying annual cereal needs.

Table III. % of Consumption Satisfied by Production, Importing and Food Aid

<u>Year</u>	<u>Production</u>	<u>Imports</u>	<u>Food Aid</u>	<u>Total</u>	<u>Cereals (000's tons)</u>
1976/77	56%	N.A.	N.A.	100%	1200 <sup>a</sup>
1975/76	74%	24%	2%	100%	1159
1974/75	79%	20%	1%	100%	1130.8
1973/74	65%	29%	6%	100%	900.3
1972/73	49%	37%	14%	100%	757.1
1971/72	72%	28%	<1%	100%	968
1970/71	60%	39%	1%	100%	835.55
1969/70	76%	22%	2%	100%	1017.05

<sup>a</sup>Estimate.

During the 1972-1974 period, Senegal made marked progress in decreasing its dependence on external food sources. Grain requirements satisfied by domestic sources increased from 50 percent to 80 percent during that period. Commercial imports fell proportionately. This was due to the increases in domestic production of millet, sorghum, and rice following their low performance during the drought-hindered crop year of 1972-73. During the 1976/77 crop year, sharp decreases in domestic production occurred. Assuming a national grain requirement of 1,200,000 tons, domestic production will satisfy less than 60 percent of estimated grain consumption. A significant increase in commercial imports or in food aid will be required. Thus,

while sporadic progress towards greater grain self-sufficiency can be pointed to, the current situation in Senegal is still one of great dependence on external sources for annual grain needs.

A closer examination of the agricultural sector and its principal crops should aid in understanding the question of food self-sufficiency for Senegal.

#### B. The Agricultural Sector and Principal Crops

Senegal's 360,000 small-scale farming units, accounting for over 95 percent of total agricultural production, are spread through five regions. Each unit, farmed by five to ten family members, consists of between three and ten hectares. Traditional land holding patterns are the general rule with village chiefs, appointed by the Government of Senegal (GOS), responsible for assigning land. These units concentrate primarily on groundnut, millet and sorghum production. The remaining effort, varying with the region, is devoted to maize, cotton, rice, vegetables, cowpeas and fonio. There is a limited commercial farming presence (vegetables and sugarcane), accounting for less than five percent of total agricultural production. According to the World Bank Agriculture Sector Report of 1975, input usage is extensive; fertilizers are widely used and animal traction implements (planters and hoes) are common.

For the purpose of analysing the agricultural sector, Senegal can be divided into five main regions.

- (1) Groundnut Basin - This is the most important agricultural region of Senegal, responsible for some 75 percent of total agricultural production. This region contains the productive areas of the Sine-Saloum, Thiès, Diourbel and Kaolack. Groundnuts, millet, sorghum and cassava are the main crops grown here.

(2) Senegal River Valley ("Le Fleuve") - This area, because of relatively poor soil and rainfall patterns, is not conducive to high-yielding agriculture. Nevertheless, rice, millet, sorghum and maize are grown in important quantities, mostly along the river banks.

(3) Eastern Senegal (Sénégal Oriental) - Rainfall in this area is relatively favorable. Millet, sorghum, cotton and maize are the primary crops.

(4) Casamance - This is the most agriculturally under-utilized region of Senegal. However, important quantities of millet and sorghum are grown. Further, the region accounts for 80 percent of domestically-produced rice.

(5) Cap Vert - This region, with the large urban consuming center of Dakar, has little cereal production. Commercial vegetable production, however, is centralized here. Of importance is the area's great demand for grains - millet, sorghum and rice to satisfy the needs of the highly-populated capital city.

Only in the Groundnut Basin is cultivation extensive enough to put serious pressure on land availability. In that highly populated area, with very intensive and extensive cultivation, there is limited opportunity to increase the cultivable surface. In the other areas of Senegal, land is not a binding constraint, with the exception of irrigated surfaces. Significant expansion of cultivable surfaces is hindered by a shortage of labor during the peak demand periods of planting and harvesting and by the uncertainty due to unreliable rainfall distribution. The inhibiting effects of the labor constraint can be mitigated and production increased with the further intensification of input usage.

Outside of the Groundnut Basin, however, the farmer's perception of high uncertainty, due to adverse natural phenomena, limits his interest in input investment. Continued deficits in annual rainfall, perhaps reflecting a permanent adverse change in climate patterns, have been known recently in Senegal. Of the last sixteen years, approximately eight have had recorded rainfall below the 1931-1960 average. According to some observers, older farmers, particularly those accustomed to the more reliable rains of other years, seem hesitant to undertake certain productive investments, even when there is an expected profitability.

The responsibility for agricultural extension rests with regional development societies directed by the Agriculture Department within the Ministry of Rural Development. The activities of these societies will be analysed in the next section. The rural sector is organized into cooperatives under the direction of the Office National de Coopération et d'Assistance pour le Développement (ONCAD). These cooperatives are involved in the purchase for ONCAD of groundnuts, millet and sorghum. Further, the cooperatives, through ONCAD, are the main mechanisms for the ordering, financing and delivery of imports.

A more detailed examination of individual crops now follows:

1. Groundnuts

Groundnut production during the 1974/75 campaign was distributed as follows: (See Table IV on the next page).

Table IV. Groundnut Production by Region

<u>Region</u>	<u>Acreage(ha)</u>	<u>Yield(kg/ha)</u>	<u>Production(tons)</u>
Groundnut Basin			
Diourbel	296,126	897	265,719
Thiès	154,813	905	144,407
Sine-Saloum	430,000	925	398,080
Sénégal Oriental	41,065	850	34,929
Flauve	5,890	650	3,830
Casamance	122,219	1,190	146,067
Cap Vert	2,000	600	1,200
Total - Groundnut Basin	880,939	917	808,206
GRAND TOTAL:	<u>1,152,113</u>	<u>862</u>	<u>994,222</u>

SOURCE: V<sup>e</sup> Plan Quadriennal de Développement Economique et Social, July 1976.

As can be seen, the Groundnut Basin accounts for 80 percent of total groundnut production. This output is primarily for transformation to groundnut oil, but selected portions are marketed as edible nuts. Groundnuts are the main cash crop of the Senegalese farmer with most farmers accepting improved seeds (provided by ONCAD or the extension societies), fungicidal seed treatment, and animal traction. Fertilizer usage is somewhat restrained outside of the Groundnut Basin by the fact that its incremental impact is very sensitive to rainfall levels. As previously explained, variable rainfall has been a recent phenomenon in Senegal.

The current agricultural plan calls for production increases to 1,200,000 tons on a surface of 1,187,000 hectares. With a cultivable surface nearly the same as 1974, the total production increase is dependent on an increased average yield from 862 kg/ha in 1974 to 1,008 kg/ha

in 1980. The success of this plan depends on improved methods of cultivation and the farmers' willingness to make additional input investment.

## 2. Millet/Sorghum

The current agricultural plan utilizes the following regional figures for millet/sorghum production as a base situation:

Table V. Millet/Sorghum Production by Region

<u>Region</u>	<u>Acreage (ha)</u>	<u>Yield(kg/ha)</u>	<u>Production(tons)</u>
Groundnut Basin			
Diourbel	290,000	376	109,000
Thiès	153,000	386	59,000
Sine-Saloum	300,000	533	160,000
Sénégal Oriental	70,000	642	45,000
Fleuve	70,000	400	28,000
Casamance	95,000	863	82,000
Cap Vert	1,500	467	700
Total:	<u>979,000</u>	<u>493</u>	<u>483,000</u>

SOURCE: V<sup>e</sup> Plan Quadriennal de Développement Economique et Social, July 1976.

This total production is lower than that of previous years; nevertheless, the geographic division is of interest. First, total area of millet and sorghum approaches that of groundnuts. The two products cover a surface of 2,000,000 hectares or between 85 and 90 percent of all cultivated surfaces. As with groundnuts, millet and sorghum production is heavily concentrated in the Groundnut Basin. Approximately 70 percent of annual millet/sorghum production originates within that region.

Millet has long been the staple food grain in Senegal. The most common variety, pearl millet, is an early maturing plant - 95 days. Thus, the pearl millet is somewhat insulated from non-appearing late rains. Longer

growth varieties - up to 150 days - are found in the Casamance region.

While much millet is grown in traditional fashion (hand sown and hand weeded), certain improved modifications - fungicide treatment, thinning, and more timely weeding - have been introduced. These minor improvements can increase yields by as much as 50 percent. Millet responds well to fertilizer applications. However, widespread fertilizer usage has been retarded by lack of knowledge as to how to apply it and its marginal profitability at existing millet prices.

Given current levels of grain consumption, Senegal demands about 700,000 tons of millet and sorghum annually. Thus, as the production figures presented earlier in this section show, in years of normal rainfall, Senegal can be self-sufficient in millet/sorghum production. This year's crop, however, appears to be one with a significant millet/sorghum deficit, with estimated production at 554,000 tons. In the current plan, the government calls for an annual millet and sorghum production of 750,000 tons by 1980. This is an entirely attainable goal, as 770,000 was produced in 1974-75. The relatively modest goal realistically recognizes that greater increases are unlikely due to the farmers' strong economic incentive to devote land and labor to groundnuts. In the Groundnut Basin area, where most groundnuts, millet and sorghum are produced, it is unlikely, with present agricultural prices, that the farmers will significantly allocate land and labor from groundnuts to millet and sorghum. In fact, the plan only expects an increase in millet/sorghum surface from 979,000 hectares to 1,080,000 hectares, relying on yield increase (from 493 kg/hectare to 694 kg/ha) for the targeted output growth. The primary responsibility for these yield increases rests with the extension societies, which presumably will introduce improved cultivation methods.

ONCAD recently increased the production price of millet and sorghum to augment the profitability of those cereals, hoping to increase supply and to stimulate input usage for next year's crop. Stated government policy with respect to millet and sorghum is to reach the attainable goal of self-sufficiency in those crops. Thus, the Senegalese government is not attempting to over-stimulate millet and sorghum production with the hope of significantly replacing rice imports, i.e., change consumption patterns. Within current price ranges, the demand for millet and sorghum, particularly in the highly populated Cap Vert area where rice is preferred, is relatively inelastic, after some level of consumption. Thus, major increases in the millet and sorghum supply would simply drive prices down, perhaps introducing annual instability in millet/sorghum prices and production.

In summary, the agricultural policy of Senegal with respect to millet and sorghum is to attain self-sufficiency. To this end, extension societies are attempting to raise yields by introducing technical packages and the marketing agency, ONCAD, is attempting, by raising prices, to increase the quantity marketed. The main difficulties with the implementation of this policy are unfavorable rains, marketing problems of ONCAD, and the greater profitability of groundnuts.

### 3. Rice

Annual rice consumption in Senegal is currently about 250,000 tons, with local production accounting for perhaps 100,000 tons. The 1977-1980 plan utilizes the following as indicative of recent production: (See Table VI on the next page).

Table VI. Rice Production by Region

<u>Region</u>	<u>Area (ha)</u>	<u>Yield(kg/ha)</u>	<u>Production (000 tons)</u>
Groundnut Basin			
Diourbel	--		--
Thiès	500	910	.5
Sine-Saloum	1,700	507	.9
Sénégal Oriental	5,600	1,100	6.2
Fleuve	10,000	1,936	19
Casamance	65,000	1,152	75
Cap Vert	--	--	--
Total:	<u>82,800</u>	<u>1,220</u>	<u>101</u>

SOURCE: V<sup>e</sup> Plan Quadriennal de Développement Economique et Social, July 1976.

Three types of rice are grown in Senegal - irrigated, rainfed and swamp. The irrigated crops are located along the Senegal and Casamance Rivers. The irregularity of flooding poses certain problems, as does the strict timing required for two annual crops, without which irrigation is not profitable. Current yields in the irrigated regions are about 1.5 tons/ha but could be increased, assuming elimination of the above problems, to three tons/ha. Rainfed upland rice, on the plateaux of Casamance and Eastern Senegal, is susceptible to poor rain and erosion. Yet, yields are high - currently about 1.5 tons/ha. Finally, swamp rice, using water run-off for irrigation, is grown in the lower Casamance region. To expand current yields from 1.5 tons/ha requires a control of the excessive salt content in the river and a resumption of more regular rainfall.

The Senegalese development plan calls for an increase of rice production to 300,000 tons in 1980. This would represent a tripling of current output and completely replace imported rice. This ambitious plan is

concentrated in three regions as the following table shows:

Table VII. Rice Goals

<u>Region</u>	<u>Ha.</u> <u>(000's)</u>	<u>Production</u> <u>(000 tons)</u>	<u>Yield</u> <u>Ton/ha</u>	<u>Program</u>
Fleuve	33	114	3.5	SAED DIAMA dam operation
Sénégal Oriental	13	30.8	3	SODEFITEX
Casamance	75	153	2	SODAGRI NYASS-Guidel development Flood Gate Dam
Others	4	2.2		
Total:	125	300	2.4	

SOURCE: V<sup>e</sup> Plan Quadriennal de Développement Economique et Social,  
July 1976.

While certain increases in rice production can be expected, it must be noted that current production of rice is at the same level as the 1969-70 production. Thus, despite recent gains following the drought years, Senegalese rice production has remained stagnant for nearly a decade. This year, another decrease in production is expected. While many present programs of "aménagement" have technical merit, the time horizon for their implementation and for the proper extension activity among producers is unrealistically short. Moreover, some observers have raised serious questions about the economic feasibility of Senegalese rice production under present technological conditions. At current world prices for rice, the cost of producing Senegalese rice is significantly above the price of imported rice.<sup>1</sup> For the above reasons, a full realization of the plan's

<sup>1</sup>This is true of any realistic exchange rate, according to Stryker. See footnote, page 3.

rice goals is not likely in the absence of high levels of subsidization for domestic rice production - higher than now envisaged. For the foreseeable future, rice imports - while perhaps being reduced - will still satisfy a significant share of Senegalese consumption.

#### 4. Maize

The 1977-1980 plan gives the following base situation for maize production:

Table VIII. Maize Production by Region

<u>Region</u>	<u>Area (000 hectares)</u>	<u>Yield (kg/ha)</u>	<u>Production (000 tons)</u>
Groundnut Basin			
Diourbel	--	--	--
Thiès	--	--	--
Sine-Saloum	3.5	1,000	3.5
Sénégal Oriental	25	790	20
Fleuve	5	625	3.1
Casamance	15	1,000	15
Cap Vert	--	--	--
<b>Total:</b>	<b>48.5</b>	<b>866</b>	<b>42</b>

SOURCE: V<sup>e</sup> Plan Quadriennal de Développement Economique et Social, July 1976.

This year's production is estimated at 47,000 tons. Maize currently satisfies about five percent of Senegal's cereals requirements. Good potential for further development of the crop exists, particularly along the Senegal River, as an irrigated crop. Also, as with millet and sorghum, extension activity and input usage could significantly increase current yields to 2,000 kg/ha. Current yields using very traditional methods of cultivation are less than 900 kg/ha.

