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CLUB DU SAHEL
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

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ERRATA

Chad

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

The Gambia

- p. 13 line 13 ... yields per acre from 1000 to 1500 lbs.
 p. 17 line 10 ...which will utilize modern inputs and reach, during
 p. 73 line 10 v. in June or July.
 p. 73 Table 4, line 2 unsubsidized price

India

- p. 5 line 15 ...Myiti and the bottom-land
 p. 10 line 16 There are three prices...
 p. 10 line 17 ...parboiled whole rice.³ (See Diagram 1)
 p. 14 line 12 ...to a price schedule (French: barème)
 p. 43 Table XIX table heading should read: Monetary Costs Return per Workday
 p. 57 line 16 These credit bills are rediscounted at the Banque...
 p. 68 line 19 ...two channels: one private and one official.
 p. 69 line 8 ...has been distorted.
 p. 84 footnote 1 ...p. 84.
 p. 100 line 20 ...cases, the lack of adequate...

Niger

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

Senegal

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

UPPER VOLTA

- p. 69 line 9 ...these are matters...
 p. 94 line 20 ...a correlation coefficient ($r = \text{Cov}(AB) / [\text{Var}(A)]^{1/2}$)

Ch

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 their options in the light of existing constraints. The reader will therefore not find here detailed and specific recommendations on what a 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

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JF

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

MALI

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I. INTRODUCTION

Of all the Sahelian countries, Mali has the largest state-owned sector in its economy: the state companies and enterprises engage in all manner of economic activities. The weight of this sector is felt whenever one inquires about any of the links in the economic chain. The overlapping of the state companies' activities and of price and salary systems causes blockages. The complexity of the sector makes it difficult for the government to oversee the management of it.

The distribution of the sum of subsidies which the state gives to its socio-economic partners is made at the expense of those who produce. They are excluded from the decision-making process.

II. THE AGRICULTURAL SECTOR

A. Sector Strategy

According to the Development Plan, "the development of the agricultural sector will take place in an increasing measure through the intensification of agricultural methods. Extension of cropped areas will, by contrast, play a relatively decreasing role in the expansion of agricultural production." (Plan, 1976, p. 13)

B. Land Under Cultivation

Land available for crop production and animal husbandry is limited by the 1500 mm isohyet. It is estimated that 11 million hectares are available for agriculture, of which 1.7 million ha are cultivated and 9.4 million are lying fallow. Significant amounts of land are irrigated by surface water. The central delta, situated on the Niger and Bani Rivers, covers 4 million ha.

Cultivated land makes up only 1.8% of total land area, covering more than 17,500 square kilometers. Food crop production takes up 88.8% of the cultivated area. The portion devoted to millet-sorghum-maize is 52.5%. Millets and sorghums occupy 42.9% of the 17,500 square km that are cultivated. The distribution of the different food crops is shown in Table I.

Very irregular variations in cultivated areas have been observed, particularly for cereals (see Table II). Yield estimates are difficult to make, as is an interpretation of the fluctuations in production.

TABLE I.

Distribution of Cultivated Areas, 1973/74

<u>Millet</u>	<u>Sorghum</u>	<u>Rice</u>	<u>Maize</u>	<u>Fonio</u>
413,200 ha	254,489 ha	145,276 ha	54,045 ha	44,052 ha
26.5%	16.4%	9.3%	3.5%	2.8%
<u>Groundnuts</u>	<u>Cotton</u>	<u>Other (crops grown in association)</u>		
127,128 ha	47,007 ha	47,851 ha		
8.2%	3%	30.3%		

SOURCE: Enquête Agricole 1973/74

C. Rural Population

The rural population is 90% of the total population. The part that devotes itself to agriculture is estimated at 3.4 million persons, unequally divided among the six administrative Regions of Mali:

1st Region (Kayes): 345,800	4th Region (Ségou): 415,057
2nd Region (Bamako): 379,384	5th Region (Mopti): 569,351
3rd Region (Sikasso): 524,702	6th Region (Gao): 113,537

As percentages of the total population of each region, the agricultural population of the 1st to the 6th Region, respectively, are: 44.74%, 37.56%, 52.92%, 50.98%, 50.13%, and 17.19%. The rate of increase of the rural population is estimated to be 2.7% annually, while that of the urban population is thought to be 5.7%. Partial results of the recent Demographic Survey indicate that Mali had 6.3 million inhabitants in 1976/77.

TABLE II.
Area Cultivated and Agricultural Production, by Crop, 1964/65 - 1975/76
 (area: 1000 ha; production: 1000 tons)
Superficies Cultivées et Production Agricole, Par Culture, 1964/65 - 1975/76
 (superficie: 1.000 ha.; production: 1000 tonnes)

	64/65	65/66	66/67	67/68	68/69	69/70	70/71	71/72	72/73	73/74	74/75	75/76
Mil/sorgho - Millet/sorghum												
Superficie - Area	859	830	910	1,035	932	745	725	1,258	900			
Production	709	700	737	830	556	603	715	705	624	660	850	1,220 ¹
												865
Maïs/Blé/Fonio - Maize/Wheat/Wild Grains												
Superficie-Area	46	22	31	23	24			100	81			
Production			76	66	166	151	107	102	83	163	100	110
Riz (paddy) - Rice (paddy)												
Superficie-Area	158	169	169	196	156	132	145	185	131			
Production	158	162	158	172	135	162	163	195	100	90	215	200
												260
Arachide (coques) - Groundnuts (unhulled)												
Superficie-Area	144	122	129	140	129	118	162	174				
Production	90	75	88	91	102	129	156	152	135	132	188	240
												205
Coton (en grains) - Cotton (unginned)												
Superficie-Area	89	76	62	76	91	76	75	79	86	69	68	87
Production	33	18	28	37	55	46	56	71	72	55	77	103
Autres récoltes² - Other Crops²												
Superficie-Area								55				50
Superficie Totale												
Total Area					1,805	1,673	1,697	1,851				1,800

¹ Y compris le maïs et le fonio, Including maize and wild grains.

² Y compris le niébé, légumes, fruits, la canne à sucre, le thé, le tabac et le dah. Including cowpeas, vegetables, fruits, sugar cane, tea, tobacco and kenaf.

SOURCE: Center for Research on Economic Development, Mali Agricultural Sector Survey, -University of Michigan, 1976.

Recent increases in total population have taken place at the following rhythm.

Table III. Urban and Rural Population, 1971-1978 and Projected for 2000 (1000 inhabitants)

	1971	1974	1975	1976	1977	1978	2000
Urban Population	543	641	677	716	757	799	2,000
Rural Population	4,717	5,050	5,168	5,285	5,406	5,533	8,000

SOURCE: Plan, 1974-78, p. 42.

D. The Agricultural Sector's Portion of GDP

The primary sector's portion of the Gross Domestic Product (GDP) has fluctuated in the following manner (at 1972 market prices):

Table IV. GDP and the Agricultural Sector, 1972-1975

	1972	1973	1974	1975
GDP (in billion MF)	176.8	167.5	165.1	188.4
Percentage attributed to the agricultural sector	75.5%	60.4%	53.6%	71%

SOURCES: Malian authorities, IBRD, IMF

From 1972 to 1975 the output of the agricultural sector dropped appreciably as a result of the drought. There has been a clear upward tendency, however, since the 1974/75 crop year. The traditional part of the agricultural sector continues to dominate in comparison to the modern part, which is based on the production of cotton, ground-nuts, and rice.

E. Cereals Policy

The preceding tables show that cereals production occupies a preponderant place in the agricultural picture. Furthermore, the swift return to a position of self-sufficiency after the drought attests to

Mali's potential as a cereals producer.

To the extent that there has been an agricultural policy, it has emphasized cotton and groundnuts. If one defines policy as the sum of objectives established and resources allocated (human, financial, technical and commercial), it can easily be said that the so-called modern sector -- cotton and groundnuts -- has been almost the sole beneficiary. Rice production in the Office du Niger is a special exception. It was not until 1969 that the Rice Operations and 1972 that the Millet Operations were born.

On the basis of the cereals inquiry (Bilan Céréaliier) of the National Commission on the Rural Economy (CNPER), it is possible to trace an outline of a complete cereals policy. Production goals were established. The country was covered by delimiting the zones of the cereals-producing Operations:

- the Rice Operations at Ségou and Mopti and the bottom-land Rice "Action" at Sikasso;
- The Millet-Mopti Operation on the Dogon Plateau and Séno Plain and the Millet-Kaarta Operation.

With the exception of the Office du Niger, the accent has been on export crops: cotton and groundnuts. A well-defined policy for the development of these crops was drawn up in the mid-1960's, accompanied by financial and human resources. In effect, the Malian cotton company (CMDT, formerly part of the French CFDT network) covers and provides extension services for 81,337 farm units, 3,904 villages and hamlets, and a total population of 1,387,000.

These farm units make use of:

- 109,690 draft oxen,
- 37,458 plows,
- 19,619 multipurpose toolbars with attachments,
- 2,954 animal-drawn hoes,
- 731 harrows,
- 1,391 seeders,
- 16,532 ox-carts,
- 17,743 insecticide sprayers.

There are 473 extension agents, and 87,411 ha of land devoted to cotton production in their area of responsibility.¹

The Groundnuts and Food Crops Operation (OACV) has a zone with 1,034,692 inhabitants and has 614 extension agents. OACV's financial resources have increased as follows between 1967/68 and 1974/75.

Table V. OACV Resources (in millions MF)

<u>1967-68</u>	<u>1968-69</u>	<u>1969-70</u>	<u>1970-71</u>	<u>1971-72</u>	<u>1972-73</u>	<u>1973-74</u>	<u>1974-75</u>
469	515	613	780	898	886	1,169	2,610

SOURCE: Ministère du Développement Rural, Service de l'Agriculture, Opération Arachide et Cultures Vivrières: Synthèse de Compte Rendu de la Campagne Agricole 1974-75, Bamako, Dec. 1975.

In the OACV zone there are:

- 1,533 plows
- 3,320 multipurpose toolbars with attachments
- 2,828 seeders

This cereals policy is characterized by a certain amount of dependence on the outside for financing. It seems to have hesitated

¹Ministère de la Production, Rapport Annuel: Campagne Agricole 1974-76 en Zone Cotonnière.

to integrate cereals with the pilot projects (groundnuts and cotton) to the extent that the marketable portion of cereals production (millet, sorghum and rice) is discriminated against.

III. PRICES AND PRICE POLICY

A. Changes in Cereals Prices, 1961-77

1. Producer Prices of Cereals

a. Sorghum and Millet

The official producer prices for cereals tripled over a 15-year period, going from 12 Malian francs (MF)/kg in 1961-62 to 32 MF/kg in 1974/75. This development came about slowly.

From 1961-62 to 1965-66 prices stayed stationary at 12 MF.

They were also stationary from 1966-67 to 1968-69.

A really sizeable increase did not occur until 1974-75, when prices went up to 62,5%. Previous price increases were only 11% and 33%, the increases in absolute terms being 3 MF, 2 MF and 12 MF/kg. Changes in the prevailing price on the open market depended largely on the level of primary supply. In a good year, the open-market prices are below the official ones; in a bad year, with a reduction in supply, open-market prices go above the official ones. (This conclusion results from discussions with various merchants and official observers.) In 12 years, official producer prices have stagnated. They have risen only three times and only the last rise was significant relative to the previous price situation.

b. Paddy

The official producer price for paddy has followed the same pattern. From 1961-62 to 1968-69 the average price for paddy was less than that for millet/sorghum. Beginning in 1969-70 its average price passed the millet/sorghum price. The official price for white paddy has always been higher than the price for millet/sorghum; the

price for inferior grades, on the other hand, has always been lower.¹

2. Cereal prices on the Consumer Level

a. Price of Millet/Sorghum to the Consumer

The official price is the same for millet and for sorghum. It underwent three increases and doubled in 10 years, going from 25 MF/kg in 1966-67 to 51.5 in 1974-75, which represents an increase of 106%. During the same period the price on the open-market doubled, going from 42 MF/kg in 1966-67 to 87 MF/kg in 1973/74.

With the return to a "normal" (post-drought) situation (1974-75, 1975-76, 1976-77), open-market prices have appreciably declined. But they are still higher than the official prices, as the tables and charts below make clear.²

b. Price of Rice to the Consumer

The three different grades of rice are sold at three different prices on the consumer level. These are the prices for RM 40 for RM 25, and for parboiled whole rice.³

From 1969-70 to 1973-74, prices were frozen at the same level, as Table VII shows.

¹There are three varieties of paddy: white, red and mixed.

²See Table VI and Diagram 1.

³There are seven grades of rice in Mali.

On the open market, divergence from the official price becomes much more drastic starting in 1968-69; in 1973-74, prices reached a high of 162 MF/kg for ELB, 161.9 for RM 40 and 119.7 for RM 25. Prices started to go down beginning in 1974-75.

Table VI. Millet/Sorghum Price

	<u>66/67</u>	<u>67/68</u>	<u>68/69</u>	<u>69/70</u>	<u>70/71</u>
Producer-Producteur	15	16	16	18	18
Consumer-Consommateur	25	25	25	25	35
Market-Marché			42.2	45.4	47.0
	<u>71/72</u>	<u>72/73</u>	<u>73/74</u>	<u>74/75</u>	<u>75/76</u>
Producer-Producteur	20	20	32	32	32
Consumer-Consommateur	35	35	39	51.1	51.5
Market-Marché	62.6	88.1	89.3	72.0	69.5

SOURCE: Bulletins Statistiques Mensuels du Mali.

TABLE VII.

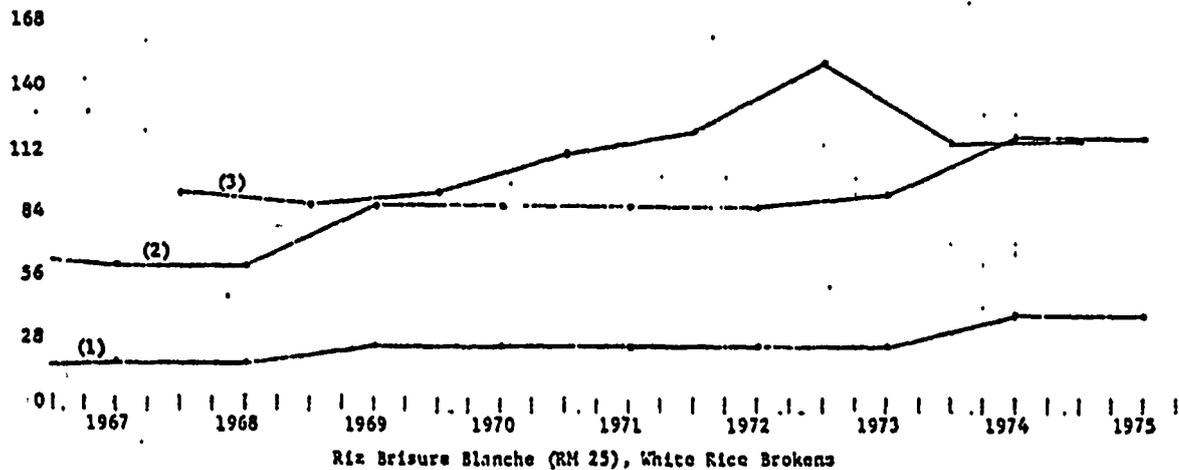
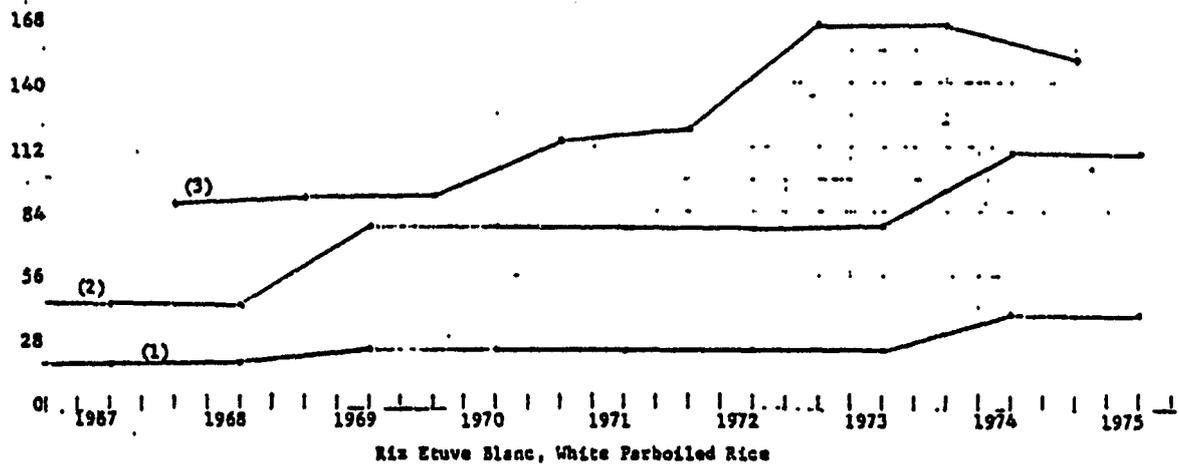
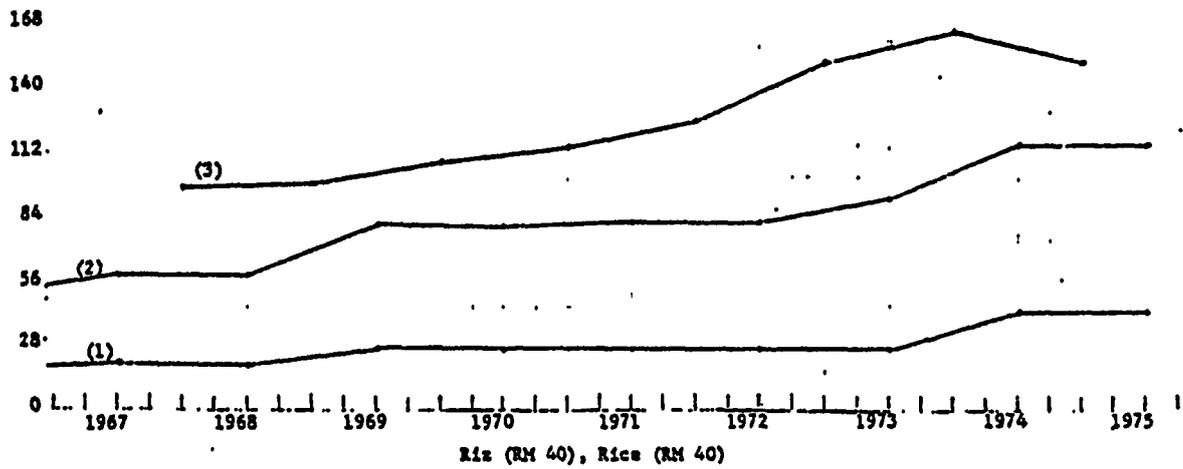
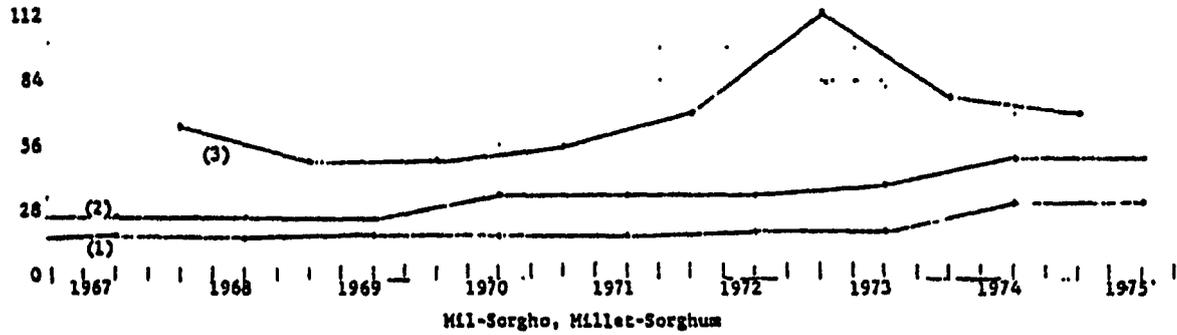
Price of Paddy and Different Grades of Rice
Prix du Paddy et des Diverses Qualités de Riz

	<u>66/67</u>	<u>67/68</u>	<u>68/69</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>
Producer (White Paddy) Producteur (Paddy Blanc)	16	18	18	25	25	25	25	25	40	40
Consumer-Consommateur	40/47	43	43	78.5	78.5	78.5	78.5	79.5	109.7	109.7
Market-Marché (Parboiled White Rice) (Etuve Blanc)			86.8	93.5	94.9	125.3	120.6	162	154.9	146.8
Consumer-Consommateur	48/55	56	56	78	78	80	80	88	111.5	111.5
Market-Marché (RM 40)			93.7	99.9	97.7	122.5	132.0	161.9	148.8	145.4
Consumer-Consommateur	56/75	60.5	60.5	85	85	85.25	85.25	90.5	115.6	115.6
Market-Marché (RM 25 Broken Rice) (RM 25 Riz Brisure)			85.3	92.0	92.3	124.9	109.8	119.7	109.3	121.3

SOURCE: Bulletins Statistiques Mensuels du Mali.

Diagram 1 - Graphique 1
 MALI: Evolution de (1) Prix au Producteur*, (2) Prix au Consommateur* et (3) le Prix de Detail Moyen
 Annual sur les Marches de Bamako, de Mil et Sorgho** et Riz, 1967-1975 (FM/kg)

MALI: The (1) Producer Price*, (2) Consumer Price*, and (3) the Annual Average Retail
 Price on Bamako Markets, of Millet and Sorghum** and Rice, 1967-1975 (MF/kg)



B. Methods of Setting Prices

1. How Prices Are Set

In June and September of each year, the Agricultural Season Planning Conference meets under the aegis of the Ministry of Commerce and Finance. Delegates from more than 30 departments, divisions and organizations come, representing such activities as production, marketing and transportation. In its June meeting, the conference evaluates the previous year's growing-season results and examines forecasts for the coming year's production and marketing, the transportation situation, and prices. At the September meeting final proposals are drawn up to be submitted for government approval.

Prices are determined according to a price schedule (Fr. barème).¹ For cereal crops, there are two price schedules: the millet/sorghum schedule and the paddy/rice schedule. These schedules are presented by the Malian Office of Agricultural Products (OPAM). The Office of Price Regulation and Supervision (ORSP) mediates between the different groups: the "producers" represented by the Agriculture Department and the Development Operations, the institutional buyers (OPAM-Cooperation), the transportation concerns (UNCTR, CMTR, ONT, CFM).

The schedule first sets the producer price; the different additional charges are added to this base price to determine the factor-cost.

¹The French word barème in this sense has no very precise English equivalent; the Dictionnaire Robert defines it as "a compilation of numerical tables giving the results of certain computations." Here it means an itemized table used as the basis for setting official prices.

The allocations of the various additional charges are set during this meeting.

The millet/maize price schedule comprises 13 items.¹ An examination of this schedule will give rise to several questions concerning the way in which producer prices were calculated, costs of primary and secondary crop collection,² the OPAM charge and the weighted average costs of transportation.

Both from discussions with officials and from examination of documents on the subject, it has become clear that these figures (the item entries on the price schedule) are simply the result of successive compromises arrived at under the direction of the ORSP.

We will attempt to calculate certain ratios using the millet/sorghum price schedule of 1975-76.

a. On the Estimate of Collection and Transportation Costs

The total amount of these charges is 9,786 MF. On a ton of millet/sorghum/maize, these charges represent:

$$\frac{9,786}{32,000} = 30.5\%$$

That is, one-third of the price of a ton on the producer level. This makes the item entry for "collection and transportation" a critical variable affecting the level at which the producer price is set.

Compared with the factor-cost price (prix de revient) on the consumer level, this ratio is 18%; this reflects the desire to keep prices low at both ends, with a clear advantage to the consumer who is able to obtain adequate provisions for himself from government

¹For the millet/maize price schedule see Appendix 1-F.