The current plan calls for a tripling of maize production to 142,000 tons by 1980. This would be accomplished with a doubling of land surface for maize as well as a near doubling of yields. The main agents for this increase would be the regional development societies and their extension activity.

While this production increase is technically feasible, it seems unrealistic given current Senegalese consumption habits. Maize has limited acceptance as a staple food crop, particularly in large consuming centers. The difficulty in preparing meals with maize limits its use to that of a supplementary vegetable item. It is unlikely, without significant price decreases, that consumers will make major increases in consumption of green maize, despite the recent popularity of maize flour. As a result, economic considerations will probably limit the growth of maize production to a much more modest increase.

#### 5. Cotton

The current situation for cotton, used as a base by the plan, shows the following production:

Table IX. Cotton Production by Region

Region	Area (000 hectares)	Yield (kg/ha)	Production (000 tons)
Groundnut Basin			
Diourbel	--	--	--
Thiès	--	--	--
Sine-Saloum	6	866	5.2
Sénégal Oriental	17	1,000	17
Fleuve	--	--	--
Casamance	16	1,006	17
Cap Vert	--	--	--
Total:	39	1,005	39.2

SOURCE: V<sup>e</sup> Plan Quadriennal de Développement Economique et Social, July 1976.

Estimated 1976-77 production is 44,000 tons. Cotton is primarily being introduced as an additional cash crop both for domestic use and export. The regional development society, SODEFITEX, was responsible for its introduction. Selected farmers receive financing by SODEFITEX for animal traction equipment and are supplied with seed fertilizer and insecticide. The main problem with the further development of cotton is a labor constraint during the harvest, as hand picking is still utilized.

The current plan calls for a modest increase of acreage to 55,000 hectares by 1980 with increased yields bringing total production to 66,000 tons. This would be a 50 percent increase from the 1976-77 production. Even if this goal is reached, cotton will continue to be of relatively minor importance as a cash crop for the average Senegalese farmer. Its development could represent substantial income to farmers of Sénégal-Oriental where certain land is not conducive to groundnut production and maize has little future as a major cash crop.

### C. Commercial Imports

#### 1. Rice

The major commercial grain import for Senegal is rice. Millet and sorghum have also been imported in important quantities, as well as wheat. The following table shows total rice imports, as well as a country of origin, for the last six years:

Table X. Rice Imports (tons)

	<u>1969-70</u>	<u>1970-71</u>	<u>1971-72</u>	<u>1972-73</u>	<u>1973-74</u>	<u>1974-75</u>	<u>1975-76</u>
USSR			3,170	7,715	60,113	16,300	n.a.
China		11,600		46,200		1,499	
Cambodia	50,735	12,969					
Brazil		25,178		22,222	15,750		
Italy				16,173			
Pakistan				7,170	22,652	55,402	
Thailand	68,400	137,000	166,500	74,500	21,823	36,600	
USA				17,300	18,360	14,000	
Argentina							
Uruguay					2,618		
<b>Total:</b>	<u>119,135</u>	<u>186,747</u>	<u>169,670</u>	<u>191,280</u>	<u>141,316</u>	<u>123,801</u>	<u>130,000<sup>a</sup></u>

<sup>a</sup> minimum estimate

SOURCE: Quantities imported-ONCAD

The procedure by which rice is imported to Senegal begins with ONCAD estimating national cereals needs and local production for the year. ONCAD then specifies the quantity of imported rice needed to satisfy annual requirements. The negotiations for rice on the international market are done by ONCAD which arranges for delivery at Dakar. After bagging the rice, ONCAD releases it to selected traders, who have received a monthly quota for rice. To become a selected trader, one must be approved by the Ministry of Finance and ONCAD. A very complete dossier is kept and verified by Commerce Intérieur for each potential wholesaler (quotateur). The dossier demands information on financial assets and ability to finance the purchases from ONCAD. Also, Control Economique verifies that the trader has adequate storage for his monthly quota. Commerce Intérieur utilizes this financial data to determine an appropriate quota for each approved trader. Further, Commerce Intérieur and ONCAD partition the monthly total of imported rice between the approved traders, cooperative societies,

consumer cooperatives, and terminal stores.

Approved selling agents come to an ONCAD distribution center (one is located in each region) to collect their quota. ONCAD, itself, provides the transportation from Dakar to these regional centers. The wholesalers then sell by sack to smaller retailers who need not have direct government approval. Prices at all stages of this process are controlled. The Comité des Grands Produits Agricoles, which will be discussed in the next section, determines price margins at all levels, from ONCAD to large traders (wholesalers), to retailers, and to the final consumer.

Until November 1974, the price to large traders was below the cost price to ONCAD. The resulting consumer subsidy was paid by the Caisse de Péréquation, a taxing and subsidizing agency, fed mainly by groundnut earnings. Since 1974, a combination of an increased consumer price for rice and a reduced import price to ONCAD have eliminated the rice subsidy element. Reduction of rice imports is obviously tied to the success of local rice projects, which are being given high priority by the Senegalese government.

## 2. Millet and Sorghum

The procedure for millet and sorghum importing is somewhat less structured than that for rice. Based on estimated needs, the Service Extérieur of ONCAD negotiates with foreign sellers and arranges imports of millet and sorghum. ONCAD then releases that millet and sorghum to approved traders, who sell to retailers. The procedure is less rigorous than for rice due to the smaller scale and intermittent nature of millet and sorghum imports. These imports are not subsidized and the prices at which the approved traders sell to the retailer, and the retailer to the consumers,

are likely to follow market forces.

Recent commercial imports of millet and sorghum are as follows:

Table XI. Millet and Sorghum Imports (Tons)

<u>1969-70</u>	<u>1970-71</u>	<u>1971-72</u>	<u>1972-73</u>	<u>1973-74</u>	<u>1974-75</u>	<u>1975-76<sup>a</sup></u>	<u>1976-77<sup>b</sup></u>
200	28,900	10,400	26,400	34,000	5,000	43,000	70,000

<sup>a</sup>37,000 tons from Argentina, 6,000 tons from Mali

<sup>b</sup> minimum estimate

SOURCE: ONCAD.

The quantity imported is directly linked to the success of the local harvest. During years of normal rains and a good harvest, as in 1974-75 when production reached 777,000 tons, imports are very low. However, this year's (1976-77) predicted harvest of only 554,000 tons will require the substantial imports of millet and sorghum estimated above.

### 3. Wheat

Approximately 100,000 tons of wheat are authorized for importation annually to be converted into flour for bread. This quantity is determined and controlled by Commerce Extérieur. The Grands Moulins de Dakar (GMD) receive about 90,000 tons, with the remainder going to Moulins SENTENAC. After receiving the wheat, the two companies transform it to flour and sell the flour to large traders, who supply the local bakeries. The price of flour, and thus the consumer price of bread, has been subsidized in the past by the Caisse de Péréquation. The moulins sold the flour to wholesalers at a controlled price, below their cost of production, receiving a subsidy from the Caisse. Since January 1, 1977, the moulins sell to traders at a full cost price, eliminating the state subsidy. The price

of flour to the bakery and the price of bread to the consumer, while still controlled, will be full cost prices.

It would appear unlikely that domestic production of wheat will be able to replace imported wheat. While some wheat projects are being considered by the regional development societies, there is little chance for development of significant domestic wheat production in the near future. An attempt to reduce wheat imports by using a mixed wheat/millet flour has been tried. Due to limited availability of millet, its relatively high cost, and problems of conservation of this bread, the project has had limited success. To avoid the problem of conserving the wheat/millet bread, a very high proportion of wheat flour must be used, minimizing any savings on imported wheat. Consequently, wheat imports are expected to rise slightly each year, increasing with population and income growth.

#### D. Food Aid

As the figures in Table II of this chapter show, food aid to Senegal was of a significant magnitude during 1972-73 and 1973-74, when 108,000 and 57,000 tons of grains were donated to Senegal. Currently, international food assistance satisfies only a small portion (1 or 2%) of national cereals needs.

At present, the Catholic Relief and the United Nations World Food Program are the major donor agencies active in Senegal. The WFP has two major types of programs, one, a social program in which approximately 60 percent of total WFP aid is distributed, primarily to schools and to vulnerable groups. The other 40 percent of WFP aid is used in food for work programs constructing infrastructure projects.

The Senegalese agency responsible for coordinating food aid is the Commissariat d'Aide Alimentaire under the Ministry of Rural Development.

Food aid is transferred to the Commissariat which commercially stores the food and then releases it to local Prefects. The Prefects are responsible for the distribution within their own regions. The WFP plans in advance the localities to which its food aid will be sent, somewhat limiting the Commissariat's discretionary powers. Occasional grants of food aid, from USAID, EEC or other nations, are distributed, as a general rule, with complete discretion by the Commissariat. The WFP estimates that in excess of 70 percent of food aid is consumed outside of Dakar by the rural population.

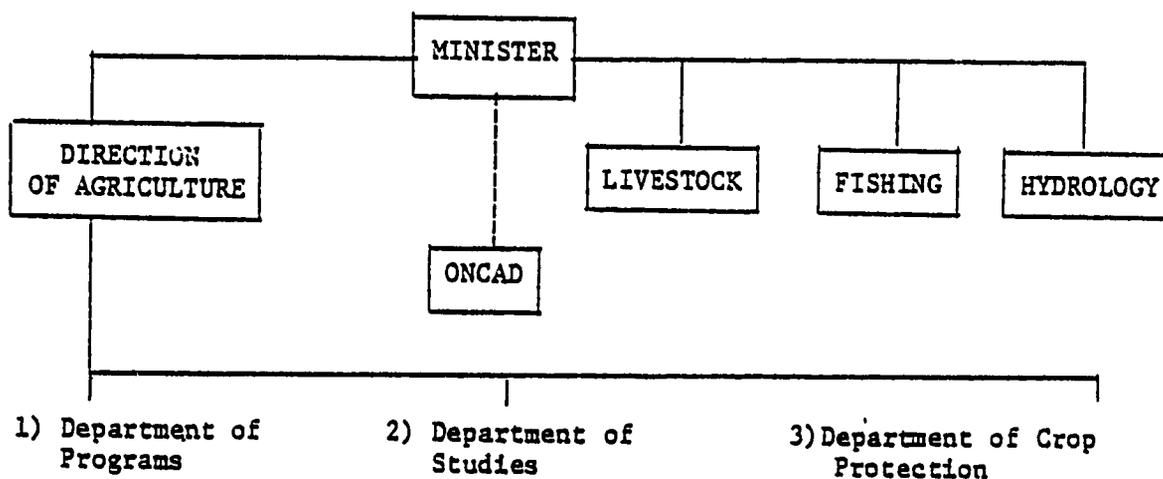
As previously discussed, a significant grain deficit appears to exist for this current crop year. Possible requests for additional food assistance could be made by the government. This would follow the past; it seems that the great majority of food aid in Senegal has been associated with crop failure. Food aid has thus not had a significant effect on the allocation of agricultural resources or on domestic grain prices during normal years.

### III. INSTITUTIONS

Responsibilities for agricultural policy, extension and marketing are widely diffused within Senegalese governmental agencies. This chapter will attempt to identify the relevant agencies, explaining the functions of each. Various agencies under the Ministère du Développement Rural are charged with extension and marketing. Agencies within the Ministère des Finances et des Affaires Economiques are involved in financing and regulating certain agricultural activities. Finally, certain independent groups play a major role in agricultural development.

#### A. Ministère du Développement Rural (MDR)

The following is an unofficial organizational chart for the MDR.



#### Programs.

- SAED
- SODEVA
- SODEFITEX
- SOMIVAC
- STN
- PRS

Under the direction of the Ministère du Développement Rural are placed the main rural occupations - agriculture, livestock, fishing, and hydrology development. Further, ONCAD (Office National de Coopération et d'Assistance pour le Développement), responsible for input delivery, assistance to cooperatives, and marketing of groundnuts, millet, sorghum and rice, receives direction from the MDR.

The Agricultural Directorate is divided into three major branches. The Department of Crop Protection is responsible for treatment and protection of crops. A Department of Studies analyzes statistical data, assists with the preparation of reports, and is generally available to perform requested research. Of most concern to this study is the Department of Programs which supervises the regional development societies. As previously explained, extension activity in Senegal is decentralized regionally. Various regional organizations, sociétés d'intervention, have been created to address the particular needs of a region. Each regional development agency has a different emphasis and responsibility. Depending on the suitability of the region, each focuses on different crops. Also, some agencies are involved in marketing, while others are not. The above list of regional development agencies and projects is not complete; certain projects of limited purpose (such as BUD, a fresh vegetable development and marketing organization) have been omitted. However, the above regional agencies are those directly involved with activities investigated by this study. A brief description of the locality of operations, responsibilities, and major developments for each development agency will now be presented.

## 1. Regional Development Organizations

### SAED (Société d'Aménagement et d'Exploitation du Delta)

S.A.E.D. has responsibility for development of the northern region of Senegal, near the Senegal River. The main bureau is located at St. Louis. SAED is financed by loans (45%), subsidies from U.S. AID, FED and FAC (34%) and grants from the national budget (21%). Total expenditures of 9.5 million CFA francs are envisioned for 1977/78. SAED's primary objective is the expansion of rice land to increase the rice production of that region to 120,000 tons by 1980. This would represent a 600% production increase over 1975/76 and would satisfy 1/3 of Senegal's predicted 1980 rice requirements. The project envisions 33,000 acres of irrigated land, double cropped, with yields of about 4 tons per acre.

Although the design and construction of the irrigation system is being done by outside experts, one objective of the program is local control. Peasants are instructed in the management of the hydraulic equipment and encouraged to form cooperatives for grain purchase and utilization of agricultural equipment. About 9,700 acres have been put into cultivation. An annual increase of about 6,000 acres is needed to reach the 33,000 acre target by 1980.

SAED is also developing other crops--wheat (production of 3,000 tons in 75/76), tomatoes (40,000 tons in 75/76), maize (1,200 tons in 75/76), and millet/sorghum (600 tons in 75/76). A seed farm at Savoigne actively develops improved seed, particularly rice seed, which is distributed to peasants.

SAED markets a part of the rice produced. Peasants maintain about 8% for direct self-consumption, about 40% is milled by SAED, about 45% purchased for seed, and about 7% clandestinely sold by peasants. Some

of the rice milled by SAED was returned for peasant consumption, at a ratio of 65% milled rice for paddy. SAED sells the other part of its milled rice either to ONCAD or to luxury stores in Dakar. The SAED rice, after processing, is more expensive than imported rice. Consequently, ONCAD does not encourage such purchases, as it must subsidize this operation. There is a limited luxury market in Dakar where this long grain SAED rice is preferred by certain Europeans.

The problem with SAED achieving their goals for 1981 is that the domestic resource cost of this region's rice is above the current world price of imported rice. Consequently, without governmental intervention to limit or tax rice imports or an increase in the world rice price, SAED rice will not be competitive in the Senegalese market.

SODEVA (Société de Développement et Vulgarisation Agricole)

SODEVA operates in the highly productive Diourbel, Thiès, and Sine-Saloum regions. Funding is provided by U.S. AID, the Caisse Centrale de la Coopération Economique Française, and the national budget. This program is primarily one of extension activity. However, there are projects to open up irrigated land in the Bas-Saloum, promoting diverse cultures - rice, fruits, and vegetables.

Extension activity is currently concentrated in groundnuts, millet, sorghum, and maize - traditional crops of that region. The program is organized into departments, with each department having a trained staff that includes a machinist, a livestock specialist, agronomist, a seed specialist, an expert on conservation, and extension agents. In the Sine-Saloum area, there are 400 extension agents living at the village level and providing instruction.

SODEVA assists ONCAD and the cooperatives in estimating input needs and preparing the input orders given to ONCAD. SODEVA agents provide recommendations for input usage and instruction in input application. Their principal involvement in marketing is through SODEVA agents cooperating with ONCAD to encourage sale of groundnuts, millet and sorghum, through the existing cooperative structure.

SODEFITEK (Société de Développement des Fibres Textiles)

SODEFITEK operates in the Upper Casamance, certain parts of Sine-Saloum, and Sénégal Oriental regions. It is concerned primarily with cotton and some rice development. A rice production of 44,000 tons on 35,000 hectares is envisioned for 1980. The main aim of SODEFITEK is an integration of cotton operations in Senegal. Marketed production has risen from 21,000 to 47,000 tons between 1971 and 1976. The current plan calls for a production of 66,000 tons by 1980. SODEFITEK has steadily augmented the producer price for first quality cotton grain from 31 to the current 47 CFA/kg. SODEFITEK gins and exports this cotton with the resulting profit being transferred to the Caisse de Péréquation et de Stabilisation des Prix. SODEFITEK supplies peasants with inputs on credit and gives instruction in their use. This extension activity has included development of millet and sorghum production, and SODEFITEK points to recent yield increases for these cereal crops. Generally, SODEFITEK is developing a cash crop, cotton, for those farmers in regions where cultivation of the traditional cash crop, groundnuts, is not well suited.

SOMIVAC (Société de Mise en Valeur de la Casamance)

This development agency has recently been created for the Casamance region. Its primary activity will be in the development of rice production.

Extensive construction of small dams will increase the usable land surface by 10,000 hectares. The encouragement of input usage and proper cultivation methods are expected to increase yields from 1.3 tons/hectare to 2 tons/hectare. The result would be an increase of rice production in this region from 85,000 tons (currently) to 153,000 tons by 1980. That level of production would satisfy about 50% of planned 1980 Senegalese rice production. SOMIVAC has the intention to construct storage and milling facilities to market the surplus paddy. The objective, while not clearly stated, would be to sell that rice to ONCAD for ultimate consumer purchase. As with the rice plans for the Fleuve region, the important factor in the project's success will be the competitiveness of the domestic rice with imported rice. The high domestic cost of rice could hinder its commercialization.

#### STN (Société des Terres Neuves)

The STN has as an aim the orderly migration of the Senegalese population from over-populated, over-cultivated regions into less populated regions having underexploited productive land. The main move sought is from the over-populated Groundnut Basin. Families are to be transferred from the Sine-Saloum to Sénégal Oriental, where potentially fertile land will be put into cultivation. From 1971 to 1974, about 2,000 people migrated in an organized fashion. STN claims that, in 1974, the new settlers produced 5,570 tons of groundnuts, 70 tons of cotton, and 915 tons of cereals. Unfortunately, no estimate of the decrease in production on their former land is available. The estimated yields, however, of 1,670 kg/ha for groundnuts, 291 kg/ha for cotton, 895 kg/ha for cereals are,

with the exception of cotton, above the national average.<sup>1</sup> While the STN's goals of a more efficient population distribution is laudable, anticipation about short-run results must be viewed modestly. There is a genuine problem in locating onchocerciasis-free regions for development.

PRS (Project Rizicole Sédhiou)

This project, financed by U.S. AID and the Senegalese government, is located in the department of Sédhiou, in the southwestern portion of Senegal. It focuses on extension activity for rice, groundnuts, millet, and maize. During 1974, 5,707 new hectares of rice cultivation were introduced, 3,000 of groundnuts, and 1,500 for millet and maize with above-average yields for that region. PRS is also responsible for commercialization of its production. Commercial activity, however, has not been extensive, with peasants maintaining for their own consumption a large portion of their production. Two experimental rice milling operations are planned for Tanoff and Bounkilling. However, as with other rice projects discussed, the competitiveness of local rice with imported rice remains a central question. While ONCAD and the PRS closely cooperate in the marketing of rice, it is currently not in ONCAD's financial interest to purchase the PRS rice. While the PRS project may contribute to food self-sufficiency for the Sédhiou region, major commercial exports of rice from this region should not be expected. Even in the plan, a modest increase in paddy production from 22,141 tons to 34,843 tons is envisioned from 1975 to 1980.

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<sup>1</sup>The national average yield for cotton is in the range of 1 ton/ha; the STN yield for 1974 thus must represent some special event.

### International Projects

Certain international projects should be mentioned. The OMVS, Organisation pour la Mise en Valeur du Fleuve Sénégal, is a long range project with Mali and Mauritania to study the most efficient development - biological, economic, and social - of the Senegal River. Certain dams providing irrigation, power, and fishing potential are envisioned. Also a joint project with the Gambia has similar aims for the Gambia River.

In general, Senegal's approach to rural development emphasizes regional development organizations rather than national institutions. Certain problems of management, coordination, and duplication of administrative services naturally result. Whether the advantages of this more decentralized, regional approach outweighs these costs is a subject on which intensive research could be profitably undertaken.

### 2. ONCAD (Office National de Coopération et d'Assistance pour le Développement)

ONCAD is the government agency responsible for the marketing of groundnuts and cereals. In pursuit of this goal, ONCAD is also charged with certain complementary functions. First, ONCAD is responsible for the ordering and distribution of inputs. ONCAD administers the short-term agricultural credit supplied by the BNDS (Banque Nationale de Développement du Sénégal). ONCAD advises and assists the 2,200 cooperatives. Finally, ONCAD commercializes groundnuts, millet, sorghum, maize, domestic rice, and imported rice. To discharge these services, ONCAD has its own system of storage and transport. A brief explanation of these functions is in order.

Senegalese agriculture is characterized by producer cooperatives whose aim is to promote modern rural development while maintaining traditional communal values. In 1966, following the creation of ONCAD, the management of this system of cooperatives was conferred on ONCAD. Currently, there are in excess of 2,000 cooperatives - 150 for consumption and handicraft, 170 in specialized agriculture, and 1,800 for groundnut and millet marketing. Each groundnut cooperative society has an average of 150 members, implying about 270,000 members in the cooperative system. A democratic system of management administers each society.

The functions of the society are (1) to ascertain the collective input needs of the group, inform ONCAD of these needs and input credit requirements, distribute the inputs, and collect the members' debts following the harvest, and (2) purchase groundnuts, millet, and sorghum for ONCAD. While the cooperative system has great merit in theory, the administration and auditing of the cooperatives have suffered from a lack of guidance by ONCAD. Presumed profits from commercialization activities, for example, which will be used for infrastructure projects and member dividends, have never materialized, being consumed by heavy administrative expenses.

In relation to marketing, ONCAD purchases groundnuts from the cooperative and sells them to SONACOS, a parastatal body which is responsible for their transformation into groundnut oil and export. The millet and sorghum that ONCAD purchases is sold, in principle, to approved traders, to consumer cooperatives, to frontier stores, or to producer cooperatives in cereal deficit areas. Both imported and local rice are sold to the same parties by ONCAD.

As was previously mentioned, and will be discussed in more detail later, ONCAD, after receiving the cooperative's orders for inputs, finances

and administers the delivery of inputs. For its marketing function and for that of input delivery, ONCAD has an extensive storage and transport system. With a relatively adequate road network and a fleet of trucks in good condition, ONCAD is able to provide the collection and transportation of groundnuts, millet, sorghum and delivery of inputs. There is, of course, some degree of underutilization of this transport during seasons of limited agricultural activity. Following the harvest, however, activity ratios are very high. Also, ONCAD uses its transport system to deliver imported rice to regional distribution centers, where local traders accept delivery. A list of average transport costs can be found in the appendix to this report.

ONCAD also has storage responsibilities for groundnuts, millet, sorghum, imported rice, and inputs. To their existing capacity of 40,000 tons for cereal storage, ONCAD itself has recently constructed 30,000 additional tons of new capacity. Two additional storage projects, a U.S. AID project for 30,000 tons and a Federal Republic of Germany project of 25,000 tons, are scheduled for construction in late 1977. This new storage will allow ONCAD to terminate the leasing of private storage and accommodate increased marketing of millet, sorghum and/or imported rice. About 242,000 tons of storage capacity for groundnuts is presently (early 1977) administered by ONCAD.

No recent financial data is available covering the totality of ONCAD's operations. Due to its multiplicity of functions, poor financial and accounting procedures, and complicated financial structure, it is very difficult to determine ONCAD's financial position. It is known that ONCAD's debt is in the order of 30 billion CFA. However, to appreciate the significance of this debt, an understanding of the inter-relations among the BNDS,

Caisse de Péréquation et Stabilisation des Prix (CPSP), and ONCAD is vital.

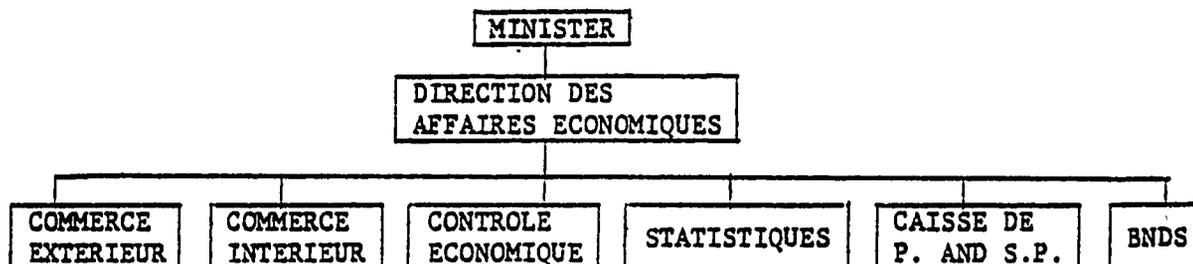
The BNDS extends short-term credit to ONCAD for its marketing activities and financing of inputs. ONCAD remits the profit from its groundnut and imported rice operation to the CPSP. The CPSP is supposed to use these revenues to finance ONCAD's agricultural program - i.e., repay ONCAD the subsidy element in its sale of inputs to farmers. Until this year, however, the CPSP could not repay ONCAD that input subsidy element, as its funds were entirely consumed in subsidizing imported rice and wheat.

Since ONCAD was not repaid by the CPSP, it could not repay the short-term credit extended by the BNDS. Also, ONCAD has not received full reimbursement of the credit extended to producers. Thus, while ONCAD has heavy debts to the BNDS, it also has substantial accounts receivable from the CPSP and from producers. It is widely agreed in Senegal that a full accounting of ONCAD's activities, with a rationalization of its financial practices and those of the CPSP, is a matter of high priority.

In summary, ONCAD has become a very large bureaucratic organization with a multiplicity of functions. Its heavy structure and great responsibilities appear to exceed its current capabilities. The need for reorganization involving greater decentralization and possible divestiture of responsibility is widely discussed in Senegal.

B. Ministère des Finances et des Affaires Economiques (MFAE)

The following is an unofficial organization chart for the MFAE.



1. Commerce Extérieur (CE)

Commerce Extérieur, in consultation with various affected agencies, is responsible for the determination of certain import quotas. Most relevant to this study is their activity in the annual negotiations concerning imported wheat for the two flour mills. Other than in an advisory role, the Commerce Extérieur is not directly involved in the importation of rice, millet, or sorghum. ONCAD's exterior division does these negotiations.

2. Commerce Intérieur (CI)

Commerce Intérieur is responsible for the regulation of internal marketing. CI organizes the procedures by which potential imported rice wholesalers are approved, as discussed in the section on rice imports. Further, Commerce Intérieur is directly involved in the determination of consumer prices for principal consumer goods. For cereals, this is done in cooperation with the Comité des Grands Produits Agricoles. For other consumption goods - beef, milk, oil, sugar, and matches - Commerce Intérieur and other units in the Ministry of Finance jointly determine such prices.

3. Contrôle Economique

Contrôle Economique has the responsibility for enforcing regulations and prices determined by Commerce Intérieur. This includes inspecting market prices and initiating legal proceedings if the observed price deviates

from the controlled price. Also, Controle Economique is charged with the verification of storage capacity claimed by potential wholesalers of imported rice. Finally, Controle Economique cooperates with customs to limit the traditional clandestine border trade between the Gambia and Senegal.

4. Caisse de Péréquation et Stabilisation de Prix

This organization is charged with rechanneling revenues from profitable agricultural activities into agricultural activities benefiting from governmental subsidy. A presentation of their estimated 1977 income statement will show most clearly the activities of the Caisse.

ESTIMATED REVENUE:

(1) Rice Imports (received from ONCAD)	3,606,000,000 CFA
(2) Groundnuts (received from ONCAD)	3,600,000,000
(3) Sugar (received from CSS)	2,015,000,000
(4) Cotton (received from SODEFITEX)	1,308,000,000
Total Revenue	10,529,000,000

ESTIMATED EXPENSES:

(1) Domestic Cooking Oil Sales (Subsidy to SONECOS)	20,000,000 CFA
(2) Local Rice (Subsidy to ONCAD)	136,000,000
(3) Wheat Imported (Subsidy ended Jan. 1977)	0
(4) Agricultural Program Inputs - (Apparatus) Fertilizer (to ONCAD)	15,000,000 4,000,000,000
(5) Tomato Subsidy to SAED	218,000,000
Total Expenses:	4,389,000,000 CFA
Estimated Surplus:	6,140,000,000 CFA

With this estimated profit the Caisse will repay ONCAD, to whom it owes 13 billion CFA. In previous years, with heavy subsidies for imported rice and imported wheat, the Caisse could not support ONCAD's agricultural program. As a result, ONCAD could not repay its short-term loans from BNDS for marketing and input purchases.

C. Comité des Grands Produits Agricoles

This committee, comprised of representatives from many Senegalese government agencies, is responsible for recommending a price structure for principal agricultural products. The committee is composed of representatives from each ministry, regional development agency, and organizations like the Caisse and BNDS. The Committee recommends a wholesale price for imported rice, a price to the retailer and a consumer price. Producer prices for domestic rice, groundnuts, millet, sorghum, and maize are also suggested. The general procedure begins in October, when the Committee elaborates a set of prices for recommendation to the Prime Minister. The Prime Minister and the Conseil Interministériel then approve or modify these recommendations by November 15. Prices are then immediately announced to the public. This is a permanent committee which meets every week to monitor the agricultural situation and can recommend modifications if unexpected problems occur.