²Primary crop collection gets the crop from the farm to the village cooperative; secondary collection, from the cooperative to OPAM.

agencies.

b. The calculation of ratios relative to the OPAM charge leads to the same conclusions:

$$\frac{\text{OPAM charge}}{\text{producer price}} = 12.5\%$$

$$\frac{\text{OPAM charge}}{\text{price to consumer}} = 8\%$$

These few observations suggest that future investigations could usefully attempt to ascertain:

- the level of factor-cost price on some average farms;¹
- the level of handling and transportation costs;
- the subsidy that the producer accords the privileged ultimate consumer, that is, on the person who can obtain adequate provisions for himself from OPAM or the cooperatives.

2. The Producer Price of Paddy and of Rice

There are three price schedules in this area: the Office du Niger Rice schedule, the Ségou Rice Operation schedule and the Mopti Rice Operation schedule. The only thing these schedules have in common is the producer price of paddy. The amounts of the other items vary from schedule to schedule, notably in the cost of primary collection, of secondary collection, and of drying, in the agricultural extension tax and so forth.

¹The calculation of prices at factor-cost should be done in physical terms, i.e. by means of input-output studies at the farm level, or farm management studies.

The factor-cost price of "white" paddy can vary from 48,505 MF/T to 61, 194 FM/T.

Rice production in Mali, like that of cotton and peanuts, is integrated. The Rice Operations in Ségou and Mopti and the Office du Niger are responsible for paddy production, while the Office du Niger has milled rice for the last few years with the Mopti-Sévaré rice mill.

Nevertheless, an examination of the three price schedules reveals some significant variations among the amounts assigned the different items:

- for collection and transportation;
- for sharing in overhead expenses;
- for extension taxes;
- among others.

These variations demonstrate the difficulties of trying to determine the factor-cost price or prices per ton of paddy.

Accurate knowledge of the factor-cost price per ton under varying conditions of production would make price setting much easier. In this regard, the preliminary efforts of the Institute of Rural Economy should be followed up in greater depth.

3. Price Subsidies on the Consumer Level

"Subsidies" are understood to mean "the aid that the government, or an association, gives to a cooperative group or an individual." We have attempted to measure the level of these subsidies.

a. Millet/Sorghum Subsidies

From 1971 to 1974 official statistics indicate that Mali imported millet and sorghum as follows.

Table VIII. Millet/Sorghum Imports

	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>
quantity (metric tons)	26,980	27,847.9	65,000.1	91,214
price (MF/kg, Malian border, c.i.f.)	41	34	90	111

SOURCE: Direction de la Statistique.

The minimum cost of transport per ton from Dakar to Kayes in Mali is 6,758 MF; from Kayes to Bamako it is 7,542 MF. The cost of a kilogram of sorghum has changed as follows (in MF):¹

	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>
Kayes	47.75	40.75	96.75	117.75
Bamako	55.30	48.30	104.30	125.30

While the official price to the consumer was (in MF/Kg):

	35	35	39	51.50
--	----	----	----	-------

Thus the minimum subsidy per kilogram would be (in MF/kg):

Kayes	12.75	5.75	57.75	66.25
Bamako	20.30	13.30	65.50	73.80

During this time the producer price also changed:

	18	20	20	32
--	----	----	----	----

¹These calculations have been made assuming that the imports go through Dakar.

b. Rice Subsidies

We consider imported rice to be of the same quality as RM 25 rice. The c.i.f. Malian border price was (in MF/kg):

<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>
80	100	108	227	280

From 1971 to 1975, the cost of rice delivered to the cities of Kayes and Bamako was, at a minimum (in MF/kg):

Kayes	86.75	106.75	114.75	223.75	286.75
Bamako	94.30	114.30	122.30	241.30	294.30

i. Subsidy Levels

During the same period the official price for RM 25 varied little:

<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>
85	85	85.25	90.5	115.6

The amount of the subsidy can then be estimated to be (in MF/kg):

Kayes	1.75	21.75	29.50	143.25	171.18
Bamako	9.30	29.30	27.05	150.85	178.70

The importance to this subsidy of the item called "support for ORSP" should be emphasized; it amounts to 8.50 MF/kg (Office du Niger schedule)..

Not counting the years 1973 and 1974, when harvests were disastrous owing to the drought, the allocated subsidy was at least twice the producer price. If the benefits of this subsidy had gone, not to the consumer, but to the producer, the economic implications would have been far different. Such a subsidy to the producer would have given an impetus to production in every region with a minimum

of extension work.

5. The System of Price Stabilization.

The Malian Office of Agricultural Products (OPAM) has been given the monopoly on buying and distributing cereals. All current observations lead to the same conclusion: that this monopoly is fictitious. OPAM's share in the market, whether in buying or in distribution, varies from 25% to 40% depending on the source of the estimate. The parallel market takes up 60% to 75%.

For this reason, the stabilization policy -- defined as the price and marketing policies that will result in low prices on the consumer level, consistent with income policy, and at the same time assume cereal supply in urban centers and in deficit areas -- remains an objective to be reached. The accumulation of stocks on the OPAM level, transportation difficulties, the financial crises afflicting the urban cooperatives; all of these keep the government group from being able to carry out its distribution function. From 1970 to 1975, OPAM's cereal stocks fluctuated as follows (in thousands of metric tons):

Table IX. Evolution of OPAM Stocks

	67/68	68/69	69/70	70/71	71/72	72/73	73/74	74/75
Carryover stock	44	49	32	31	7	51	39	63
Domestic Purchases	58	21	46	32	53	31	30	60
Imports	--	37	5	27	31	68	88	15
Donations	--	--	--	--	32	103	153	77
Total Resources	102	107	83	90	123	253	310	215
Sales	58	105	26	89	78	136	173	?
Stock Remaining	49	32	31	7	51	39	63	?
Total	107	137	57	96	129	175	236	?
Difference	-5	-30	+26	-6	-6	+78	+74	?

SOURCE: Restructuration OPAM: BDPA, p. 52.

The size of the "carryover" is very important. It demonstrates the inability of OPAM to dispose of the cereals it collects.

The result is that whether on the producer or on the consumer level, the official prices are not followed. The way in which gross margins have developed on the open market bears witness to this:

Table X. Gross Margins

	<u>71/72</u>	<u>72/73</u>	<u>73/74</u>	<u>74/75</u>	<u>75/76</u>	<u>76/77</u>
1-Guaranteed producer price	18	20	20	32	32	32
2-Free-market, average purchase price (domestic) ^a	12.5	15	35	22.5 ^a	20 ^a	20 ^a
3-Guaranteed price to consumer	35	35	39	51	51	51
4-Free-market Bamako, average sale price	55.79	76.85	113.37	78	69.4	70
Margin, 4-2	43.29	61.85	78.37	55.5	49.4	50
Margin, 4-3	20.79	41.85	74.37	27	18.4	19

^aBeginning in 1974-75, observations and estimates were made by the BDPA/IDET/CEGOS team.

SOURCES: Official statistics; monthly statistical bulletins; agricultural surveys.

Furthermore, on the producer level, it is evident that the stability of the producer price is not very helpful; it hardly encourages the buying of new equipment. The rising cost of agricultural equipment per unit of agricultural produce means that the terms of domestic trade are deteriorating. Current yields, the inroads that handling and transportation charges have made into the price schedules, and the method of financing extension services all appear to penalize the producer.

Consideration of the millet/maize/rice price schedules, the different subsidies, and the growing role of the open-market shows the need for a new formulation of the system of price stabilization.

6. Cereal and Cash Crop Prices

Neither the position occupied by industrial crops nor the particular attention from which they benefit are readily apparent from a simple examination of producer prices.

a. Comparison of Producer Prices of Cereals and of Industrial Crops

The relationships, and the gaps between the official producer prices of millet, sorghum (etc.) and of peanuts on the one hand, and of millet/sorghum and cotton on the other, have developed as shown in the table below.

Relative prices (official) have not moved markedly in favor of the cash crops in recent years, though there exists a significant absolute advantage for these crops.

b. Comparison of Marketing Channels

The "superiority" of cotton and peanut farming, we feel, rests on the existence of secure guaranteed outlets. The cultivation of the cotton and peanut crops is controlled by veritable corporations. Their legal status does not prevent OACV and CMDT from acting with complete autonomy, as much in production as in marketing.¹

¹See chapter on the situation of the agricultural sector.

TABLE XI.

Cost of Agricultural Equipment Per Product Unit 1967/68 - 1976/77 (in tons of product)
Coût d'Équipement Agricole par Unité de Produit 1967/68 - 1976/77 (en tonnes de produit)

PRODUCTS- PRODUITS	TM FLOW - CHARRUE TM										MULTI-PURPOSE TOOLBAR - MULTICULTEUR									
	67/68	68/69	69/70	70/71	71/72	72/73	73/74	74/75	75/76	76/77	67/68	68/69	69/70	70/71	71/72	72/73	73/74	74/75	75/76	76/77
MILLET-SORGHUM, MIL-SORGHO	.744	1.150	1.022	1.311	1.311	1.180	1.180	.738	.997	1.425	.956	1.250	1.111	1.667	1.667	1.500	1.500	.938	1.266	2.50
RICE (PADDY), RIZ (PADDY)	.661	1.022	.736	.944	.944	.944	.944	.590	.798	1.140	.850	1.111	.800	1.200	1.200	1.200	1.200	.750	1.012	2.00
PEANUTS (IN THE SHELL), ARACHIDES (EN COQUES)	.496	.767	.613	.787	.787	.787	.787	.590	.798	1.140	.638	.833	.667	1.000	1.000	1.000	1.000	.750	1.012	2.00
SEED COTTON ¹ , COTON GRAINE	.298	.460	.409	.472	.472	.472	.472	.315	.425	.608	.382	.500	.444	.600	.600	.600	.600	.400	.540	1.067
PRODUCTS- PRODUITS	SEEDER-SEMOIR										OX-CART - CHIARTE (1,000 Kg)									
	67/68	68/69	69/70	70/71	71/72	72/73	73/74	74/75	75/76	76/77	67/68	68/69	69/70	70/71	71/72	72/73	73/74	74/75	75/76	76/77
MILLET-SORGHUM, MIL-SORGHO	.888	1.156	1.028	1.028	1.028	.925	.925	.578	.781	1.734	1.181	1.600	1.422	1.822	1.822	1.640	1.640	1.025	1.384	1.903
RICE (PADDY), RIZ (PADDY)	.789	1.028	.740	.740	.740	.740	.740	.462	.625	1.388	1.050	1.422	1.024	1.312	1.312	1.312	1.312	.820	1.108	1.515
PEANUTS (IN THE SHELL), ARACHIDES (EN COQUES)	.592	.771	.617	.617	.617	.617	.617	.462	.625	1.388	.788	1.067	.853	1.093	1.093	1.093	1.093	.820	1.108	1.515
SEED COTTON, COTON GRAINE	.355	.462	.411	.370	.370	.370	.370	.247	.333	.740	.472	.640	.569	.656	.656	.656	.656	.437	.591	.812

See end of table for footnotes
 Pour les notes, voir fin du tableau.

See following page.
 Suite page suivante

TABLE XI. (Continued, Suite)

PRODUCTS-PRODUITS	PAIR OF TRAINED OXEN - PAIRE DE BOEUFs DRESSES ^b									
	67/68	68/69	69/70	70/71	71/72	72/73	73/74	74/75	75/76	76/77
MILLET-SORGHUM										
<u>MIL-SORGHO</u>	2.188	2.188	2.500	3.056	3.333	3.000	3.500	2.344	2.500	4.688
RICE (PADDY)										
<u>RIZ (PADDY)</u>	1.944	1.944	1.800	2.200	2.400	2.400	2.800	1.875	2.000	3.750
PEANUTS (IN THE SHELL)										
<u>ARACHIDES (EN COQUES)</u>	1.458	1.458	1.500	1.833	2.000	2.000	2.333	1.875	2.000	3.750
SEED COTTON										
<u>COTON GRAINE</u> ^a	.875	.875	1.000	1.100	1.200	1.200	1.400	1.000	1.066	2.000

^aFirst Quality, 1^{ère} qualité.

^bMarket Price, Prix sur le Marché.

TABLE XII.

Official Agricultural Production Prices and Inputs
Prix Officiels des Produits Agricoles et Intrants

Designation	Years - Années											
	1965/66	66/67	67/68	68/69	69/70	70/71	71/72	72/73	73/74	74/75	75/76	76/77
<u>Agricultural Products (NF/kg)</u> <u>Produits Agricoles (FM/kg)</u>	11	15	16	16	18	18	18	20	20	32	32	32
Millet/Sorghum, Mil-Sorcho	11	15	16	16	18	18	18	20	20	32	32	32
Rice (Paddy), Riz (Paddy)	12.5	16	18	18	25	25	25	25	25	40	40	40
Maize, Maïs	13	16	17	17	17	20	20	20	20	32	32	32
Peanuts (in the shell), Arachides (en coques)	13	16	24	24	30	30	30	30	30	40	40	40
Seed Cotton, Coton graine	34	34	40	40	45	50	50	50	50	75	75	75
<u>Agricultural Equipment (1000 NF/kg)</u> <u>Matériels Agricoles (1000 FM/unité)</u>												
TM plow, Charrue TM			11.9	18.4	18.4	23.6	23.6	23.6	23.6	23.6	31.9	45.6
Harrow, Herse			9.8	13.4	13.4	17.3	17.3	17.3	17.3	17.3	23.4	--
Toolbar with Attachments, Multiculteur			15.3	20	20	30	30	30	30	30	40.5	80
Seeder, Semoir			14.2	18.5	18.5	18.5	18.5	18.5	18.5	18.5	25	55.5
Cart (1000 kg.), Charette (1000 kg)			18.9	25.6	25.6	32.8	32.8	32.8	32.8	32.8	44.3	60.9
Pair of trained oxen, Paire de Boeufs dressés			35	35	45	55	60	60	70	75	80	150

See end of table for footnotes.
Pour les notes, voir fin du tableau

See following page,
Suite page suivante.

TABLE XII. (Continued, Suite)

Désignation	Years - Années											
	1965/66	66/67	67/68	68/69	69/70	70/71	71/72	72/73	73/74	74/75	75/76	76/77
<u>Fertilizer (MF/kg).</u>												
<u>Engrais (FM/kg)</u>												
Cotton Mixture, Complexe Coton							53	53	53	55	75	110
Urea, Urée Perlée							60	63	63	63	85	92
Ammonium Sulphate, Sulfate d'Ammoniaque				60	60	85	85	85	85	—	55	82
Ammonium Phosphate, Phosphate d'Ammoniaque						40	40	40	40	40	55	95
Single Superphosphate, Super Simple			40	40	40	49	54	54	54	54	61	60

^aFirst quality, Première qualité.

^bMarket price, Prix sur le marché.

SOURCES: CRED, Le Secteur Agricole de la République du Mali, Table 27; CEEAT/SEAE, Etude de l'Evolution des Facteurs de Production, pp. 22, 52; Mali, IER, "Coûts Moyens de Production," June 1976, p. 34; France, Dossier d'Information Economique: Mali 1972-73, Appendix 4; BIRD; OACV, Compte Rendu de la Campagne Agricole, 1974-75, p. 104; Unpublished data, données non publiées.

It is the commercial nature of these products, the amount of export revenues they generate, that makes them privileged. Within their areas these organizations benefit from their own well-developed channels, with their committees and their 4500 collection points equipped with means of transportation and of temporary storage. Their collection and purchasing activities leave the peasant behind at the factory door or at the SOMIEX warehouse as the case may be.

It may be added that price differences between these crops and cereal crops are reinforced by the purchasing power of CMDT and OACV. These organizations pay at the official rate, and apart from leaks at the border, their volume of trade represents more than 70% of production.

If this situation continues there is good reason to fear a shift from cereals to cotton or peanut production, especially in the central and southern regions, which are the two great surplus-producing zones for the staple cereals: millet, sorghum and maize.

7. Income in the Rural Sector

Estimates of income for the rural sector suffer from important gaps. Our most recent information comes from the CNPER study "The Situation of the Malian Rural Economy," published 1972. Examination of the table of income distribution, recorded in the course of "official" marketing (i.e. through government channels) makes it apparent:

1. that cash crops occupy a dominant position;
2. that in a normal year, the figure for millet/sorghum and rice transactions represents a very important part of the total figure for transactions on agricultural products.

TABLE XIII

Marketed Output, Producer Price and Total Revenue from Major Crops, 1961/62 - 1975/76 (Output-1000 tons; Revenue-1000MF)

Production Commercialisé, Prix au Producteur et Revenu Total des Principales Cultures, 1961/62 à 1975/76 (Production-1000 tonnes; Revenu-1000FM)

	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
MILLET-SORGHUM MIL-SORGHO															
M	19.920	28.518	16.326	17.418	25.921	56.636	60.323	8.325	26.000	11.885	28.600	9.0	10.0	48.0	(57)
P	12	12	12	12.5	12.5	15	16	16	18	18	18	20	20	32	32
R	239.04	342.216	195.912	217.725	324.012	849.54	965.168	133.2	468.0	213.93	514.8	180	200	1546.0	1824.0
RICE (Paddy) RIZ															
M	23.895	27.787	30.801	27.329	26.181	32.880	35.328	26.303	38.9	39.5	50.5	30.0	59	84	100
P ^a	8	9.5	9.75	10.75	10.75	13.8	14.5	14.5	18.2	20.5	20.5	20.5	20.5	31.2	31.2
R	191.16	263.976	300.310	293.787	281.446	453.744	381.394	707.98	809.75	809.75	1035.25	615	1209.5	2620.8	3120
COTTON-COTON															
M	12.995	19.982	25.136	28.182	18.459	27.966	32.627	44.943	45.448	52.761	67.939	66.182	50.870	61.181	103.380
P ^b	31.3	31.3	31.3	31.3	31.3	31.3	33.3	36.7	38.3	40	40	40	42.5	55	62.5
R	406.744	625.437	786.757	882.097	577.767	875.336	1086.479	1649.408	1740.658	2110.44	2717.56	2647.28	2161.975	3364.995	6461.25
PEANUTS-ARACHIDES															
M	66.9	73.6	72.1	44.8	27.9	39.0	30.03	29.4	56.610	74.410	59.580	49.980	44.060	69.820	81.571
P ^c	18.5	18.5	18.5	20.7	24.5	28.75	41	41	46.2	42.7	42.7	42.7	42.7	40	40
R	1237.65	1361.6	1333.85	927.36	683.55	1121.25	1231.23	1205.4	2615.382	2177.307	2544.066	2134.146	1881.362	2792.8	3262.84

M = Marketed, Commercialisé P = Producer Price, Prix au Producteur R = Revenue

^a average price for white paddy, red paddy and mixed rice. prix moyen du paddy blanc, paddy rouge et riz mélangé.

^b average price for 1st, 2nd and 3rd grades. prix moyen des 1ère, 2ème et 3ème qualités.

^c average price for unshelled, shelled by hand and shelled by machine. prix moyen avec coque, décortiqué à la main, décortiqué à la machine.

Known income is no doubt augmented by invisible income resulting from open-market transactions. Because of wide fluctuations in the open-market purchase price and because volume of trade is unknown, it is impossible to estimate the real level of income. The table likewise reflects decreases in the millet/sorghum supply. These are aggravated by black market phenomena, notably during periods of uncertain rainfall (as was the case in 1971-72 and 1973-74). (See table.)

Income from these sources is augmented by income from secondary activities according to area (livestock, cottage industries). The central, southern and Delta regions are those where the major income source is direct agricultural activity.

8. Price Disparities — Differences in Monetary Par Values

The Malian currency was devalued in 1967 by 50% relative to the CFA franc used in neighboring countries, following the Franco-Malian monetary accords.

Since then there, apparently, has been an appreciation in hard-currencies (including the franc zone) relative to the "clearing" zone.

Agricultural prices in neighboring countries are clearly higher than prices in Mali, as Table XIV shows.

Table XIV. Agricultural Producer Prices 1975/76 (MF/kg)

	<u>Mali</u>	<u>Ivory Coast</u>	<u>Upper Volta</u>	<u>Niger</u>	<u>Senegal</u>
Millet/Sorghum	32	--	36	40/50	60/70
Paddy	40	130-150	70	70	80/85
Peanuts in the Shell	40	--	46	80	83
Seed-Cotton	75	140-150	80	94	94

SOURCE: BCEAO/IER

This combination of favorable elements encourages a stream of clandestine exports to Senegal, Mauritania, Niger, Upper Volta and the Ivory Coast. It has been estimated that nearly 10,000 tons of paddy goes beyond the border annually in this fashion¹ and that from eight to ten thousand tons of seed-cotton are smuggled to the Ivory Coast alone.²

This situation can be explained partly by Mali's geographical position and partly by traditional trade links, kept alive by experienced traders who dominate these clandestine channels, flourishing as a result of government legislation.

C. Price Policy: A Preliminary Interpretation

Price policy should:

- Foster buying of equipment by producers.
- Aim at the great mass of producers.

¹Office du Niger estimate for 1975-76.

²CMDT estimate for 1975-76.

-Make it possible for the government to control the markets so that it can carry out its essential responsibilities in the domains of

--income policy;

--financing of public services;

--maintenance of food supply to cities and deficit areas.

Attainment of all these objectives presupposes:¹

1. an improvement in farmer incomes;
2. and, because of the resultant rise in agricultural productivity, a rise in agricultural prices.

1. Price Policy and Agricultural Incomes

An examination of the official commercial policy based on monopoly/monopsony indicates that the producer is very often penalized. Improving a peasant's income means guaranteeing his buying power. The only way to insure this guarantee is to raise agricultural prices, without incurring a simultaneous and excessive inflation of other prices. A look at the statistics (see Table XV) tells us:

-that there was a slight rise in agricultural incomes in 1974 and 1975, when producer prices went up and the Guaranteed Minimum Wage (SMIG) was frozen;

-that these gains evaporated a few months later with the increase in the SMIG and especially with the elimination of the subsidy for agricultural inputs.

¹CNPER final report; Part II, Programme du Secteur: Vol. I, p. 23.

-that these tables reflect the deterioration in the buying power of salaried urban workers, the stagnation of producer prices, and the rising cost of farm equipment.

The readjustment of urban/rural income distribution is a matter that merits closer study, for in the absence of a true income policy touching all social categories, the indicators drawn from wage rate indexes remain insufficient. The complete absence of household budget and household income surveys makes it difficult to speak of an income policy.

Many occupational categories, notably those in the tertiary sector (nongovernment, nonfarm) are beyond the reach of all attempts to assess income.¹ This lack of knowledge of incomes (acknowledged by the Malian Plan) masks the income disparities between different urban categories as well as between town and countryside.

2. Improvement in Productivity Through Access to Farm Equipment

It must be emphasized that the main group to benefit from subsidies of agricultural inputs are the producers participating in the government cotton and peanut programs.²

Without a corresponding rise in agricultural prices, the continued rise in the price of inputs (equipment costs being borne totally by the producer after 1976-77) stands in the way of an adequate farm-equipment policy.

¹Who knows what merchants and craftsmen make, or even what real-estate investments bring to certain civil servants who are involved in a number of activities?

²See the chapter on the delivery of inputs to the rural sector.

TABLE XV.

Indices of Food Product Prices, Producer Prices, Agricultural Implement Prices and Minimum Wages
Indices des Prix des Produits Alimentaires, des Prix au Producteur, du Matériel Agricole, et des Salaires Minimum

	67/68	68/69	69/70	70/71	71/72	72/73	73/74	74/75	75/76
<u>Produits Alimentaires - Food Products</u> ¹									
Base 1962/63 = 100	190.6	190.4	194.2	233.8	250.9	324.2	331	350.4	--
<u>Prix Au Producteur - Producer Price</u> ¹									
Coton - Cotton	80	80	90	100	100	100	100	150	150
Arachide - Groundnuts	80	80	100	100	100	100	100	133	133
Riz Paddy - Rice Paddy	72	72	100	100	100	100	100	160	160
Mil/Sorgho - Millet/Sorghum	80	80	90	90	90	100	100	160	160
Base 1972-73 = 100									
<u>Matériel Agricole - Agricultural Implements</u> ²									
Charrue TM - Plow	50	78	78	100	100	100	100	100	135
Multiculteur - Tool Bar	51	67	67	100	100	100	100	100	100
Charrette - Ox Cart	58	78	78	100	100	100	100	100	137
Paire de Bœufs - Ox Team	58	58	75	92	100	100	117	125	133
Base 1972/73 = 100									
<u>SMIG Main-d'Oeuvre - Minimum Wage of Unskilled Labor</u> ²									
Base 1972/73 = 100	100	100	100	100	100	100	136	193	217

SOURCES: ¹ Bulletin Statistique du Mali.