D. SONADIS (Société Nationale pour Approvisionnement et Distribution Sénégalaise)

SONADIS is a semi-public corporation - 61% Senegalese controlled - responsible for supplying the population with consumption goods. About 100 consumer stores are strategically spread throughout the country, and there are 13 wholesale depts. Goods of primary importance, rice, cooking

oil, tomato sauce and soap account for about one-third of SONADIS' sales. SONADIS attempts to make profit on each item sold with no items subsidized. The margin varies with the type of item - luxury items having larger margins. For the principal consumer goods, prices - and thus margins - are controlled by the government. Each store has access to the 1,250 items carried by SONADIS. All but 12 SONADIS stores appear to operate with a profit. SONADIS does not extend credit to any purchaser, with the exception of certain wholesalers in the Dakar region.

With respect to cereals, SONADIS is the largest marketer of imported rice, for which it receives the legal 7% margin. It is not involved in millet and sorghum marketing, since the price at which ONCAD releases millet and sorghum to SONADIS does not give SONADIS sufficient incentive to handle the millet and sorghum trade.

In general, the rural Senegalese consumer has wide access to consumer goods. SONADIS, private traders buying from SONADIS, or other large commercial operations, appear to be within access of most consumers. With an estimated 29,000 retailers in Senegal, this commercial system appears to operate competitively and efficiently.

#### E. SODAGRI

SODAGRI is a semi-public agency, owned 50% by private American capital, 50% by the Senegalese government. Its aim is to develop 30,000 hectares of rice land in the Casamance. With a potential double crop yield of 6 tons per hectare, a 180,000 ton crop could be envisioned. The project is in an advanced stage of study with sites, costs, and technical processes being investigated. A potential problem is that the highly mechanized and centralized operation planned (which would be the most efficient on such a

large surface) is not in complete harmony with the Senegalese goal of communal rural development. While some individual rice plots could be maintained and low-level technical assistance given to farmers, a highly mechanized commercial operation relying on hired labor is most feasible. SODAGRI recognizes this problem, as well as the problem of the domestic resource cost for rice vis à vis the world market price. The organization is proceeding with its preliminary studies.

The above is a brief summary of the organizations and functions of those groups intervening in the production or commercialization of cereal crops. Also, major agricultural development programs have been discussed. The following chapter will consider the marketing circuits for each product.

#### IV. MARKETING AND PRICE POLICY

This chapter will review existing marketing arrangements, objectives, and pricing policy for each of the major Senegalese crops.

##### A. Groundnuts

ONCAD has a legal monopoly for the collection of groundnuts. Producers sell to their local agriculture cooperative. ONCAD utilizes its own means of transport to collect groundnuts from the local cooperative and to amass them at 20 grouping centers. ONCAD then sells and delivers the groundnuts to SONACOS, a semi-public corporation, which sells the groundnuts to local mills for processing into groundnut oil and for export. The profit ONCAD receives from the groundnut collection reverts to the Caisse de Péréquation.

Certain institutional regulations related to this process are significant. First, while the official producer price for groundnuts and other crops is announced in mid-November, the date for opening the buying season is variable, contingent upon repayment of seed debts. ONCAD, through the cooperatives, loans groundnut seeds to producers. Before actual purchase of the harvest begins, ONCAD demands a repayment of 80% of the cost of that seed. Because of the threat of an early sale of Senegalese groundnuts in the Gambia, the rule is more flexibly interpreted in certain border areas. This rule often poses problems for farmers needing cash and, as will be discussed later, has repercussions for millet and sorghum marketing. This year, peasants were unhappy with the stable groundnut price, and many were not repaying debts, hoping in vain to induce a producer price increase.

The second regulation of interest is that the Cooperative Chairman receives a commission for each ton of groundnuts marketed by his cooperative. Thus, he has an incentive to maximize the cooperative's collection and,

to some extent, to encourage peasants to cultivate groundnuts in favor of other crops.

In the appendix, are found recent figures on marketings of groundnuts by ONCAD. Between 65 and 75% of production appears to be marketed. The difference represents autoconsumption, small local sales, seed stock and illicit sales to the Gambia where the buying season usually begins earlier and prices are frequently higher. Thus, for groundnuts, ONCAD has a legal monopoly largely enforced and the peasant has an assured market for his crop.

#### B. Millet/Sorghum

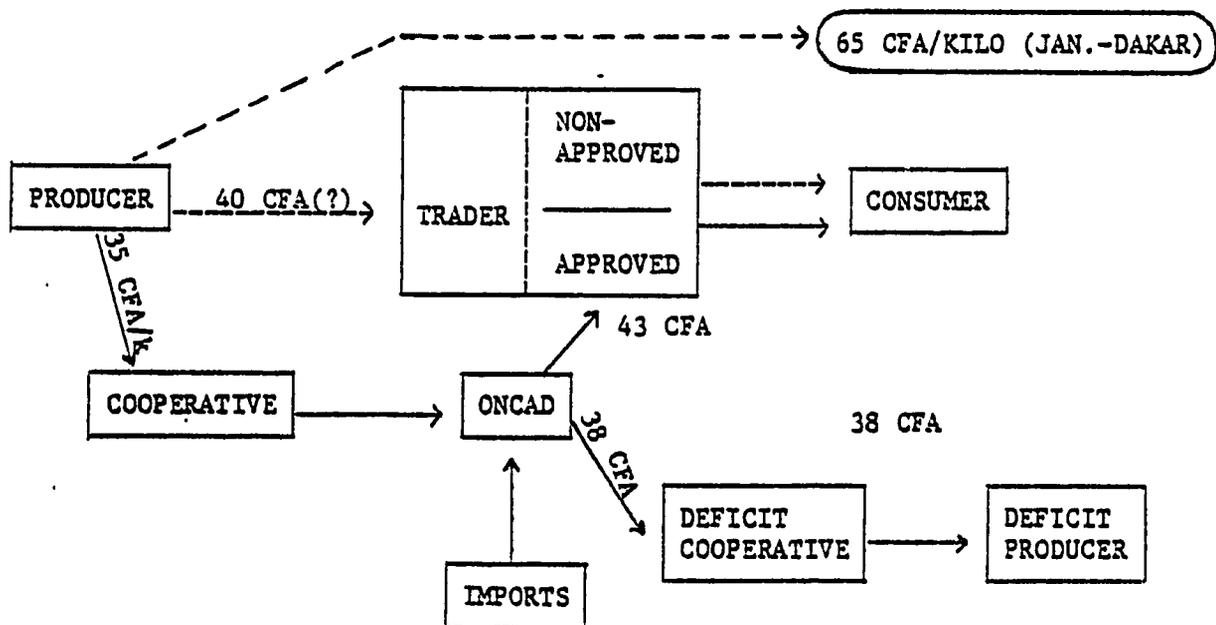
Since November 1975, ONCAD has had a legal monopoly for the primary collection and marketing of millet and sorghum. Prior to 1975, legal private trade characterized the market, with ONCAD also purchasing millet and sorghum for sale to cooperatives in grain deficit areas. The government's objective in giving ONCAD a legal monopoly was to protect the peasant from the uncertainties and presumed monopolistic elements of the private trade. It was hoped that ONCAD's control of the market would stimulate greater production and marketings, promote greater food self-sufficiency and allow ONCAD to construct a larger security stock.

ONCAD depends on the cooperatives to purchase millet and sorghum. Financing, extended by the BNDS, is sent weekly by the Central Director of ONCAD to the Regional Offices, which in turn provide financing to the cooperatives. The cooperative buying team weighs the peasant's millet and pays him for his produce. Subsequent financing to Regional Offices and cooperatives is based on the prior week's sales, the market situation being evaluated weekly by the Central Director of ONCAD. ONCAD collects the millet and sorghum from the cooperatives, and stores it in bulk in

regional warehouses. Part of ONCAD's collection is destined for a security stock, the rest for commercial sale. ONCAD sells the millet and sorghum to producer cooperatives in deficit areas, consumer cooperatives, terminal stores located near Senegal's borders (providing an alternative to clandestine imports), and approved private traders. Millet and sorghum imported by ONCAD is also released in the same manner.

In addition to the official ONCAD circuit, a parallel millet and sorghum market exists, the activity of which is illegal. Peasants sell to local traders, who in turn either sell to wholesalers or directly to the consumer market. Peasants also sell to consumers directly or, near the Gambia border, to Gambians.

The following diagram outlines the structure of both the official and parallel market, and gives some indication of transaction prices.



Solid arrows indicate official flows, broken arrows indicate the parallel market. Official prices are given, as well as estimated parallel market prices.

The following table shows the official producer's price and quantity marketed by ONCAD in each of the last 7 years. A more detailed table is in the appendix.

Table XII. Millet/Sorghum Marketed by ONCAD

<u>Year</u>	<u>Producer Price (CFA/kilo)</u>	<u>Quantity Marketed (tons)</u>	<u>Percent of Production</u>
1976/77	35	10,000 (as of 2/77)	2%
1975/76	30	12,125	2
1974/75	30	35,969	5
1973/74	25	29,969	6
1972/73	18	21	= 0
1971/72	18	2,866	= 0
1970/71	18	346	= 0

SOURCE: ONCAD.

For the crop year of 1976/1977, ONCAD had hoped to market 60,000 tons. This collection would have been mainly in the Diourbel and Sine-Saloum regions.

Why has ONCAD had such difficulty in marketing millet and sorghum? There are many reasons; some circumstantial, others structural. Firstly, this year's estimated production of 554,000 tons is below last year's 715,000 ton production. Thus, peasant requirements absorb a greater proportion of total production, with less surplus available for sale. Secondly, in November 1974, imported rice prices were sharply increased from 60 CFA/kilo to 100 CFA/kilo. They were lowered to 80 CFA/kilo in May 1976 and have remained at that level since then. This made imported rice less attractive for the rural consumer in 1975; he preferred to consume more millet and sorghum. The costs of being deficient in cereals became higher for the producer, and this probably tended to reduce marketings of millet/sorghum.

Following the 1974 harvest; the quantity of marketings by ONCAD dropped sharply. With this year's poor harvest, peasants are also holding on to millet and sorghum in anticipation of higher prices later in the year.

There are other reasons for ONCAD's lack of success. Firstly, ONCAD, as stated, pays the Cooperative Chairman a commission on the groundnut collection but not on the millet/sorghum collection. During the buying period, it is obviously in the buying team's interest to purchase groundnuts. Also, the chairman has a long range interest to encourage groundnut production instead of cereal production. Secondly, by tying the opening of the buying campaign to the reimbursement of seed debts, ONCAD creates for many farmers a cash liquidity problem. These peasants, temporarily deprived of cash expected from groundnut sales, are forced to sell millet and sorghum on the parallel market, reducing the potential surplus available to ONCAD. Groundnut sales are not depressed since the producer has no other option but to await ONCAD's purchases.

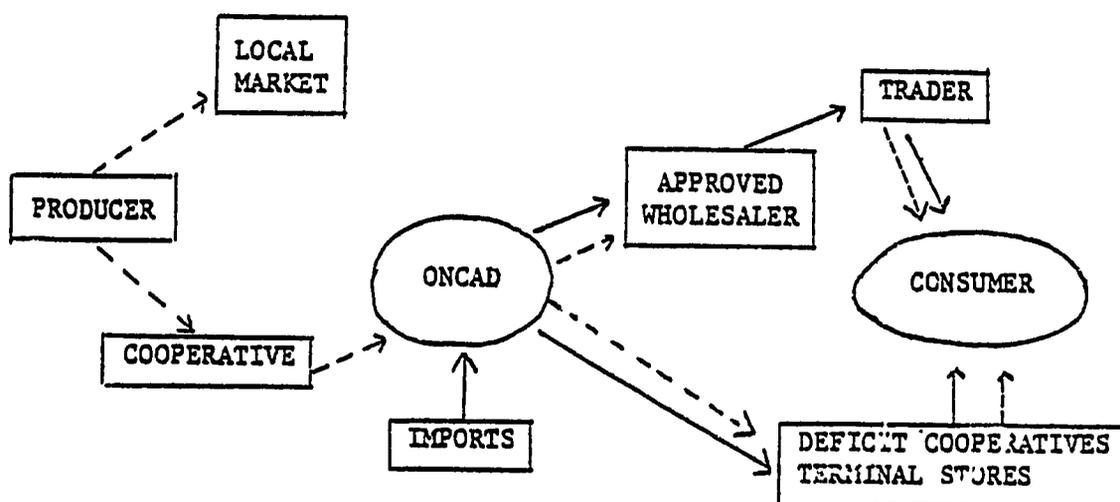
Most important, however, is the question of whether ONCAD, in purchasing millet and sorghum, is providing a needed market function. In theory, ONCAD purchases from producers at 35 CFA/kilo and releases to approved merchants at 43 CFA/kilo. In the parallel market, the producer can sell directly to a trader at 40 CFA/kilo. Both the producer and the trader can receive a better price in the parallel market. It is not difficult to understand why the producer and trader prefer the parallel market. In fact, ONCAD resells the greater part of its millet and sorghum purchases, not to traders, but to cooperatives in deficit areas (70% of sales). Traders, both for reasons of price and convenience, prefer to deal in the parallel market. In the parallel market, services of an intermediary, like ONCAD, are not needed.

Producers and traders therefore can divide ONCAD's margin.

ONCAD's lack of success in millet buying this year cannot be entirely blamed on the poor harvest. The above fundamental problems will exist during a good harvest. ONCAD's buying objectives must be clarified and appropriate policy designed. If their objective is simply to provide an intermediary function between producer and trader, their chances for success are very limited; such a service is not needed. If their objective is to purchase millet for a security stock or as an income transfer to peasants in deficit areas, ONCAD must be prepared to pay a producer price competitive with that paid in the parallel market.

#### C. Rice (Imported and Domestic)

ONCAD is responsible for the distribution of imported rice and acts as a buying agent for domestic rice. While it has a legal monopoly on the sale of imported rice to traders, its control of the local rice trade extends, in theory, only to commercial sales between regions. As previously explained, potential commercial wholesalers of imported rice are subject to extensive financial and storage capacity investigation before receiving "approval" as a trader eligible for a monthly quota of imported rice. These wholesalers then sell to small traders who supply the consumer. ONCAD purchases some locally-produced rice from the cooperatives and the regional development organization, SAED. Most of the rice marketed by peasants is hand-pounded and sold directly on local rural markets. The two circuits are diagrammed as follows:  
(See the next page).



The broken arrows represent sales of domestic rice, the solid arrows represent sales of imported rice.