² CRED, Mali Agricultural Sector Assessment, December 1976.

Table XV, which shows unit costs for certain indispensable items of equipment, expressed in tons of cereals or of cotton/peanuts, clearly demonstrates the deterioration of the producer's purchasing power.

After further analysis of Table XV, one can conclude that unless there is full integration of the marketing channels for cereals with those for cash crops, there is serious risk of a drop in marketable cereals.¹

The elimination of the agricultural inputs subsidy should be followed by a rise in the producer price because it carries with it the possibility of lowered cash crop output as well. The level of production costs of peanuts and of cotton, which are rotated with the cereal crops, indicates that cultivating these two crops brings a poor profit. We are in full agreement with S. Michailof, whose conclusions are as follows:²

"The analysis of the production costs of various input/output combinations^a shows that with the recent rise in the cost of inputs, the production of peanuts and more particularly of cotton is becoming less profitable and more high-risk than the production of millet. A risk/incentive analysis of these combinations, relative to the production of millet which can be substituted for them (see Appendix II)* quickly reveals that if millet were as easily marketed as cotton and if the official price for millet (32MF/kg) prevailed, then the farmers logically should abandon cotton for millet. A close look at the graph opposite will make it obvious that in the same region, going by the official prices, cotton production using animal traction is less attractive (273 MF per working day) and more high-risk (the ratio of

¹This concern is shared by the organizations which provide extension services for the cotton and peanut programs.

²S. Michailof, "Quelques remarques sur la commercialisation et la politiques du prix des céréales au Mali," unpublished working paper.

*"Appendix II" reproduced at end of this report as Appendix 2.

monetary cost to gross product = 0.59) than millet production using animal traction (440 MF/working day, a risk index of 0.20).^a

The millet price for which it would make no difference to peasants if they produced millet for commercial purposes rather than cotton (assuming all other factors -- marketing, security, the difficulty of the work involved and so forth -- to be equal) seems to be well below the official price. By use of a very simple equation^b it can be estimated at about 20-22 MF/kg, which must be close to the real price of millet in all the regions to which access is difficult (if the preceding figures are correct).

An appreciable rise in the real price of cereals would bring the risk that cereals would be substituted for cash crops, if such a rise is not accompanied by either a rise in cash crop prices (possible, in spite of export constraints) or by a good-sized subsidy for cash-crop inputs."

^aAll of these figures have been drawn from documents at the Institute of Rural Economy in Bamako. Their exactness is open to question. To determine an agricultural price policy, more precise figures are needed on the regional level, which presupposes some in-depth research. Nevertheless, the orders of magnitude here do seem to be significant.

^bMillet/cotton equivalence price for cultivation using animal traction:

$$\text{Working time for millet} \times \text{profit realized per cotton working day} + \frac{\text{the monetary costs for millet}}{\text{millet yield}} = 21.3 \text{ FM/kg.}$$

A millet/peanut equivalence price can be similarly estimated to be 30.8 MF/kg.

The consequence of such a rise would be such an increase in the marketable product available. The enlargement of domestic and foreign outlets has to be studied and insured. Taking into account modifications in consumption habits (substitution of rice for millet/sorghum) it seems evident that a large part of the marketable surplus will go to two destinations:

1. the domestic market which consists of purchasers able to pay, both for human and for animal consumption, and
2. the foreign market.

3. Export of Malian Cereals

Mali's land-locked position together with the high costs of overland and rail transportation prevents any access to the world market outside of Africa. We draw a distinction in the discussion that follows between the case of rice and that of millet/sorghum.

a. Export of Malian Rice

It should be recalled that up to 1964/65 Mali was a net exporter of rice.

Table XVI. Rice Exports (Metric tons)

<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>
12,582	14,995	5,233	1,115	3,074

SOURCE: Office du Niger. Service Industriel et Commercial cited in the WARDA Yearbook. Rice Statistics Yearbook, 1st ed. (July 1975).

The exported rice was of several different grades: whole rice, market rice (whole and broken rice), and broken rice. Because of a discount of 25%-30% resulting from the poorer quality of Malian rice compared to Thai rice, export possibilities are limited. Foreseeable outlets include the neighboring Sahelian countries and, potentially, Liberia and the Gambia. The Malian rice exporter must get these variables under control:

- the ex-mill factor-cost price
- transportation costs;
- delivery period;
- permanence of supply;
- product quality.

i. Net Cost of Processed Rice

Better knowledge of the cost of rice production in the different zones (office du Niger, Rice Ségou, Rice Mopti) would make it possible to optimize the other variables that go into determining the factor-cost price of factory-processed rice, and to make rice competitive in neighboring markets. Current estimates appear to be unfavorable to Malian rice because of poor cost control. (See price schedule structure.)

Table XVII. Summarized estimate of the competitiveness of Malian Rice for Possible Export to Senegal (in 1976 prices)

<u>Grade of Rice</u>	<u>FOB World Market Price (in 1000 MF)</u>	<u>C.i.f. Dakar Price (in 1000 MF)</u>	<u>Dakar Delivery Price, Malian Rice (in 1000 MF)^a</u>
5% Thai brokens	180	192	unavailable grade
30% brokens	±130	not imported	±138
Broken rice	± 77	±39	unavailable

^aThe figures in this table do not take storage costs into account.

SOURCE: Estimate made on basis of IBRD information. Table reproduced from S. Michailof, op. cit.

ii. Transportation Costs

Rice production and processing zones¹ are very far from the principal countries considered to be potential outlets, except for Niger (accessible via the river). Costs (water/rail, road/rail) must be minimized according to the destination of the product. The capacity available currently limits access to border markets; road conditions prevent use of heavy trucks (25+ tons) for Senegal and Mauritania. The need to improve transportation remains a constraint

¹Ségou and Mopti.

on rice exporting.

iii. Delivery

This variable is directly linked to the previous one. It is strategically important that it be dealt with in order to get and keep a place in the international market. Controlling it is one of the cornerstones of an aggressive and successful marketing policy.

iv. Permanence of Supply

The demands of the region are estimated at over 250,000 T. annually. The level of Senegal's imports, which are on the order of 100,000 T., implies that, prices being equal, the Malian exporter must be able to supply 25,000 T. or more. Foreign demand is permanent, owing to the inelastic nature of domestic rice production in the importing countries; therefore, supply has to be permanent. This means an adequate production/processing structure protected from the vagaries of weather, as well as rigorous management of stocks.

As of now the Malian rice production apparatus has not yet mastered the water-supply problem.¹ Furthermore, OPAM, which is the seller, does not control stock management. For an export policy to succeed, it may be a good idea to consider the role that the Office du Niger might play if certain improvements were made, namely:

-a reduction in the number of intermediaries;

¹The inadequacy of the floods in 1972-73 and 1973-74 caused serious losses in the rice fields of Ségou and Mopti.

-a serious and systematic canvassing of foreign markets under the auspices of the Office du Niger, which would be provided beforehand with personnel experienced in this type of work.

b. Millet/Sorghum Exports

The experience of previous years¹ confirms the potential for millet/sorghum exports. However, besides the constraints previously mentioned for rice, millet/sorghum has other constraints of its own:

- international stockpiling as a result of the unevenness of production (weather hazards);
- the extent of foreign demand;
- the willingness of Malians to export;
- the political willingness of CILSS and CEAO countries to import Malian millet and sorghum.

i. Controlling the Management of a System of Year-to-Year Stockpiling

The return of quasi-normal rainfall patterns, combined with the efforts of producers and the extension services, has resulted in good agricultural performances. Significant surpluses were harvested in the growing seasons 1974-75, 1975-76 and 1976-77. Unfortunately, the main result was an expansion of stocks held by OPAM. The availability of such large supplies did not result in much of an export push except for the 15,000 metric tons sent to Niger and some

¹Exports to Niger and Senegal.

600 T sent to Senegal. OPAM could have done better. The existence of a surplus and control over the management of stock are necessary conditions for meeting export price commitments.

In spite of the fairly high cost of storage -- on the order of 40,000 MF/T. -- millet/sorghum can still be successfully exported, as the following table demonstrates:

Table XVIII. Export Prices of Sorghum

<u>World Price US Sorghum</u>		<u>Price for Malian Sorghum</u>	
(no. 2 yellow)			
FOB 1976			
in \$US/T	110	Official Producer price +	
in 1000 MF/T.	50	losses + bagging in	
		1000 MF/T.	37
C.i.f. Dakar	62	Kaolack delivery price	
C.i.f. Kaolack	65	Malian sorghum	64

(1) Hypothesis: 15,000 MF/T. for transportation and insurance costs for FOB/Kaolack. (IBRD)

(2) Hypothesis: 10,000 MF/T. for storage, handling and transportation to Bamako; 17,000 MF/T. for transportation from Bamako to Kaolack. (S. Michailof)

Hopefully a better estimate of the principal costs, drawing on numerous examples of actual business transactions, will (as in the case of rice) permit assessment of the economic viability of sorghum exports. The possibility of orienting some of the trade flow towards Mauritania and Niger merits study, since the probable decline in transportation costs should make Malian millet and sorghum competitive.¹

¹Particularly millet to Niger, sorghum to Mauritania, as a result of taste preferences.

ii. The extent of foreign demand

This course of action will require full knowledge of demand in these countries and of medium and long-range prospects. The Sahel subregions can expect to have a cereals deficit for quite some time to come. The time needed to implement development policies means that there will be significant delays before self-sufficiency can be reached. The outlook appears good for Malian cereals.

iii. The willingness of Malians to export

The idea of exporting cereals is only hinted at in the Malian Plan. The objective of self-sufficiency in cereals places emphasis on imports instead. With the appearance of permanent surpluses and an existing foreign demand, the organization of cereal exports is beginning to take shape. In its August 1976 report, the Inter-Ministry Commission on the Restructuring of OPAM made this recommendation: (p. 18)

At the end of each growing season's marketing period, especially when there is a surplus, provision should be made for buying up whatever has not been marketed due to insufficient domestic demand. This surplus will be used exclusively to build up cereal reserves and for export and may be bought by the government for less than the official marketing-period price. Setting a deadline for purchases at the highest price should accelerate marketing during the first period.

Exports still appear to be a very secondary objective. They should rather be included from the beginning in every phase of marketing policy in order to promote the production of cereals. Taking this approach, the idea of lowering the purchase price to the producer after domestic demand has been satisfied appears to be an unrealistic way of insuring that the amounts intended for export will in fact be purchased. Exports should be a factor both

in price and in marketing policy. Besides, lowering the purchase price after the "official marketing period" seems an idea whose implications have not been thought through. It implies the concept of a downward movement of prices. A price range should be defined from the beginning of the marketing season in order to stimulate competition and assure a profitable price for cereals, notably millet, sorghum, and maize.

iv. The willingness of CILSS and CEAO countries to import

Past experience, as well as the existence of traditional channels of trade and recent imports by Niger, Senegal and Mauritania, confirms the willingness of other governments in the region to import. In addition, Malian exporters have a potential legal framework in the commercial accords established under the aegis of the West African Economic Community (CEAO).

Table XIX. Comparison of Production Costs for Various Crops

	Yield (kg/ha)	Working Time (da/ha)	Monetary (MF/ha)	Return (MF)	Risk Index $\frac{C}{PY}$
	X	W	C	R	
<u>MILLET</u>					
Millet Zone (cultivation by hand)	650	65	1,370	300	0.07
<u>MILLET</u>					
In rotation-- peanut zone--with animal traction	1,000	58	6,273	443	0.20
<u>PEANUTS</u>					
In rotation-- peanut zone--with animal traction	1,300	70	22,334	424	0.43
<u>MILLET</u>					
In rotation-- southern Malian zone--with animal traction	1,000	50	7,697	486	0.24
<u>COTTON</u>					
In rotation-- southern Malian zone--animal traction	1,000	113	44,075	273	0.59

SOURCES: IER, June 1976--Ministry of Rural Development and Estimation
and S. Michailof.

IV. MARKETING: DESCRIPTION

A. Channels - Means of Marketing and Distribution

A distinction must be drawn between government marketing structures and those of the open (or parallel) market.

1. Government Marketing Structures

The principle elements entering the marketing process in the name of the State are:

- the cooperative movement;
- the production operations;
- OPAM;
- the banking system: B.D.M./B.C.M.

a. The Cooperative Movement

The mission of the cooperative movement is to assist the producer and to insure a liaison between the rural sector and the government departments. Its structure is tied into the governmental structure. Its chief promoters are civil servants.

Cooperatives figure in cereals marketing on two levels: primary collection and retail distribution.

i. Primary Collection of Cereals

In principle, each village has a cooperative, referred to as the producers' cooperative. On the arrondissement level,¹ these groups collectively form the primary federation of cooperatives.

¹The arrondissement is an administrative unit comprising several villages. It is the lowest echelon of governmental organization.

Cereals (essentially millet/sorghum) are bought through these groups. The chef d'arrondissement gives the producers' cooperative access to enough money and bagging to meet the demand, initially set out in the form of a quota.

The quota is that part of the total demand which a cooperative is responsible for supplying. It is set during the annual meeting of the regional cereals committee, made up of the regional governor and his subordinates plus the local and regional representatives of all government departments directly involved in agriculture, the Department of Agriculture, the Cooperatives Service, the OPAM inspector, and so on. It is this committee which estimates what will be produced, what will be consumed on the farm, and what will be available for marketing. The latter figure is then divided among the cercles,¹ arrondissements and villages of the region to give them their quotas.

The amount of demand is thus set by the cereals committee.

As a result, from the beginning of the marketing season, it is only a question of meeting these numerical objectives. With the money and the bagging they have been given, the producers' cooperatives or the villages buy cereals. Once their quota has been collected, the people in charge on the local level transport it in oxcarts or trucks to the arrondissement's principal town.

These cereals are then stored by the primary federation of cooperatives in its warehouses. It is the primary federation that is

¹cercle: a government administrative unit made up of several arrondissements.

responsible for transporting and storing them anew in the cercle's OPAM warehouses.

These cooperatives are supposed to be reimbursed for their part in collecting and transporting the cereals. Depending on the marketing season, the cereal stocks collected are not OPAM's property until they have been received at the principal town either of the arrondissement or the cercle.

Thus, because of the institution of the quota, each village becomes a mandatory physical market in order to satisfy primary demand.

As it happens, some villages produce foodstuffs at very near the subsistence level. So as not to disturb this fragile balance the village chief will send his buyers out to neighboring villages which seem to be in a better situation. These physical markets are to be found in areas of surplus production: the central region (Centre), Séno-Dogon, and so on..

Besides, collection by cooperatives working closely with the governmental departments is confined to production zones where there is no Operation in existence. Apparently, then, cooperatives play a part in the process only in the scattered areas.

ii. Distribution

The producers' cooperative distributes seed in the rural zone. What they distribute in their area is supplied by the OPAM warehouse in their arrondissement or cercle. However, the group may not set aside any portion of the stock of collected cereals intended for final sale. The paradox is that for a price clearly higher than the price at the time of collection, they will be selling a product that has travelled twice beforehand.

Currently, the role of the Operations is growing compared with that of the cooperatives. The reason is agricultural production policy, which gives the Operations priority in providing extension services to the producers. Their field of operations is growing.

This state of affairs has created a certain amount of tension between the Division of Cooperatives and the Division of Operations. Out in the field, the Operations technicians appear to get more attention than the technicians for Cooperatives, giving rise to conflicts and to a lack of cooperation between the two.

The network of extension agents is dense enough to reach the maximum of producers in a radius of 10 to 20 km.

The constant interaction between the field extension agent and the farmer gives him an advantage over the representative of the cooperative, who because of his status as a civil servant is protected from any serious penalties. The Operations' extension agents give higher quality service than the agents of the official Cooperatives.

c. The Administration

We apply this term to those organizations that come into the process directly in the name of the government. They are:

- the Ministry of the Interior, with the regional governors, the commandants of the cercles and the chefs d'arrondissement;
- the Ministry of Finance, Commerce and the Economy with its specialized departments: the National Division of Economic Affairs,¹ the Office of Price Regulation and Stabilization (ORSP);
- the Ministry of Production, with the Division of Agriculture foremost.

¹With its own specialized departments: the divisions of domestic trade, exports, etc.

In essence, the Administration:

- makes production forecasts from which, together with the cereals committee, it will set the marketing quota for each region, cercle, and arrondissement;

- determines the details of the marketing season:

*the date the season opens;

*the distribution of money and bagging for the collection in each zone;

*inspection, collection and distribution between zones;

-sets the producer prices, the price schedules and the retail prices for cereals.

The Administration is both the moving force and the dominating presence throughout the entire primary marketing process.¹

d. OPAM: the Office of Malian Agricultural Products

OPAM was created in 1965. Its purpose is to insure the marketing of Malian cereals (millet, sorghum, maize, paddy, rice) as well as see that a sufficient supply of them goes to the Malian consumer. OPAM has a monopoly on the purchasing and sales of staple cereals. Administratively, it comes under the Ministry of Finance, Commerce and the Economy. OPAM is structured as follows:

i. Nationally

At OPAM's head is its national directorate. The principal divisions are:

¹See Appendix for list of all agencies participating in the preparation and/or the execution of the marketing season.

-the Division of Administrative and Economic Affairs, in charge of personnel and supplies;

-the Division of Finance and Accounting. This division has more to do with accounting than with budgeting and financial supervision, properly speaking. Apparently the latter role - originally assigned to this division - has been assumed by the General Directorate;

-the Division of Commerce, in charge of purchasing and sales;

-the Mobile Inspection Department, in charge of effecting liaisons with regional and local operations and of inspecting stock movement.

ii. Regionally

OPAM has a regional inspection office in each regional capital and a smaller office directed by an inspector in every cercle.

Note that the OPAM organization stops at the level of the cercle. Because of this, OPAM has no direct contact with the producer or with the producers' cooperatives. That is OPAM's first paradox: a commercial organization which has direct contact neither with its suppliers nor with supplier associations. To this may be added the role of its commercial division: it has, in fact, nothing to do with commercial activity in the true sense of the term. What it does is record data obtained through the cooperatives and the Operations.

With the support of the Administration, OPAM is responsible for two operations:

-financing the marketing campaign.¹

-Transporting the products.

¹See paragraph on financing.

In carrying out these two tasks, OPAM makes use of the banking system and the Administration. The fact is that OPAM does not have access to the permanent capital which is indispensable to covering its operating expenses, if it is to be used effectively, if it is to intervene consistently on the market. And the small size of OPAM's vehicle fleet forces it to rely much more than it would care to on external sources in order to move marketed stock out of its warehouses.

All these factors are intended to keep OPAM in a state of material, financial and human dependence on the Administration.

Without any real, dynamic commercial autonomy, OPAM does not appear to correspond to the social objectives outlined for it.

e. The Banking System

Primary purchases are made with the aid of marketing-season credits provided by the Banque du Developpement du Mali: B.D.M. to OPAM. These credits are rediscounted bills coming from the Banque Centrale du Mali (BCM)¹.

f. The Government Agencies' Marketing Channels

In theory, the cornerstone of the staple cereals marketing structure is the OPAM-Cooperatives group. But, as the following schema shows, OPAM comes into the process rather tardily:

- (1) Producers
- (2) Producers' Cooperatives (P.C.)
- (3) P.C. federations
- (4) The Cercle's OPAM warehouse

¹See paragraph on financing.

- (5) Regional warehouse, production zones
- (6) Regional warehouse, deficit zones
- (7) Rural consumer
- (8) Urban cooperatives
- (9) Urban consumer

OPAM appears only at the fourth stage, to take on stocks and to organize supply dispatching between zones.

These transfers are impeded by road conditions and by the volume of product either supplied or available on request, which leads to a transportation bottleneck. The result is long delivery delays compounded by poor handling and warehousing.

After their purchasing activities (which very often leave out the traditional markets, but include collection points which actually correspond to whole villages), the cooperatives yield the management of stocks on the cercle level to OPAM.

On this level, OPAM is responsible for making stock transfers to meet the needs of urban centers and deficit zones. The precise figure is determined by the Administration with technical assistance from the cooperatives.

The control of cereals distribution seems to be out of OPAM's hands. At this stage, as in previous ones, OPAM has to take its orders from above. The current financial weakness of the cooperatives is another factor contributing to the situation.

2. The Marketing Structure of the Open Market

Legally, whether on the level of the primary collection, wholesale dealing or retail sales, there is no such thing as an open ..

market for cereals. But the truth of the matter is far otherwise. There has always been physical markets for staple cereals all across Mali. The principle ones, going from west to east, are: Kita and the Kita region, Konodimini (Ségou), Yorosso (through Koutiala), Diaforabé in the delta; in the south, there are Niena and others; on the plateau, Dogon, Séno, Koro, Dialassabougou, and so on.

These markets are supplied regularly by the direct producers, who sell there every week. Quantities vary from ten to 200 kg. per seller, depending both on his transportation capacity and on the time of year: start of the marketing season, start of the rainy season, after the second or third hoeing.

Three intermediaries insure the liaison of these markets with the terminal markets in principal towns or in rural or semiurban population centers. These are:

- the collector,
- the wholesale merchant,
- the retailer.

a. The collector

This is a merchant who faithfully attends all the periodical markets (they take place once a week) which may be found in one or several arrondissements in the same cercle. He deals in all wares, or at least he runs a rather varied gamut. The cereals he buys are only one item among many. The collector can be found there almost all the time.

He buys directly from the producer, going by the law of supply and demand. Because of his extralegal status, his dealings in cereals take place only within a limited radius.

He then sells what he buys, partly to wholesalers, partly to

retailers, partly to the rural or urban consumer.

b. The Wholesaler (large or small-scale)

In general, he is a fairly prosperous person, well-known in his area and having relatively significant financial and transportation resources at his disposal.

Cereals are only a small fraction in the sum of his business activities. But they may bring in an appreciable profit when opportunities for speculation appear. He has collectors and other agents working for him; often, too, he makes use of allies living in the production zone. His activities may touch several regions and in fact may reach into neighboring countries as well. Because of the risk he runs (confiscation of the product and/or a fine) he often confines his activities to clandestine exporting. Bringing cereals into the cities is more dangerous and requires a regular flow of bribery.

c. The Retailer

This category includes owners of street-stalls, storekeepers, and sellers in the public market. They are tolerated. Depending on their closeness to the cereals markets, they get their supplies regularly in small quantities.

Women have a dominant role in the distribution of millet and sorghum, as much in the country as in the city.

3. The Cereals Channel

This is not a linear channel of producer-collector-wholesaler-retailer variety. The cereals trade exists on the village level, going from one village to another, mediated by the weekly market. The trade in cereals obeys traditional fluxes which the Malian Plan

tends to confirm with the existence of development Operations. We have mentioned the physical markets of Kita, Yorosso, Niena and Dialassabougou to illustrate the continued existence of a marketing channel of long standing. The improvement in trade is brought about through the integration of the strings of periodical markets and of the large markets, such as the one at Yorosso or Dialassabougou, which deal in several thousands of tons (see the Mopti Millet Operation for Dialassabougou and the CMDT Operation for Yorosso).

Long-distance marketing is carried on through the caravans that still go south as far as Bankass and Koro; and these cercles similarly trade heavily across the border. Somewhere along the line these operations could integrate the different channels and markets much better if the law permitted.

B. The Role of the Markets

1. Marketing Objectives in the Malian plan

a. How the objectives were determined.

What would be consumed on the farm, what would be needed for seed, losses and leakage, the amount of the farmer's stock, all were determined, zone by zone. After that, the non-agricultural rural demand was estimated.