The following table lists commercial rice imports, domestic rice sold by ONCAD, and the official Senegalese producer rice price since 1970. A more detailed table of ONCAD's marketings of local rice can be found in the Appendix.

Table XIII. Rice Marketings and Producer Prices, 1970-1977  
(Quantity-tons : Price-CFA/kilo)

<u>Year</u>	<u>Commercial Imports by ONCAD</u>	<u>Local Rice Marketed by ONCAD</u>	<u>Producer Price</u>
1976/77	130,000 (Min. Estimate)	N.A.	41.5
1975/76	130,000	N.A.	41.5
1974/75	124,000	3,612	41.5
1973/74	141,300	1,006	25
1972/73	188,500	0	21
1971/72	169,900	653	21
1970/71	167,500	599	21

SOURCE: ONCAD.

As is evident, ONCAD's purchases of local rice are minimal in relation to its commercial imports. This is for the simple reason that, at a producer paddy price of 41.5 CFA/kilo, the cost price for ONCAD of domestic rice, after purchase, milling, losses, and transport is 85 CFA/kilo. The current consumer price of rice is 80 CFA/kilo. With ONCAD reselling domestic rice at the wholesale price for imported rice, ONCAD assumes a substantial loss on each kilo of domestic rice it handles. This loss must be subsidized by the Caisse de Péréquation. Thus, ONCAD does not actively purchase domestic rice. Private traders do not find it sufficiently profitable to enter extensively in the local rice trade, due to the availability of reasonably priced imported rice. In fact, peasants find it more lucrative to hand-pound their production and sell it on the local market where imported rice is viewed as too expensive by many consumers. However, 70-80% of domestically-produced rice is consumed by the producer themselves.

The commercial circuit for imported rice is highly structured with prices controlled at each step of the marketing process. These controls are effective, as ONCAD releases a sufficient supply of imported rice to satisfy the market. Occasionally, a deviation from the controlled price occurs when ONCAD releases an imported rice of lower quality. Traders who have maintained a stock of higher quality imported rice can demand a premium above the controlled price for that rice. ONCAD's influence on the local rice trade is minimal, due to the unprofitability of these purchases. Thus the general problem of production costs, already alluded to, reappears. Unless substantial increases in productivity lower the cost of domestic rice, the world price of rice significantly rises, or exchange rates change, Senegalese rice will not be easily marketed in the presence of imported rice - except with continuing subsidization of rural production.

D. Maize

ONCAD is also a buyer of maize. SODEVA, the regional development agency for the Sine-Saloum, purchases maize for ONCAD. Figures of recent ONCAD marketings of maize are as follows:

Table XIV. Maize Marketing by ONCAD  
(Quantity: Tons; Price:CFA/Kilo)

<u>Year</u>	<u>Marketing</u>	<u>Production</u>	<u>Producer Prices</u>
1975/76	147	45,000	35
1974/75	378	43,200	35
1973/74	14	33,800	25
1972/73	5	20,200	N.A.

SOURCE: ONCAD.

ONCAD's marketings are insignificant compared to total production. Maize is primarily auto-consumed with little marketing outside of the producing area. A small traditional marketing chain exists, with maize sold on the village level by farmers themselves, or in some cases, by small traders. Maize is not well accepted in the urban market; preparation of meals from maize is time-consuming. While maize is one crop that could technically be developed fairly easily in Senegal, consumer resistance to large-scale maize consumption hinders its expansion.

E. Pricing Policy

1. Producer Prices

As previously discussed, the Comité des Grands Produits Agricoles (CGPA) recommends producer prices for groundnuts, domestic rice, millet, sorghum, and maize to the Prime Minister. The legal producer prices for the crop year are announced in November with marketing beginning in

December or January. The rationale for the Committee's price structure is to achieve certain policy objectives. While the committee considers world commodity prices in formulating their recommendations, the current development objectives for Senegalese agriculture receive greater attention. Recent producer price increases for millet and sorghum, with an unchanging groundnut price, are intended to stimulate greater production and sale of cereals, promoting food self-sufficiency.

A brief review of official Senegalese producer prices is found in this table.

Table XV. Producer Prices (CFA/Kilo)

	<u>1973/74</u>	<u>1974/75</u>	<u>1975/76</u>	<u>1976/77</u>
Groundnuts	25.56	41.5	41.5	41.5
Millet/Sorghum	25.96	30	30	35
Maize	25	35	35	35
Rice (paddy)	25	41.5	41.5	41.5

SOURCE: ONCAD.

The question that must be investigated is to what extent these producer prices influence production and marketing decisions. With the limited market opportunities for maize, ONCAD's official price already has little influence on maize cultivation. With respect to rice, the picture is more nuanced. On the one hand, the present price of domestic paddy is higher than it would be in the absence of government support; producers who market rice are now being subsidized by payment of a producer price higher than that warranted by landed costs of imported rice. This is obviously a factor encouraging rice production and marketing. On the other hand, ONCAD, as an organization, cannot be enthusiastic over domestic rice operations since it loses money at present producer and consumer prices.

In any event, ONCAD handles only 2% of marketed rice production, so is not really viewed by producers as a viable market outlet. ONCAD's rice price can have little influence on the production decision. Most rice is auto-consumed with the remainder hand-pounded and sold by peasants themselves. The extent and profitability of this operation depends on the consumer price of imported rice. A high consumer price for imported rice stimulates demand by low income rural consumers for the hand-pounded local rice, raising its price and encouraging production. The consumer price for imported rice, thus, tends to have greater influence on the production/marketing decision of local rice than the official producer price for local rice.

With respect to millet and sorghum production and marketing, ONCAD's official price again appears to have little influence. Its price appears to be below the price in the parallel market where the greater portion of millet and sorghum is bought and sold.

The one producer price which does have great significance in the production decision is the groundnut price. This price influences the producer's decision of allocating land and labor resources between groundnuts and millet/sorghum. Obviously, the groundnut producer price has implications for the production/marketing of millet and sorghum. A higher groundnut price encourages greater groundnut production and, in the short run at least, reduces millet/sorghum production and marketing.

At current producer prices (41.5 CFA/kilo paid by ONCAD for groundnuts and 40 CFA/kilo paid by private traders for millet/sorghum) and estimated current yields (850 kg/ha for groundnuts and 500 kg/ha for millet/sorghum), groundnut production is significantly more profitable than

millet/sorghum production.<sup>1</sup>

The effectiveness of official producer price policy is, thus, subject to many constraints in the current Senégalese situation. For both millet/sorghum and local rice, a preferred alternative to ONCAD exists for the producer, limiting the influence of ONCAD's price. For both those cases, the price in the parallel market is the one which influences producer decision-making. Only if ONCAD's price were more attractive than that of the preferred alternative could it influence decision-making. In that case, however, ONCAD would have to be a credible purchaser of all offerings and this would mean heavy financial losses on millet, sorghum and rice at present prices. The groundnut price is effective and influential because most producers have no viable alternative except to sell to ONCAD. Price policy, like many elements of agricultural policy in Senegal, is conditioned and constrained by two basic facts: the greater profitability of groundnut production than millet/sorghum production and the higher resource cost of domestic rice than imported rice.

## 2. Consumer Prices

Unfortunately, the team was unable to gather extensive data on consumer grain prices for major markets. Some general insights, however, can be found in the existing data.

The official consumer price for rice is recommended by the CGPA during the same deliberations that take place for producer prices. These annual

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<sup>1</sup>These numbers are obviously not sufficient by themselves to demonstrate greater groundnut profitability; input differences also must be taken into account. Available data on input costs do not change these conclusions.

prices have been:

Table XVI. Consumer Rice Prices - Dakar (CFA/kilo)

<u>1968/69</u>	<u>69/70</u>	<u>70/71</u>	<u>71/72</u>	<u>72/73</u>	<u>73/74</u>	<u>74/75</u>	<u>75/76</u>	<u>76/77</u>
45	45	40	40	40	60	100	90	80

SOURCE: Commerce Intérieur.

Beginning in 1974, when rice prices were sharply raised, the subsidy element in domestic rice was discontinued. Recent decreases in world rice prices have been passed on to the Senegalese consumer. This controlled price appears to be respected, with ONCAD releasing sufficient supplies to satisfy the market. As a result, interseasonal price fluctuations are not a problem. There is some interregional variation, with imported rice outside of Dakar costing slightly more, representing an allowable transport margin.

Millet and sorghum consumer prices are less documented. The CGFA, while announcing a producer price for millet and sorghum, does not announce an official consumer price for millet and sorghum. This represents a recognition that the control of the consumer millet and sorghum price is nearly impossible. Controle Economique, Commerce Intérieur, and ONCAD, however, do meet to consider a recommended range for the consumer millet price, based on supply/demand considerations. While Controle Economique is charged with monitoring millet consumer prices, it is not clear that they intervene if deviations are noticed. It would appear that the millet/sorghum consumer prices is uncontrolled, varying with market influences.

Some partial, unofficial price series are available for the Dakar market. Their monthly prices are as follows:

Table XVII. Dakar Millet Prices (CFA/Kilo)

<u>Year</u>	<u>J</u>	<u>F</u>	<u>M</u>	<u>A</u>	<u>M</u>	<u>J</u>	<u>J</u>	<u>A</u>	<u>S</u>	<u>O</u>	<u>N</u>	<u>D</u>
1972	35	33	35	37	37	40	37	35	35	49	55	50
1973	50	47	48	68	69	67	78	103	133	117	47	42
1974	35	35	35	35	35	35	40	40	37	37	40	40
1975	45	--	--	--	--	--	--	--	--	--	--	--
1976	55	--	--	--	--	--	--	--	--	70	--	--
1977	65	--	--	--	--	--	--	--	--	--	--	--

These prices suggest great variability during 1973 and considerably lower prices and variability during 1974. The 1973/74 harvest was 65% superior to the 72/73 harvest, accounting for the lower prices in 1974. Currently, it appears that moderate seasonal variations appear in the Dakar market. A maximum pre-harvest price occurs in September/October, followed by a minimum annual price in December or January.

With imported rice in sufficient quantities at a constant annual price, millet and sorghum price fluctuations are mitigated. If supply decreases begin to pressure millet and sorghum prices upward, additional demand for imported rice is stimulated. ONCAD releases greater quantities of imported rice, and the pressure on millet and sorghum prices is mitigated. Thus, except in 1973, seasonal millet and sorghum price fluctuations have not been a serious problem in the Dakar market.<sup>1</sup>

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<sup>1</sup>The 1973 rise in prices was due to a depletion of ONCAD's rice stocks.

Outside of Dakar, it appears that, in producing regions, millet and sorghum prices are lower than in Dakar. However, seasonal variability is greater. Lower income rural consumers do not as easily have the option of shifting demand to higher-priced imported rice. As a result, millet/sorghum demand does not ease, as in the Dakar market; supply shortages before the harvest can sharply pressure millet/sorghum prices upward.

This chapter on marketing channels and producer/consumer price policy has shown basically that a traditional marketing system exists for millet and sorghum, despite ONCAD's efforts. With respect to government's use of controlled prices, to influence production or marketing decisions, only the official producer groundnut price and the consumer rice price have great influence. While both of these prices directly influence production/marketing decisions for millet, sorghum, rice and groundnuts, the Senegalese government can vary these prices from their world price only if it is prepared to accept diminished national income and a probable decline in economic welfare, in the short-run at least.

## V. INPUTS AND STORAGE

### A. Inputs

ONCAD, in cooperation with the local producer cooperatives, is responsible for administering the national agricultural program of input distribution. This program involves distribution of fertilizers, insecticides, agricultural implements, and selected or improved seeds.

The annual procedure of ordering and delivery begins in November. At cooperative society meetings, peasants are informed of the prices for inputs and their recommended usage. The officials of the cooperatives then ask producers about their desired input purchases. The cooperative aggregates these intended purchases and sends the total to the ONCAD regional office. During the months of January and February, the total demands for all regions are collected, processed, and evaluated at ONCAD headquarters in Dakar.

To avoid any delays in delivery, ONCAD automatically, in December, orders 50% of last year's input consumption. It begins to deliver these inputs to regional assembly points in January. This delivery continues through April, by which time the totality of the order should be ordered and delivered. Between April and June, the inputs are sent to the local cooperative where the cooperative president signs for their acceptance, verifying their delivery. In June, in time for the planting season, the producers take possession of the inputs. ONCAD uses its own transport system for the above delivery process. While occasional incidents of late input delivery have been reported, for the most part ONCAD succeeds in meeting its timetable.

Most inputs are purchased on credit. The BNDS extends credit to ONCAD to finance the input ordering. ONCAD, through the cooperatives,

extends credit to individual producers. There is a debt limit for the individual producer equal to 25 percent of his average annual sales to the cooperative during the last three years. There is also a total debt capacity for the cooperative society, which is a function of last year's sales and total debt outstanding. Occasionally, total producer requests for inputs exceed the debt capacity of the cooperative, in which case, input requests must be scaled down. Some modification to these procedures is needed to insure that each responsible producer can receive the inputs he desires.

Producer credit is extended on a short-term (one year) basis for fertilizers, and a medium-term (five year) basis for durable apparatus. The average interest rate is 7 percent per annum. No long-term agricultural credit currently exists in Senegal.

ONCAD, with its financing from the BNDS, pays the true cost price for inputs. To varying degrees, the producer pays a subsidized price. The Caisse de Péréquation is supposed to reimburse ONCAD for the input subsidy. With the revenue received from the producer and from the Caisse, ONCAD repays the BNDS. Currently, ONCAD is heavily in debt to BNDS for the agricultural program. The Caisse's inability to pay ONCAD and the less than 100 percent producer reimbursement has created this situation.

Groundnut seeds are lent by ONCAD to producers, who repay them before the start of commercial activities. In fact, the buying season is not supposed to be officially opened by ONCAD until seed debts have been eighty percent repaid. For millet, sorghum and rice, improved seeds are given to selected producers by the regional development organizations.

About 90 percent of the fertilizer used in Senegal is purchased by ONCAD from the Senegalese society SIES (la Société Industrielle d'Engrais au Sénégal). The remainder is imported by another Senegalese society

(SSEPC). Some agricultural implements are purchased from SISCOMA, a Senegalese corporation which manufactures these implements.

Recent fertilizer prices to ONCAD and to the producer are shown below. These prices are for the SIES fertilizer and applicable for groundnuts, millet, and sorghum. A more complete list of fertilizer prices, including specialty fertilizer, is shown in the Appendix.

Table XVIII. Fertilizer Prices (CFA/ton)

<u>Year</u>	<u>Price to Producer</u>	<u>Subsidy</u>	<u>Total</u>	<u>% of Subsidy</u>
1976/77	20,000	31,000	51,000	61%
1975/76	16,000	43,000-	59,000	73%
1974/75	16,000	20,500	36,500	56%
1973/74	16,000	16,000	32,000	50%
1972/73	12,000	18,000	30,000	60%
1971-72	12,000	11,500	23,500	49%
1970-71	12,000	11,000	23,000	48%

SOURCE: ONCAD.