Striking a balance made it possible to determine the available marketable cereals or the cereal deficit, according to zone. "A part of the available marketable cereals is set aside for the official trade, for which OPAM is responsible."¹

¹Page 54, Malian Plan

The Plan took into account both the quantity of produce marketed by OPAM and the quantity sold on the open market in setting its objectives for "official" marketing.

This position taken by the Malian planners confirms the existence of two important markets for millet, sorghum and maize. But this attitude contradicts the monopoly legally accorded solely to the governmental group - OPAM.

A similar analysis of the section "Rice Resources and Utilization" shows that the open market has a place here as well. However, the open market occupies only a third of the total market. This is equally understandable - the production of rice is fairly integrated, due to the Operations and to the Office du Niger.

The Office du Niger and the two Operations Rice Ségou and Rice Mopti do the extension work and the marketing for the largest part of the production and process virtually all of the rice sold by OPAM.

The Malian development plan for 1974-78 concedes a certain role to the free trade in cereals. An analysis of the tables in the section "Resources and Utilization of Millet, Sorghum and Maize", covering the five-year plan, shows:

-that the open market's part of the total volume during this period will be:

- * 1.9 times OPAM's part in 1974/75;
- * 1.46 times OPAM's part in 1975/76;
- * 1.33 in 1977/78;
- * 1.25 in 1978/79.

-The free market's percentage of the total for these years will be:

* 65.54%

* 59.39%

* 63.34%

* 57.13%

* 55.64%

That is, for the duration of the five-year plan the open market will handle a greater proportion of the total than the official market, represented by the OPAM/Cooperatives group.

2. Trade Volumes

We may draw a distinction here between the trade in paddy and rice and the trade in millet and sorghum.

a. Trade in Paddy and Rice

Until recently, primary marketing in paddy was dominated by the Office du Niger. But since 1974, the part of the Rice Ségou and Rice Mopti Operations has been growing. The paddy collected by these Operations belongs to OPAM; it is processed by the Office du Niger and by the Sevaré-Mopti Rice Mill.

The volume of paddy marketed has been rising. From 23,895 tons in 1961/62, it went to 100,000 tons in 1975/76, an increase of 400%. The annual growth rate is 15%. Significant declines were registered in 1964/65 and 1965/66 and more particularly in 1968/69 and 1972/73.

In terms of percentage of total production, the part known to have been marketed averaged 24.84%. Over the last five years more than 25% of the paddy was marketed. With the water situation back

to normal and with the presence of flooding (1974/75, 1975/76) the percentage has approached 40%.

It is difficult to measure the share taken by the parallel market. It must be in the neighborhood of 10%, according to some sources. One part of this unofficial trade is distributed in neighboring countries; the rest is processed and retailed in certain urban centers. See Table XXI.

b. Trade in Millet and Sorghum

It is no simple matter to determine what quantities of these crops are marketed and what is consumed on the farm. Estimates of what is marketed vary from 10% to 20% of total production. The marketing dualism that characterizes the millet/sorghum trade does not make estimating trade volume any easier. The official market, directed by the Malian Office of Agricultural Products, has marketed an average of 4% of the total millet/sorghum output. The amount marketed by the open market is close to 6%. It may be noted that since 1966:

-the amount marketed by OPAM has always been less than the amount bought privately from the producer;

-in what was considered a good year, with a certain surplus available, the open market took in one and one-half times what the government group did. If estimates of clandestine exports are added in it may be concluded that the parallel market handles twice the volume of OPAM. In this case, the total volume traded from producer to primary buyer reaches 18 to 20% of total production;

-in bad years, the primary supply contracts.

Table XXII will illustrate these observations.

Table XXI.

Paddy: Production, Marketing and the Percentage
Marketed of Total Production
1961/62 - 1975/76 (1,000 Tons)

Paddy: Production, Commercialisation et Pourcentage
de la Production Totale Commercialisé
1961-62 à 1975-76 (en milliers de tonnes)

	<u>61/62</u>	<u>62/63</u>	<u>63/64</u>	<u>64/65</u>	<u>65/66</u>	<u>66/67</u>	<u>67/68</u>	<u>68/69</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>
Production	144.9	200.1	188.6	129.862	165	158.468	171.756	134.384	161.794	137.395	157.13	115.9	130	250	260
Marketed Commercialisé	23.895	27.787	30.801	27.329	26.181	32.880	35.328	26.303	38.9	39.5	50.5	30	59	84	100
% Marketed/Production Commercialisé/Production	16.5	13.9	16.3	21.0	15.9	20.7	20.6	19.6	24.0	28.7	32.1	25.9	45.4	33.6	38.5

SOURCE: Office du Niger - and others.
- et autres.

Table XXII.

Millet-Sorghum: Production, Marketing and the Percentage Marketed of Total Production
1961/62 - 1975-76 (1,000 tons)

Mil-Sorgho: Production, Commercialisation et Pourcentage de la Production Totale Commercialisé
1961-62 à 1975-76 (en milliers de tonnes)

	<u>61/62</u>	<u>62/63</u>	<u>63/64</u>	<u>64/65</u>	<u>65/66</u>	<u>66/67</u>	<u>67/68</u>	<u>68/69</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>
Production	827	867	863	651.2	721	737.4	830	557.7	602.5	715.4	715	624.2	660	800	(850)
Marketed Commercialisé	19.920	28.518	16.326	17.418	25.921	56.636	60.323	8.325	26.0	11.885	28.600	9	10	48	(57)
Free Marketed Librement Commercialisé	29.88	42.777	24.489	26.127	38.882	84.954	90.484	12.488	39.0	17.828	42.900	13.5	15	72	(85.5)
Total Marketed Total Commercialisé	49.8	71.295	40.815	43.545	64.803	141.59	150.807	20.813	65.0	29.713	71.500	22.5	25	120	142.5
Marketed/Production (%) Commercialisé/Production	2.41	3.29	1.89	2.67	3.60	7.68	7.27	1.49	4.32	1.66	4.00	1.44	1.52	6.00	6.71
Free Market/Production (%) Libre Commercialisé/ Production (%)	3.61	4.93	2.84	4.01	5.39	11.52	10.90	2.24	6.47	2.49	6.00	2.16	2.27	9.00	10.06
Total Marketed/Production (%) Total Commercialisé/ Production (%)	6.02	8.22	4.73	6.68	8.99	19.20	18.17	3.73	10.79	4.15	10.00	4.50	3.79	15.00	16.77

SOURCE: OPAM - and other authorities.
et autres autorités.

3. The Financing of Market Operations

The dualism marking agricultural production policy reappears in the way the Operations for marketing agricultural products are financed.

a. The Financing of Operations Dealing in Industrial Crops

i. Cotton and Kenaf Operations

The Malian Textile Development Company (CMDT) provides extension services to the producers of cotton and kenaf, buys the seed cotton and is responsible for processing the product. The cotton fiber and the seed are delivered to SOMIEX (the Malian Import-Export Company) for final sale. The purchases are paid for with the CMDT's funds, which are advanced to the CMDT by the Mali Development Bank (BDM). The sale period at SOMIEX is 90 days. The cost is charged to the CMDT. Its corporate status gives it direct access to credit with the banks, which makes it possible to finance these operations. Its minimum volume is a function of production forecasts and of purchases on its 4000 markets and purchasing stations.

ii. Peanut Marketing

In contrast to the CMDT, which is a corporation in which the Malian government is chief stockholder, the Peanut and Staple Crops Operations (OACV) is a production structure under the direction of the Ministry of Production.

The resources for the OACV's operations come from the price schedule and from the joint financing provided by IBRD/FAC/Mali.

The price schedule for peanut sales to SOMIEX and SEPOM (the Oil Seed Export Company) provides funds for the OACV's operating budget. These price-schedule resources are substituted for that

part of the government budget originally intended for the OACV. SOMIEX and SEPOM have, with SEPAMA, the monopoly on the marketing of peanut processing. In this role they "prefinance the marketing and supply the bagging"¹ to the OACV. The funds come directly out of these companies. Nevertheless, the OACV is often induced to prefinance the primary marketing for which OACV is responsible. At the beginning of November, the OACV prepares and presents a financing plan to SEPOM and SOMIEX. Putting the plan into operation takes from November to March. SEPOM and SOMIEX may rediscount bills with the banking system (the Mali Development Bank and the Central Bank of Mali). These financial operations result in significant delays.

iii. Cereals Marketing Operations

OPAM is the principal agent in the process. In October of each year, it sends a set of documents related to financing to the Mali Development Bank (BDM). The documents cover the state of the stocks, sales, and OPAM's financial situation. The BDM sends the documents to the Mali Central Bank (BCM) for the rediscounting. After the BCM has examined the documents and signified its approval, the funds to be placed at OPAM's disposal are released in two stages by the BDM. The second portion is not released until OPAM has justified its utilization of the first block of funds. OPAM then sends out the transfer orders to its buyers. The checks are the regional governors, who pass them on to the commandants of the cercles and to the chefs d'arrondissement for purchases over wide areas. The directors of the millet and rice Operations get their checks from the BDM's regional branches.

¹OACV report 1974/75, page 64

The primary purchases of paddy made by the Office du Niger should be distinguished from those previously discussed. This office is financed by the BDM. It delivers rice to OPAM and processes a fraction of the paddy collected by the other marketing structures on OPAM's behalf.

The method of financing cereals marketing, then, is quite a complex one, with a number of organizations and agents going into the process. For the last few years, long, difficult negotiations have been necessary to get the rediscounted bills. The large (over 30 billion MF) deficit accumulated by OPAM in the course of massive imports during the drought (1972/73, 1973/74), its current losses, and likewise the BCM's bilateral nature only serve to make the job of OPAM's administrators more difficult.

4. Supplying Equipment to the Rural Sector

The social objective of the SCAER (the Farm Credit and Rural Equipment Association) is defined as follows: to supply the rural sector with farm equipment, to forward "rural development policy," agricultural credit, and the raising of the technical level of the farmer. It has the monopoly on the buying and selling of farm equipment. SCAER's suppliers are SISCOMA (Senegal), other African and/or European firms, and, since 1976, SMECMA and the Operation for Seed Treatment and Crop Protection, both of Mali. SMECMA manufactures plows, cultivators and sets of wheels for oxcarts.

The Operation for Seed Treatment and Crop Protection "formulates and conditions treatment products: HCH, lindane, millet fungicides and cotton fungicides." It is in April that the SCAER's ordering departments make up lists of all equipment needs. The calls for

bids are then sent out. When its purchases have been decided, SCAER pays 30% down, then 20% when the shipping documents have been received, then the final 50% after a lapse of 120 days. The CMDT absorbs 85% of the SCAER's purchases into its zone. The rest is divided among the peanut, rice and millet operations. Up to 1976, credit was essentially short-term (one year). With the elimination of subsidies and the technical help of the Operations (i.e. distribution), farmers using the extension service can now obtain medium-term credit (3 years).

a. Supplying Producers with Inputs

A distinction must be made between the Operations channels and the direct channels, otherwise known as the "cash" channels.

i. The Operations Channels

The Operations group is SCAER's principal client. Their purchase of equipment and fertilizer have been estimated to be over 90% (of SCAER's total.) Along with the CMDT, the Operations list the needs of farmers reached by the extension service and send in an order to SCAER, for which they receive a commission of 5%¹.

Neither the CMDT nor the Operations bill the producers; sales are on credit. Equipment (cultivators, plows, etc.) is sold on medium-term credit (3 years); fertilizer on short-term credit.

ii. The Farmers' Channels do not have the help of an Operation

Farmers get their equipment at the cercle's SCAER store. Payments are made in cash. SCAER has set up and operates 30 stores for this purpose.

¹This commission is to cover the costs of distributing equipment.

It should be noted that:

-Essentially, the equipment supply is drained toward the Operations zones, where SCAER has a central role in purchasing.

SCAER has no contact with the producers.

-Nowhere is there any participation by the Farmer's cooperatives.

-Virtually all the sum total of SCAER's business transactions comes from equipment bought by cash crop (concerns); 85% from CMDT alone, the rest from OACV.