Fertilizer has been heavily subsidized by the government. The recent escalating cost of this subsidy has led to a questioning of its continuation. At current output and fertilizer prices, fertilizer application is profitable for groundnut and cereal crops. Its further development has been somewhat hampered by unprofitable experiences of producers who did not properly apply the fertilizer. However, reflecting its profitability, fertilizer usage is increasing.

Agricultural inputs, other than fertilizer, are only slightly subsidized by the Senegalese government. The following table shows the cost of these inputs paid by the producer and by the national government.

Part of this subsidy has been from external sources.

Table XIX. Input Costs (000s CFA)

<u>Year</u>	<u>Cost to Producer</u>	<u>Cost to GOS</u>	<u>Total</u>	<u>% Paid by GOS</u>
1976/77	3,860,150	392,492	4,252,642	9%
1975/76	408,116	600,000	1,008,116	60%
1974/75	514,263	200,000	714,263	28%
1973/74	498,292	192,878	691,170	28%
1972/73	712,257	0	712,257	0%
1971/72	274,389	0	274,389	0%
1970/71	225,797	0	225,797	0%

SOURCE: ONCAD.

A detailed table showing quantities of agricultural inputs sold by ONCAD in recent years can be found in the Appendix to this report.

In general, ONCAD's program for input distribution appears to function smoothly. Certain minor modifications, however, should be investigated. First, the cooperative society debt capacity limit should be reviewed to minimize cases where responsible producers are denied their full input requests. Secondly, the introduction of a long-term credit program, should be considered. Finally, the tying of the official buying season to seed debt repayment should be reviewed. In the previous chapter, it was shown that delays in the opening of the buying season can have adverse consequences for ONCAD's millet marketing program.

#### B. Storage

Currently, three types of cereal storage exist in Senegal. As previously discussed, 80-85 percent of millet, sorghum, and rice are auto-consumed or traded on the village level. This storage operation is completely done on-farm. Losses, according to the Kansas State Senegalese

Grain Storage Mission, are as low as three percent during the first year. SODEVA, the regional development authority in the Sine-Saloum, is experimenting with new techniques of village storage to further reduce insect loss.

The techniques and extent of dealer storage are difficult to ascertain as a result of ONCAD's legal monopoly of millet/sorghum commercialization. Little hard information is available for storage in the private parallel market. One can infer that dealer stocks are not great. Price fluctuations for millet and sorghum are not sufficient for traders to develop extensive storage capacity for speculation. No estimates of dealer storage loss were available to the team.

ONCAD has developed extensive storage capacity for groundnuts. Currently, 242,000 tons of space are available for groundnuts, primarily in the Sine-Saloum, Diourbel and Thiès regions, where groundnuts are extensively cultivated. For its intervention in millet and sorghum marketing, ONCAD has adequate capacity. In response to the CILSS storage questionnaire, sent out as part of this study, ONCAD reported cereals storage amounting to 39,000 tons in the public sector, as follows:

- 90 units of mobile storage, total capacity 9,000 tons.
- 3 warehouses each of 10,000 capacity (2 in Sine-Saloum, 1 at Dakar).
- In addition, various warehouses (1,000-5,000 tons) are rented from the private sector.

This represents a minimum cereals storage capacity of 50,000 tons. The Kansas State Study<sup>1</sup> estimated that ONCAD had 45,000 tons of millet/sorghum in reserve, primarily at Diourbel and in the Sine-Saloum. This

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<sup>1</sup>W.P. Spencer, et al., Recommendations for Grain Storage and Preservation in Senegal, Kansas State University, Food and Feed Grain Institute, Report No. 54, Nov. 1975.

team observed the millet and sorghum, which appeared to be adequately stored and preserved.

In conjunction with its recent major commitment to millet/sorghum marketing, ONCAD has embarked on an ambitious storage construction program. The program foresees the construction of 100,000 additional tons of cereals storage capacity. ONCAD recently has completed, with financing from the Government of Senegal, the construction of 30,000 tons of additional capacity. These are 1,000 and 2,000 ton warehouses, primarily in the Diourbel, Sine-Saloum, and Thiès regions, where major millet buying by ONCAD was expected. In the Appendix to this report is a list of intended cereal storage construction sites, listed by priority.

The second phase of this major program will be an additional 30,000 tons of capacity financed by USAID. This program is scheduled to begin in the summer of 1977. Locations will be from those shown on the list in the Appendix. Also included in this program is financing for several ONCAD officials to study storage management and techniques in the United States.

The third phase of the program is an additional 25,000 tons to be financed by the Federal Republic of Germany. A recent mission by that government recommended its financing. Construction is scheduled for late 1977. Sites will also be from those listed in the Appendix to this report.

These three projects will increase cereals storage capacity by 85,000 tons. This is 15,000 short of the 100,000 ton goal. ONCAD, however, is ready to finance the additional 15,000 tons if millet/sorghum purchases warrant it.

Based on the buying figures presented in the last chapter, ONCAD will not need to finance the additional 15,000 tons. In fact, one must question for what purpose the 85,000 tons will be used. With recorded purchases of

millet and sorghum only about 10,000 tons, substantial excess storage capacity will exist. These storage facilities are not well suited for groundnuts. Also, the Sine-Saloum, as a major millet/sorghum producer, is not a sufficiently large importer of rice to utilize that capacity for rice. For Senegal, the major storage issue is simply a more careful analysis of capacity needs in relation to the realities of the agricultural situation.

## VI. CONCLUSIONS

Certain broad conclusions emerge from this study of marketing and price policy of cereals in Senegal. Also, areas where additional research is desirable can be identified.

(1) Currently, Senegal is dependent on external sources of foodgrains for between 30-40% of annual needs. This dependence is the natural consequence of Senegal's integration with the world economy, in accord with which Senegal exports groundnuts and imports food. At current world prices, this strategy yields higher GNP than other alternatives. The high domestic costs of production of both rice and millet/sorghum, when compared to world prices of these crops, are the major obstacle to grain self-sufficiency in Senegal.

(2) If Senegal wishes to achieve maximum benefits from trade and specialisation, it should accept as domestic price ratios, world price ratios for the traded products. Unless Senegal is prepared to sacrifice income (GNP), it has little flexibility for utilizing price policy to influence agricultural goals. It is only by the spread of higher productivity techniques, using innovations in rice and millet production, that these constraints can be relaxed.

(3) As mentioned in item (2), the producer price for groundnuts and the consumer price for imported rice are two key prices. The first influences the allocation of resources between groundnuts and cereals. The extent of Senegal's dependence on external grain sources is a direct function of this price ratio. The consumer price for imported rice is a major determinant of demand for and prices of its substitute products -- local rice, millet and sorghum. Secondly, the adequate availability of imported rice throughout the year mitigates greatly fluctuations in prices for local grains.

(4) ONCAD's structure is not conducive to its having a monopoly on millet and sorghum collection. Its role as an intermediary in the millet/sorghum marketing chain is not clear. In many instances, peasants and producers can both receive better prices by directly transacting among themselves. For this reason, ONCAD cannot enforce its monopoly, and a large parallel millet/sorghum market exists. While some of ONCAD's marketing aims are perhaps justified, such as transferring millet/sorghum to deficit cooperatives and creating a manageable grain stock, these could be most efficiently accomplished in direct legal competition with the private sector. An elimination of the sales risk currently existing in the parallel market and generally borne by the trader, could result in higher millet/sorghum producer prices and lower millet/sorghum consumer prices.

(5) The current requirement that the agricultural "campaign" not be opened until 80% of producer groundnut seed debt is repaid breeds certain inefficiencies and inequities. Producers who need cash and are prevented from selling groundnuts as anticipated, turn to other alternatives. Those producers situated near the Gambian border export clandestinely to the Gambia. Producers who do not have this Gambian outlet are often induced to sell millet and sorghum in the private market. Many of these producers then run short of cereals later in the year and must buy back, at higher prices, the same cereals. This problem could be alleviated by a firm commitment to an agricultural buying date for groundnuts.

(6) Senegal's reliance on regional development agencies for extension activity has obvious advantages. The decentralized approach seems to allow greater flexibility to adapt activities according to region and crop. Some problems do exist. Firstly, unequal levels of funding and support seem to be given to the regional offices. Secondly, the broad responsibilities of each

agency greatly differ. Some are involved in marketing (SAED, SODEFITEX); others only advise on commercial matters. While beyond the scope of this study, some review of this extension process with an eye towards greater centralization, might be in order.

(7) ONCAD has currently embarked on a three phase, 100,000 ton storage construction program to complement its program of millet marketing. This year ONCAD has only purchased 10,000 tons of millet with little chance for greatly expanded purchases in the future. One must question to what use ONCAD will put this storage capacity. Its main locations, Thiès, Diourbel, Sine-Saloum, are in a millet producing region where storage is not needed for imported grains. Hopefully, these questions will become clearer as the next phases of this program unfold.

As a general conclusion, this study suggests that Senegalese dependence on external food sources is a natural result of its development strategy, which has involved pursuit of its comparative advantage in groundnuts.

APPENDIX 1. PEOPLE CONTACTED AND DOCUMENTATION

SENEGAL VISIT - January 3 - January 16 and  
January 24 - February 3, 1977

PEOPLE CONTACTED:

Ministry of Agriculture

Mr. Dieng - Agricultural Research

ONCAD

Dakar - Mr. Diawara

Mr. Dieng

Mr. Sy

Mr. Fall

Mr. Niane

Kolack - Mr. Kamara

Mr. Diouf

SODEVA

Kolack - Mr. Lalande

COMMERCE INTERIEUR

Mr. Kane

Mr. Toure

Mr. Dieye

COMMISARIAT D'AIDE ALIMENTAIRE

Mr. Coly

CONTROL ECONOMIQUE

Mr. Diaw

DIVISION OF STATISTICS

Mr. Mbassambaye

CAISSE DE PEREQUATION

Mr. Toure

COMITE DES GRANDS PRODUITS

Dr. Bah

SONADIS - General Manager

WFP

Mr. Westdal

FAO

Mr. VandenAmeele

INSTITUTE TECHNOLOGIE ALIMENTAIRE

Mme. Diallo

Mr. Niane

CAISSE CENTRALE

Director

Mr. Marcie

SODAGRI

Dr. Resser

Senegal Visit - (cont.)

GRANDE MOULINS DE DAKAR

Mme. LeGoff

U.S. AID

Mr. Fell

Mr. McDill

Mr. Lateef

U.S. EMBASSY

Mr. Wilson

CHAMBER OF COMMERCE

Mr. Traore

SONED

Mr. Charie

A visit to ONCAD's operations in the Sine-Saloum and Kolack Region was made.

DOCUMENTS CONSULTED

1. International Bank for Reconstruction and Development, 1975.
2. Rapport d' Activites, 1975/76, SAED.
3. V<sup>e</sup> Plan de Developpement Economique et Social, 1977-81, Agriculture
4. Le Socialisme Dans le Developpement Rural-Bilan/Prospects.
5. Rapport Annuel, 1975/75, Production Agricole.
6. U.S. AID Proposal for P.L. 480 Program.
7. U.S. AID Project MAJAM Irrigated Perimeters.
8. Storage Report - Federal Republic of Germany
9. Statistics Bulletins, 1975 report, and monthly issues.
10. Project de Developpement Rural du Sédhiou, September 1975.
11. Project Rural de Sédhiou - December 1975 (Rapport d'Activitiás).
12. Developpement de la Riziculture en Casamance, 1973.
13. Developpement Rurale en Casamance, July, 1976.
14. Les Migrations en Basse Casamance, October 1976.

Appendix 2

Statistical Tables

1. Senegal: Production of Major Crops 1960-1975
2. Average Basic Situation
3. Transport Costs
4. Marketing of Groundnut Oil 1961-1975
5. Production and Marketing of Millet, 1961 to 1975
6. Production and Marketing of Paddy Rice, 1961 to 1975
7. Prices of Fertilizer - Agricultural Programs 1965 to 1976/77 (Purchase Price)
8. Agricultural Inputs, 1961-76
- 9-A. List of Warehouses by Order of Priority of Completion  
-B. Locations Selected for Construction of 47 ONCAD Warehouses for Cereal Storage
10. Senegal: Imports and Food Aid, 1976-1977

Table 1. Senegal: Production of Major Crops 1960-1975  
 Tableau 1. Senegal: Production des Produits Principaux 1960-1975

	Millet- MIL			Cowpeas- Niébé			Groundnut- Arachides			Rice- Riz			Cotton- Coton			Corn- Maïs			Cassava- Manioc			Cashcrops- Cultures Marachères			Arachides de bouche			
	P	A	Y	P	A	Y	P	A	Y	P	A	Y	P	A	Y	P	A	Y	P	A	Y	P	A	Y				
1960	392	762	514	11	45	247	893	977	913	82	70	1,200				27	31	889	168	37	4,531	29	2.1	13,432				
1961	407	831	489	15	56	248	995	1,027	969	84	73	1,151				28	32	885	139	36	3,809	27	2.6	10,677				
1962	424	865	490	13	49	267	894	1,013	882	90	72	1,256				27	32	847	157	38	4,111	33	2.6	12,648				
1963	478	959	498	14	51	276	952	1,084	878	106	75	1,415				27	33	815	153	33	4,612	31	2.7	11,494				
1964	532	1,011	526	17	56	298	993	1,555	941	109	87	1,252	0.6	1.7	360	37	47	788	156	33	4,724	32	2.6	12,196	0.9	0.7	1,412	
1965	554	1,069	518	14	54	257	1,122	1,114	1,007	125	83	1,517	1.2	1.5	838	41	54	751	150	38	3,976	32	2.4	13,186	2.1	1.9	1,132	
1966	423	997	424	18	86	211	857	1,114	785	125	88	1,424	2.2	1.8	1,213	42	54	777	241	64	3,755	35	2.6	13,351	3.6	2.6	1,371	
1967	655	1,155	566	30	99	305	1,005	1,164	863	135	101	1,327	4.3	4.0	1,054	57	72	792	239	63	3,784	41	3.3	12,704	3.4	2.9	1,174	
1968	450	1,054	427	17	70	246	831	1,191	698	59	78	1,317	2.8	6.7	1,458	25	36	696	233	63	3,717	40	3.1	13,214	5.4	4.1	1,320	
1969	635	1,037	612	23	71	317	789	953	827	141	104	1,349	12	9.8	1,172	49	55	881	177	39	4,536	40	3.1	18,821	7.3	6.7	1,090	
1970	401	972	412	18	63	281	583	983	593	99	93	1,058	12	14	830	39	51	765	162	39	4,153	52	3.6	14,593	5.6	6.1	927	
1971	583	975	597	26	71	365	989	1,060	932	108	84	1,242	21	18	1,155	39	49	787	138	31	4,418	70	4.7	14,838	8.7	8.5	1,004	
1972	323	936	344	11	86	125	570	1,071	532	44	50	866	24	20	1,154	20	33	625	150	41	3,673	70	4.7	14,860	11	11	993	
1973	510	1,094	467	15	53	287	675	1,026	657	64	65	996	33	29	1,155	34	40	862	170	29	4,206	63	4.8	13,125	10	14	726	
1974	777	1,155	673	22	59	368	993	1,152	862	117	86	1,366	42	39	1,098	43	49	888	119	33	3,562				13	17	765	
1975	630						1,450			144			45															26

P - Production (1,000 tons)  
 A - Area (1,000 hectares) Superficies  
 Y - Yield (Kg/ha) Rendement

The figures have been rounded. Ces chiffres ont été arrondis

SOURCE: Senegal, V<sup>e</sup> Plan Quadriennal de Développement Economique et Social.

Table 2. Average Basic Situation  
Tableau 2. Situation Moyenne de Base

	Arachide	Mils	Maïs pluvial	Riz	Niébé	Coton	Manioc	Ar. B.
<b>SUPERFICIES (1 000 ha)</b>								
Cap-Vert	2,2	1,5	-	-	0,1	-	0,1	-
Casamance	120	95	1,5	65	1,3	16	2,9	2,4
Diourbel	320	290	-	-	37	-	3,5	p.m
Fleuve	6	70	5	10	10	-	-	-
Sénégal-Oriental	50	70	25	5,6	-	17	6,8	21,6
Sine-Saloum	500	300	3,5	1,7	-	6	6,8	21,6
Thiès	155	153	-	0,5	16,5	-	15	-
<b>TOTAL</b>	<b>1,153</b>	<b>979</b>	<b>48,5</b>	<b>82,8</b>	<b>64,9</b>	<b>39</b>	<b>34,3</b>	<b>24,9</b>
<b>RENDEMENTS (Kg/ha)</b>								
Cap-Vert	591	467	-	-	343	-	3,8	-
Casamance	1,042	863	1,000	1,152	351	106	9,9	708
Diourbel	731	376	-	-	244	-	2,9	p.m
Fleuve	450	400	625	1,936	344	-	-	-
Sénégal-Oriental	880	642	790	1,100	-	1,000	-	666
Sine-Saloum	880	533	1,000	507	-	866	1,9	880
Thiès	858	386	-	910	288	-	4,3	-
<b>TOTAL</b>	<b>852</b>	<b>493</b>	<b>866</b>	<b>1,220</b>	<b>271</b>	<b>1,005</b>	<b>3,9</b>	<b>855</b>
<b>PRODUCTIONS (1,000 T)</b>								
Cap-Vert	1,3	0,7	-	-	0,3	-	0,4	-
Casamance	125	82	15	75	0,46	17	29	1,7
Diourbel	234	109	-	-	9,0	-	27	p.m
Fleuve	2,7	28	3,1	19	3,3	-	-	-
Sénégal-Oriental	44	45	20	6,2	-	17	-	0,6
Sine-Saloum	440	160	3,5	0,9	-	5,2	13	19
Thiès	133	59	-	0,5	4,8	-	-	-
<b>TOTAL</b>	<b>980</b>	<b>483</b>	<b>42</b>	<b>101</b>	<b>18</b>	<b>39,2</b>	<b>134</b>	<b>21,3</b>

SOURCE: Ve Plan Quadriennal de Developpement Economique et Social

Table 3. Transport Costs (Francs per ton kilometer)

Tableau 3. Prix de Transports (Francs à la tonne kilometre)

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Transports Primaire-Primary Transport

Goudron-Asphalt	17
Piste Améliorée - Improved Road	22
Piste Ordinaire - Average Road	
(Diourbel, Thiès, Sénégal-Oriental)	28
(Casamance, Fleuve, Sénégal-Oriental)	31
Piste Mauvaise - Poor Road	50
Tout Terrain - Cross Country	60
Forfait Minimum - Minimum Contract	100

Transport Secondaire - Secondary Transport

Goudron-Asphalt	12
Piste Améliorée - Improved Road	17

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Table 4. Marketing of Groundnut Oil 1961-75  
 Tableau 4. Commercialisation des Arachides d'Huilerie 1961 à 1975

	Cap-Vert		Casamance		Diourbel		Fleuve		Sénégal-Oriental		Sine-Saloum		Thiès		Total
	P	T	P	T	P	T	P	T	P	T	P	T	P	T	T
61/62	22.45	2,655	18.68	104,428	20.97	222,161	20.70	1,965	19.27	39,805	21.06	358,192	21.60	130,486	859,692
62/63	22.45	1,838	18.87	103,505	21.05	162,698	20.74	749	19.42	41,512	21.08	356,358	21.67	98,954	765,614
63/64	22.45	1,904	19.00	96,030	21.00	202,092	20.75	3,075	20.95	37,319	21.10	351,720	21.65	113,965	806,105
64/65	22.45	1,417	19.03	115,493	20.96	177,394	20.73	4,291	19.54	36,989	21.09	429,853	21.65	101,344	866,781
65/66	22.51	1,050	19.82	106,627	21.60	242,907	21.26	4,063	20.20	33,398	21.55	474,119	22.43	130,553	992,717
66/67	22.69	564	19.02	92,524	20.72	107,429	20.70	1,874	19.77	35,452	21.01	450,285	22.47	92,670	780,798
67/68	18.44	1,457	16.60	84,942	17.57	238,237	17.57	5,708	16.61	24,692	17.97	346,550	18.44	132,157	833,743
68/69	18.44	403	16.60	82,365	17.57	111,166	17.57	882	16.61	14,313	17.79	328,148	18.44	86,015	623,292
69/70	18.44	231	16.60	67,848	17.57	139,530	17.57	1,700	16.60	16,365	17.97	281,749	18.44	85,272	592,695
70/71	19.44	60	17.60	84,412	19.44	64,053	19.44	525	17.60	4,168	19.44	229,217	19.44	64,883	447,318
71/72	23.10	644	23.10	93,746	23.10	163,270	23.10	387	23.10	17,353	23.10	338,191	23.10	133,769	747,360
72/73	23.10	---	23.10	87,028	23.10	46,703	23.10	---	23.10	18,725	23.10	264,398	23.10	12,810	429,664
73/74	25.50	237	25.50	83,903	25.50	72,402	25.50	339	25.50	1,928	25.50	208,594	25.50	59,848	427,251
74/75	41.50	649	41.50	90,165	41.50	355,474	41.50	785	41.50	26,362	41.50	254,839	41.50	109,257	637,531
		13,109		1,293,016		2,105,516		26,343		348,381		4,672,213		1,351,983	9,810,561

P - Average Price,  
 Prix Moyen

T - Tonnage Marketed,  
 Tonnage Commercialisé

- From 1961 to 1966, the average regional price was determined as a function of the distance of the nearest port (transport differential).  
 De 1961 à 1966 le prix moyen régional a été fixé en fonction de la distance du port d'embarquement le plus proche (Différentiel de transport).
- From 1967 to 1970, the average regional price was set on the basis of data from the 1965/66 crop season.  
 De 1967 à 1970 le prix moyen régional a été arrêté sur la base des données de la campagne 1965/1966.
- The prices shown in this table do not take into account the marketing margin: 1.70 Fr/kg up to 1966, 1.10 Fr/kg from 1967 to 1972 and 1.50 Fr/kg since 1973.  
 Les prix contenus dans ce tableau sont arrêtés sans tenir compte de la marge de commercialisation: 1,70 Frs/kg jusqu'en 1966 - 1,10 Frs/kg de 1967 à 1972 et 1,5 Frs/kg à partir de 1973.

Source: ONCAD

## Appendix

Table 5. Production and Marketing of Millet, 1961 to 1975 (tons)  
Production et Commercialisation Mil, 1961 à 1975 (tonnes)

Years Années	Price Prix		Casamance	Diourbel	Fleuve	S/Oriental	Sine/Saloum	Thies	Total	Value Valeur
1960/61	19.12 F	P	62,000	55,000	39,000	35,000	157,000	44,000	392,000	7,499,040,000
		C	-	-	-	-	-	-	-	-
		ZC	-	-	-	-	-	-	-	-
1961/62	19.12 F	P	62,000	86,000	52,000	40,000	128,000	45,000	413,000	7,896,560,000
		C	581	4,639	651	273	5,127	1,333	12,604	-
		ZC	0.9%	5.4%	1.2%	0.68%	4%	3.6%	3%	-
1962/63	19.12 F	P	68,000	77,000	55,000	35,000	142,000	47,000	424,000	8,106,880,000
		C	222	3,628	1,124	504	5,714	1,661	12,853	-
		ZC	4.3%	4.7%	2.04%	1%	4%	3.6%	3%	-
1963/64	19.12 F	P	72,000	120,000	39,000	38,000	157,000	51,000	477,000	9,120,240,000
		C	895	3,931	247	734	7,000	1,200	14,007	-
		ZC	1.3%	3%	0.60%	1.9%	4.4%	2.3%	2.9%	-
1964/65	19.12 F	P	84,000	125,000	65,000	42,000	173,000	43,000	532,000	10,171,840,000
		C	308	1,490	1,139	1,047	4,585	213	7,782	-
		ZC	0.3%	1%	1%	2.4%	2.6%	0.5%	1.6%	-
1965/66	20 F	P	94,000	123,000	53,000	47,000	184,000	53,000	554,000	11,080,000,000
		C	2,771	6,900	1,240	6,240	7,384	2,055	26,590	-
		ZC	2.9%	5%	2%	13%	4%	3.8%	4.7%	-
1966/67		P	76,000	54,000	53,000	50,000	148,000	42,000	423,000	8,460,000,000
		C	-	-	472	3,749	-	-	4,221	-
		ZC	-	-	0.89%	7.5%	-	-	1%	-
1967/68	18 Frs Fleuve 17 autres Régions	P	114,000	158,000	73,000	53,000	188,000	68,000	654,000	11,191,000,000
		C	-	-	1,228	929	-	-	2,157	-
		ZC	-	-	1.6%	1.7%	-	-	0.3%	-
1968/69	18 Francs Fleuve 17 F. Autres Regions	P	88,000	79,000	38,000	45,000	155,000	45,000	450,000	7,688,000,000
		C	498	-	39	1,446	-	-	1,983	-
		ZC	0.5%	-	0.1%	3%	-	-	0.44%	-

Suite page suivante - See following page

TABLE 5. (CONTINUED, SUITE)

Years Années	Price Prix		Casamance	Diourbel	Fleuve	S/Orien- tal	Sine/Saloum	Thies	Total	Value Valeur
1969/70	18 F.Fleuve	P	121,000	98,000	64,000	69,000	204,000	77,000	633,000	10,825,000,000
	17 F.Autres Régions	C ZC	11,327 1.09%	2,210 2.25%	1,444 2.25%	3,662 5.3%	1,445 0.7%	384 0.49%	10,472 1.65%	- -
1970/71	18 F. Fleuve	P	100,316	54,320	29,030	30,644	133,510	53,360	420,211	6,866,617,000
	17 F.autres Régions	C ZC	231 0.4%	- -	100 0.3%	15 0.04%	- -	- -	346 0.8%	- -
1971/72	18 F.Fleuve	P	90,509	108,655	49,354	54,842	197,584	81,013	716,713	9,955,475,000
	17 F.autres Régions	C ZC	146 0.16%	171 0.15%	217 0.43%	1,506 2.74%	756 0.37%	15 0.01%	2,866 0.4%	- -
1972/73		P C ZC	21					21	331,304	
1973/74	25 F/KG Toutes Régions	P C ZC	619	17,224	313	102	6,395	5,052	29,969	749,225,000
1974/75	30 F/KG Toutes Régions	P C ZC	853	10,082	7,035	1,111	15,225	1,663	35,969	1,079,070,000
1975/76	30 F/KG	C	497	1,001	2,216	251	8,006	154	12,125	363,750,000
1976/77	35 F/KG								as of Feb.1 1977 10,000	

P - Production

C - Marketing, Commercialisation

ZC - % Marketed, % Commercialisation

SOURCE: ONCAD

Table 6. Production and Marketing of Paddy Rice, 1961 to 1975 (tons)  
Production et Commercialisation Riz Paddy, 1961 à 1975 (tonnes)

Years Années	Price Prix		Casamance	Fleuve	S/Orien.	S.Saloum	Thiès	Total	Value Valeur
1960/61	--	P C ZC	62,000 -- --	1,700 -- --	1,300 -- --	2,100 -- --	250 -- --	67,500 -- --	-- -- --
1961/62	--	P C ZC	60,000 -- --	17,500 -- --	1,400 -- --	3,800 -- --	350 -- --	83,000 -- --	-- -- --
1962/63	--	P C ZC	67,000 -- --	5,300 -- --	1,200 -- --	2,800 -- --	500 -- --	77,000 -- --	-- -- --
1963/64	19 F	P C ZC	77,000 -- --	23,000 -- --	1,300 -- --	3,800 -- --	450 -- --	106,000 -- --	-- -- --
1964/65	19 F/KG	P C ZC	81,000 228 0.28%	22,000 2,945 13%	1,400 -- --	4,900 -- --	350 -- --	110,000 3,173 2.8%	2,090,000,000 -- --
1965/66	21 F/KG	P C ZC	88,000 336 0.38%	27,500 5,933 21%	1,300 -- --	4,600 -- --	400 -- --	122,000 6,269 5%	2,562,000,000 -- --
1966/67	21 F/KG	P C ZC	82,000 231 0.28%	38,000 9,411 23%	1,400 -- --	3,000 -- --	350 -- --	125,500 9,642 7.6%	2,025,500,000 -- --
1967/68	21 F/KG	P C ZC	101,000 174 0.17%	31,000 7,041 23%	1,800 -- --	2,800 -- --	650 -- --	137,300 7,215 5.2%	2,883,300,000 -- --
1968/69	21 F/KG	P C ZC	43,000 38 0.08%	12,000 -- --	2,600 -- --	19 -- --	600 -- --	58,219 38 0.61%	1,222,599,000 -- --
1969/70	21 F/KG	P C ZC	121,000 178 0.14%	30,000 514 1.71%	1,800 -- --	1,000 -- --	600 692 0.4%	154,400 -- --	3,242,400,000 -- --
1970/71	21 F/KG	P C ZC	68,486 441 0.64%	19,398 158 0.79%	1,417 -- --	235 -- --	388 -- --	90,445 359 0.66%	1,399,345,000 -- --
1971/72	21 F/KG	P C ZC	73,010 400 0.55%	28,085 253 0.90%	4,222 -- --	2,389 -- --	589 -- --	108,310 653 0.60%	2,274,510,000 -- --
1972/73	21 F/KG	C	244	98	85	--	--	--	8,788,720
1973/74	25 F/KG Ttes Rég	C	803	153	49	--	--	1,006	25,629,723
1974/75	41.5 F/KG Ttes Rég	C	2,464	254	894	--	--	3,612	149,324,850

P = Production  
C = Marketing, Commercialisation  
ZC = Z Marketed, Z Commercialisé

SOURCE: ONCAD

Table 7

## Prices of fertilizer - Agricultural Programs 1965 to 1976/77 (Purchase Price)

## , Prix Des Engrais-Programmes Agricoles, 1965 à 1976/77 (Prix D'Achat)

FERTILIZER											
ENGRAIS S.I.E.S											
DESIGNATION	1966/67	1967/68	1968/69	1969/70	1970/71	1971/72	1972/73	1973/74	1974/75	1975/76	1976/77
Arachides-Groundnuts	18,624	18,624	23,259	23,483	23,966	23,966	25,218	26,270	34,382	54,690	48,247
Mil-Millet	19,530	19,530	23,259	23,483	23,966	23,966	26,600	26,270	34,382	54,690	48,247
Riz-Rice	15,900	15,900	20,000	22,847	23,966	23,966	26,280	21,000	--	54,690	48,247
Maraiher - Vegetables	21,580	21,580	20,000	20,000	23,966	23,966	26,280	26,280	35,000	54,690	48,247
FERTILIZER											
ENGRAIS S.S.E.P.C.											
Chlorure de Potasse - Potassium Chloride	--	--	17,500	17,500	19,950	21,000	21,000	24,500	39,500	39,500	--
Sulfate de Potasse - Potassium Sulfate	--	--	22,600	--	24,000	26,950	28,500	28,500	45,000	68,500	68,150
Sulfate d'Ammoniaque - Ammonium Sulfate	15,200	15,200	15,200	15,840	16,700	17,800	17,800	64,000	71,000	38,150	--
Perluree - Urea	--	21,200	26,300	26,300	26,300	31,825	31,800	89,000	110,000	38,000	--
Patentkaly	--	--	25,900	26,900	26,900	28,300	28,300	39,560	51,000	51,000	--
Phosphate Tricalcique - Tricalcium Phosphate	7,050	7,000	7,000	7,000	7,000	6,500	7,000	7,938	11,950	4,980	--
Gypse ou Platre Agricole - Gypsum	--	--	4,218,52	4,218,52	5,000	5,000	5,000	5,000	5,480	4,980	--
Filler	--	--	--	--	6,480	6,480	6,480	6,480	6,480	6,480	--
Nitrate d'Ammoniaque - Ammonium Nitrate	--	--	--	--	4,050	--	--	--	115,000	--	--
Nitrate de Potasse - Potassium Nitrate	--	--	--	72,000	76,500	76,500	76,500	76,500	138,000	--	--
Sulfate de Zinc - Zinc Sulfate	--	--	--	--	--	--	--	--	219,000	--	--
Chaux Magnesienne - Magnesium Limestone	--	--	--	29,160	23,400	23,400	23,400	36,500	42,000	42,000	--
Phosphate d'Ammoniaque - Ammonium Phosphate	--	35,000	--	23,966	26,280	--	34,382	54,690	--	--	--
13.3 - 13.3 - 0	20,000	--	--	20,000	21,000	--	--	56,800	--	--	--

Source: ONCAD

TABLE 8  
 AGRICULTURAL INPUTS, 1961 - 76  
 MATÉRIELS AGRICOLE, 1961 - 76

DESIGNATION	61/62	62/63	63/64	64/65	65/66	66/67	67/68	68/69	69/70	70/71	71/72	72/73	73/74	74/75	75/76
Semoirs - Seeders	4,589	12,001	24,906	19,269	16,650	14,127	17,251	12,975	7,670	2,836	9,297	12,584	13,013	16,478	18,634
Souleveurs - Peanut lifters		1,466	1,680	892	1,792	1,336	9,421	4,465	2,069	797	1,850	5,970	5,344	4,750	5,306
Houes - Hoes	1,601	6,827	12,335	7,414	9,000	21,500	28,121	19,292	16,706	6,311	15,895	22,725	20,954	26,140	28,598
Corps de charrure - Body of plow	200	587	1,487	746	1,729	1,006	985	2,216	1,995	1,704	3,354	4,429	5,484	12,178	3,783
Polyculteur - Multipurpose tool	1,678	3,151	2,026	1,311	291	104	72	112	30	3	2	16	64	17	18
Ariana	-	-	-	-	-	-	-	159	116	34	61	180	262	15	203
Cand. Ariana	-	-	-	-	-	-	-	4	29	202	54	120	244	1,005	232
Batis Ariana	-	-	-	-	-	-	-	-	-	405	704	3,278	3,904	2,697	3,907
Batis Eillon	-	-	-	-	-	-	-	22	139	247	157	162	570	1,714	765
Charrette à cheval - Horsecart	-	285	592	1,520	2,098	4,942	6,298	5,510	3,914	1,940	5,209	3,536	4,971	999	1,924
Charrette à boeufs - Oxencart	-	1,981	950	1,003	1,181	435	342	652	634	522	583	4,602	1,828	690	343
Charrette à âne - Donkeycart	-	-	-	-	-	-	1,995	1,169	1,350	935	1,805	2,009	2,625	505	791
Paire de boeufs - Yoke of oxen	1,545	3,151	2,026	1,108	575	962	670	1,169	648	731	2,716	3,031	3,796	12,616	3,793
Cheval de trait - Draughthorse	-	-	-	-	-	-	-	-	-	-	-	46	80	814	283
<b>Total</b>	<b>9,613</b>	<b>29,449</b>	<b>46,002</b>	<b>33,263</b>	<b>33,316</b>	<b>44,412</b>	<b>65,155</b>	<b>47,745</b>	<b>35,300</b>	<b>16,667</b>	<b>41,687</b>	<b>62,688</b>	<b>63,139</b>	<b>80,618</b>	<b>68,580</b>

Source: ONCAD

Appendix

Table 9-A List of Warehouses by Order of Priority of Completion  
 Tableau 9-A Liste des Entrepôts par ordre de Priorité de Construction

Regions	Order Number Numero d'ordre	Location	Capacity T	Regions	Order Number Numero d'ordre	Location	Capacity T
S/Saloum	1	Kaffrine +	2,000	Diourbel	23	Kebeher +	2,000
Diourbel	2	Diourbel +	2,000	S/Saloum	24	Djilor +	1,000
Fleuve	3	Podor	2,000	Thies	25	Fissel	1,000
Diourbel	4	Linguere +	2,000	S/Oriental	26	Koumpentoum	1,000
S/Saloum	5	Nioro +	1,000	Casamance	27	Vegingara	1,000
Fleuve	6	Dagana +	2,000	S/Saloum	28	M.Sabakh +	1,000
S/Saloum	7	Gossas +	2,000	Diourbel	29	D. Mousty	2,000
Fleuve	8	Matam +	1,000	Thies	30	Tivaouane	1,000
Diourbel	9	Mbacke +	2,000	S/Saloum	31	Fatick +	2,000
S/Saloum	10	Ouakh Gouna +	1,000	Fleuve	32	Ourossogui +	2,000
Diourbel	11	Bambey +	2,000	S/Saloum	33	Sokone +	1,000
S/Saloum	12	Koungoul +	2,000	Thies	34	Niakhene	1,000
Thies	13	Mbour	2,000	S/Saloum	35	K.Madiabel	1,000
Thies	14	Joal	1,000	Diourbel	36	Louga	2,000
Fleuve	15	Aerhiao	1,000	Fleuve	37	Thille Bouba	1,000
Casamance	16	Sedhiou	1,000	S/Saloum	38	Kaolack	2,000
S/Oriental	17	Kedougou	1,000	Thies	39	Thies	2,000
S/Saloum	18	Colobane +	2,000	S/Saloum	40	Fimela	1,000
Diourbel	19	Dahra	2,000	Thies	41	Thilmakha	1,000
Fleuve	20	Bakel	1,000	S/Saloum	42	Birkilane	1,000
Casamance	21	Kolda	1,000	Thies	43	Mekhe	1,000
Fleuve	22	Dioum	1,000	S/Saloum	44	Ndoffane	1,000
Casamance	22A	Ziguinchor		Thies	45	Nocto	1,000
				S/Saloum	46	Gandiaye	1,000
				Thies	47	Thiadiava	1,000

+To be completed in the first phase by the Government of Senegal.

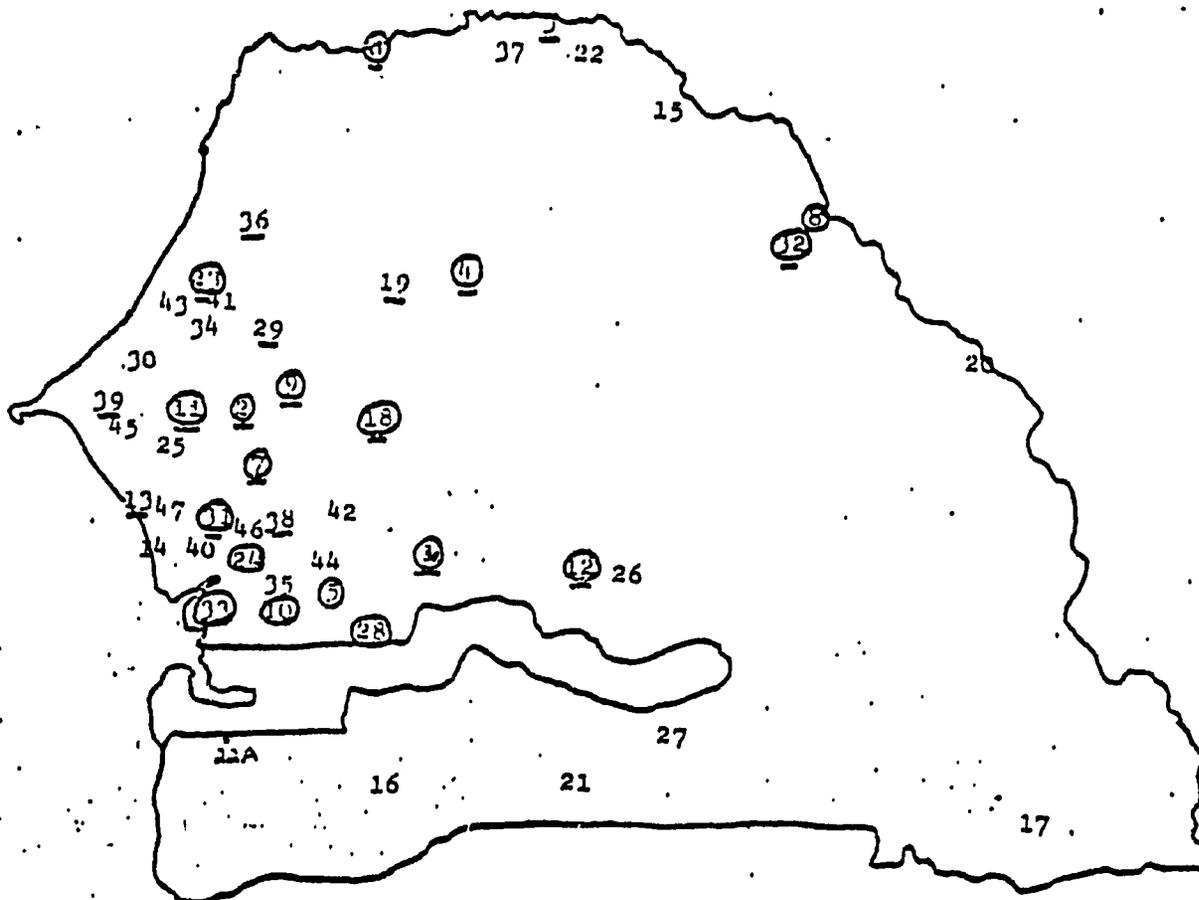
+ Seront construits dans la première phase par le gouvernement du Sénégal.

Appendix

Table 9-B'

Locations Selected For Construction of 47 ONCAD Warehouses. For Cereal Storage  
Locations Sélectionnées Pour La Construction De 47 Entrepôts De L'ONCAD Pour  
La Stockage Des Céréales

(Total Capacity of These Will Be 66,000 MT)  
(Leurs Capacité Total Sera 66,000 MT)



Numbers correspond to the list given in Appendix Table 3A. Circled numbers, indicate locations where ONCAD is building 18 warehouses expected to be completed in Nov. 1976. Underlined numbers are locations where warehouses of 2,000 MT size are being constructed. Warehouses at other locations are of 1,000 MT size.

Les chiffres correspondent à la liste de Tableau 3A. Les chiffres encirclés indiquent locations des 18 entrepôts de l'ONCAD, dont la construction finale est prévu Nov., 1976. Les chiffres soulignés éprésentent la location des entrepôts de 2.000 MT actuellement en construction, les entrepôts d'autres locations sont de 1.000 MT

TABLE 10  
Senegal: Imports and Food Aid, 1976/77  
Senegal: Importations et Aide Alimentaire, 1976/77

Product- Produit	1975/76 or 1976 ACTUAL IMPORTS IMPORTATIONS EFFECTIVES		1976/77 or 1977 IMPORT REQUIREMENTS IMPORTATIONS NECESSAIRES						
	Total	XFA*	Total	of which covered by: partie couverte par		Total covered, couvert	Estimated to be not yet covered Partie estimée non encore couverte		Estimated ocean freight cost coût estimé du frêt maritime
				Commercial Purchases Achats Commerciaux	FA Committed Allouée		quantity quantité	value valeur	
	. . . . . Thousand tons. . . . . ) ( . . Million US \$ . . ) en milliers de tonnes								
Wheat-Blé	108.4	8.8	100.0	45.4	6.0	51.4	48.6	5.3	0.8
Rice-Riz	168.0	0.6	170.0	0.0	25.8	25.8	144.2	37.3	2.4
Coarse Grain -Céréales	22.1	100	25.0	0.0	22.0	22.0	3.0	0.3	0.0
Total	298.5	10.9	295.0	45.4	53.8	99.2	195.8	42.9	3.3

<u>SOURCE OF SUPPLY-SOURCE D'APPROVISIONNEMENT</u>	<u>Commercial</u>	<u>FA</u>	<u>Total</u>
Wheat-Blé	45.4		
EEC	45.4	6.0	51.4
TOTAL	45.4	6.0	51.4
<u>Rice-Riz</u>			
EEC	0.0	0.8	0.8
USA (Title I PL 480 Alloc. F.Y. 1977)	0.0	25.0	25.0
TOTAL	0.0	25.8	25.8
<u>Coarse Grain-Céréales</u>			
EEC	0.0	7.0	7.0
USA (Title II PL 480 Alloc. F.Y. 1977)	0.0	15.0	15.0
TOTAL	0.0	22.0	22.0

REFERENCE PERIOD, PERIODE DE REFERENCE

Wheat and Coarse Grains: July/June - Rice: Calendar year. Blé et Cereales; Juin, Juillet - Riz: Année civile

\*FA = Food Aid, Aide Alimentaire