5. Supplying Consumer Goods

SOMIEX, the Malian Import-Export Company, has the monopoly on current essential consumer goods. It has 150 shops and sales stations divided among Mali's 42 cercles. SOMIEX distributes sugar, salt, matches and peanut oil, the prices for which are set by the Ministry of Commerce (Division of Economic Affairs).

SOMIEX also has serious difficulties. Its administrative autonomy appears uncertain, as its Report on Activities for 1974 indicates:

"To manage an entity like SOMIEX in the Malian context is an external struggle...-a struggle with administrative authorities who intrude themselves into the management of SOMIEX's affairs...Not satisfied with their given task of inspection and surveillance, they want to take the place of our own agents in dealing with problems which they are not trained to handle. We are treated like thieves, traffickers in stolen goods, wreakers of starvation, and everywhere threats proliferate..."

This situation causes frequent changes in the level of SOMIEX's sales to cooperatives and primary federations of cooperatives.

SOMIEX also has supply difficulties, owing to strong competition from private traders aided by official corruption. Private traders can, in fact, get around both customs laws and the laws concerning

authorized prices for goods. In addition, artificial shortages are created from which the first to suffer is the direct producer.

As in the case of OPAM, transportation problems cause bottlenecks, especially for merchandise coming in from Senegal. Transportation costs are made higher by various additional charges.

It is evident that the shortages are artificial because, very simply, the managers of SOMIEX stores and cooperatives have been known to sell entire stocks - stocks of consumer staples (salt, sugar, tea, etc.) - to private local merchants.

The Report on Activities for 1974 continues:

"In the end, only a minority are able to buy goods at the authorized price, and the farmer who is supposed to be protected by having prices kept artificially low ends up paying the costs and losing the most by it.¹

6. Foreign Trade in Cereals

From official statistics and other sources, it is evident that a significant foreign cereals trade exists between Mali and other countries. Table XXIII shows how this trade has developed.

The table also shows how difficult it is to estimate Mali's real cereals trade. From 1960/61 to 1964/65, Mali was a net exporter of rice. Since 1968/69, Mali has been a net importer. Between 1968/69 and 1974/75 the volume of imports tripled. From the results of other investigations and from conversations with national authorities, it is clear that there is an important flow of clandestine exports. These border leaks appear to be significant, particularly in the direction of Mauritania, Niger, and Upper Volta.

¹Author's emphasis

TABLE XXIII.

Imports and Exports of Millet/Sorghum, Rice and Maize, 1960/61-1975/76 (1,000 tons)Importations et Exportations de Mil/Sorgho, Riz et Maïs, 1960-61 à 1975-76 (en milliers de tonnes)

	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
	60/61	61/62	62/63	63/64	64/65	65/66	66/67	67/68	68/69	69/70	70/71	71/72	72/73	74/75	75/76
<u>Millet/Sorghum</u>															
<u>Imports</u>						6.8	10.0		19.438 ^a		26.980	27.848	65.000	91.214 ^b	
<u>Exports</u>			2.4					7.460	2.237 ^a	15.0	15.0	15.0	5.0 ^b		
<u>Rice</u>															
<u>Imports</u>						4.5			21.444 ^a	9.500	10.799	35.490	46.223	70.992	20.080 ^b
<u>Exports</u>	12.582	14.999	5.233	1.115	3.704 ^c						4.0 ^b				
<u>Maïs-Maize</u>															
<u>Imports</u>						1.5			35.5 ^a	24.000	4.930	.118	49.003	67.667 ^b	

SOURCES: Kansas State University Food and Grain Institute, A Study and Plan for Regional Grain Stabilisation in West Africa, 1970.
 Direction Nationale de la Statistique du Mali.
 Warda, Rice Statistics Yearbook, 1975.

C. An Attempt to Interpret Marketing Policy

The objectives of the marketing policy are:

- to increase market efficiency,
- to facilitate marketing in order to encourage the purchase of farm inputs and of consumer goods,
- to protect farmers against monopolies and monopsonies,
- to provide for distribution to urban centers and deficit zones,
- to maintain low consumer prices compatible with the income policy,¹
- to obtain government revenues.

1. The Objective of Increasing Market Efficiency

What is meant by the efficiency of a method, a structure, or a system is its "capacity to produce the maximum results with the minimum effort and expense."²

Mobilization of the entire administrative structure seems to indicate that the objective has not been reached. Cereals marketing, mainly that of millet, sorghum and maize, is divided between two channels: One free and one official. As a result of the particular sensitivity of the issue of cereals, the interests defended by consumer and producers alike are such that much remains to be done to achieve the objective of efficiency. An analysis

¹"Per capita income will reach 38,000 MF in 1978, compared to 29,500 MF in 1972. This average income is still low. It fails to reflect the disparity in incomes between urban and rural populations, whose consumption patterns are profoundly different. In the absence of any information on incomes and their distribution, it is impossible to define a clear policy." Plan, 1974-78, p. 26.

²This is the definition of efficiency found in the Petit Robert Dictionary.

of marketing over the past ten years will reveal that this is the case.

It can be argued, however, that however important socio-political factors may be, the lack of organization of the marketing agents has been the determining one. Because confusion surrounds the notion of "traditional marketing" of cereals and is even extended to private trade as a whole, the simple play of supply and demand have been distorted. The confusion is over the nature and role of private traders. Repressive measures inhibit the rendering of an important service. At the same time the state structure is unable to take the place of the private one, which has not been weakened but which has simply changed its methods. From the initial situation with a single market, a duality has been created where the rules of the game are not clear. The Plan reserved a significant place for the free market whereas other official documents give the state structure a monopoly.

a. The Consequences:

i. At the Producer Level

Marketing of crops brings several actors onto the rural stage. Their very number does not make it easier for the farmers who are obliged to offer their crops on several different markets if they are in a multi-crop zone.

Furthermore, in a normal year, i.e. when there is a significant supply, its absorption poses problems. There are several reasons for the fact that the market is not cleared.

-the inability of the state structure to make large purchases over a long period,

- the "quota" system,
- the lack of financial capacity of OPAM and the cooperatives,
- limitation of access to the cereals market for private traders who, therefore, use every legal and illegal means to purchase what they want.

The transactions that do take place involve quantities smaller than those required if farmers are to reach their initial objectives. As OACV has remarked, "The official millet price is 32 MF/kg. However, from November to August 1975, millet was being sold everywhere for between 20 and 25 MF/kg. In certain administrative districts and at certain times, it is incontestable that a significant portion of the supply offered for sale went unsold...As a result of the opposition of OPAM, of the cooperative organization, and of ORSP, OACV has been unable to take charge of cereals marketing in its zone."¹

Occasionally, it is storage capacity that limits the volume of purchases.

ii. At the Consumer Level

Depending on where he lives and on his financial capacity, the consumer has a choice between the two markets. But those who are in large urban centers in cereals-deficit zones are penalized by the fact that the cooperatives have financial difficulties and no longer receive their quota from OPAM. These consumers do not benefit from the guaranteed price and are obliged to make their purchases on the free market.

¹OACV 1974-75 Report, p.83.

2. The Objective of Facilitating Marketing to Encourage the Purchase of Farm Inputs and Consumer Goods

This idea appears only when one reads between the lines of official documents. Nor does observation reveal much evidence of a connection between marketing and input or consumer good purchases. At the present time the organizations geared for agricultural production, i.e. the rice, millet, groundnut and cotton Operations, act as the suppliers of rural areas. Among the different Operations, those which are based on crops with guaranteed outlets, such as groundnuts and cotton, distribute almost all equipment in their zone.¹ Nonetheless, despite their buying power, CMDT and OACV purchase hardly any cereals. The connection has not been made. It is the same situation in the countryside with regard to consumer goods. The SOMIEX network and the consumer goods cooperatives are primarily active in the towns.²

3. The Objective of Protecting Farmers Against Monopolies and Monopsonies

A monopolistic system is "a system which takes an enterprise or a category of enterprises out of a freely competitive system by allowing them to become masters of market supply." The contrary situation where a group becomes master of market demand is called monopsony.

Protecting the farmer probably means controlling him in the act of making exchange with other socio-economic partners. Malian economic legislation calls for a protective system for farmers who are organized in producer cooperatives, cooperative federations,

¹See the paragraph on farm inputs.

²See the paragraph on the supply of consumer goods.

and so forth. But farmers have no direct influence on supply when dealing with the official market. Determining a quota and setting a purchase price leave only a passive role for the farmer. The state monopsony is created through the support of the government.

In a normal year (1974-75, 1975-76) the monopsony penalizes the cereals producer. In effect, significant quantities remain in the production zones. A substantial part of supply is not absorbed by the market. The shipment of surpluses over medium and long distance is hindered by economic legislation. In zones that are isolated, far from the demand of urban centers, prices fall on the one hand and on the other the free market does not absorb excess supply because of the risks encountered.

It will be necessary to wait for the active participation of farmers in the management of their cooperatives (a process that has been started with regard to groundnuts in the OACV zone) before one can hope to see the cereals producers protected. As long as the differences between official and free-market prices remain substantial, the government network will not be able to give consumers the guarantee of official prices.

Furthermore, present economic legislation hampers the flow to market of significant quantities of cereals. An unhindered flow would have helped to lower free-market prices, a tendency that has been observed on the markets of other Regional capitals--e.g. Ségou and Mopti.

4. The Objective of Providing for Distribution to Urban Centers and Deficit Zones

This is certainly the most clearly defined objective. In

order to attain it, substantial material means have been employed and the government has provided constant support. Cereals movements and the construction of storage centers attest to the effort employed. The network of urban consumer cooperatives is further evidence of this policy, as is the existence of OPAM sales outlets: 19 in Bamako alone, others in Bourem and Gao.

5. Stabilization Efforts

a. Actions and Effectiveness of Public Agencies Concerned with Prices

The price of cereals is set by decree. OPAM has no influence, no ability to impose its opinion at the point when the cereals price schedules (barèmes) are established. The role of the Price Regulation and Surveillance Office (ORSP) seems to be dominant. This bureau, which may be assimilated with a price equalization agency, virtually imposes its will when cereals price schedules are prepared. In higher government and political circles the criterion which appears to carry most weight is the level of urban salaries. Price levels are set within the framework of an income policy which most resembles a salaries policy (or one of the general equalization of salaries in the state- and state-controlled sectors). OPAM has no control whatsoever over the level of cereals prices.

b. Seasonal Fluctuations

Because of the responsiveness of cereals markets, a fact which has led government authorities to intervene, price stabilization remains a permanent objective at any period. It is an economic policy objective. The level of cereals prices in urban centers has risen much more rapidly than the salary level. The discrepancies

between the guaranteed consumer price and market prices grow larger. A "long period of normality" will be necessary before the price of millet/sorghum begins to dip as the result of a substantial surplus. Stabilization efforts remain in a state of potentiality. In no fashion has the official market distributed available quantities of cereals in such a way as to bring prices down, particularly in the zones classified as being in deficit.

Official stabilization efforts are stymied by the rigidity of official prices. Stabilizing through a real mastery of purchasing and distribution channels remains to be achieved.

The rigidities emphasized are institutional in character. Market enlargement, improvement in management by the government network, and especially access to decision-making on the part of farmers remain the preconditions for the establishment of a courageous stabilization policy.

6. Partial Conclusion

a. The Behavior of the State Agencies When Supply and Demand Fluctuate

Hypothesis 1: Situation where the producer price on the free market is low. (OP = official price; MP = market price).

In this case, farmers who have met their quota retain a surplus. The difference in prices (OP - MP) is foregone income for the farmer resulting from the paucity of resources available to the government network or often from its lack of storage capacity.

Hypothesis 2: Situation where the official price is below the market price.

In this case, private traders will tend to intervene. At the beginning of the marketing season they will offer a price that is

clearly higher than the official price. To respond to this situation OPAM will rely more on government authority to assist it. Only a few bold farmers will be able to get the difference between the market price and the official price (MP - OP).

This rigid attitude of the state network conforms with one of the marketing policy objectives of the government, which is to maintain low consumer prices compatible with the incomes policy. Observation of gross margins on the free market and the fact that this market covers more than 50% of all cereals sales would seem to indicate that the OPAM-cooperatives network is unable to attain the object it has been given.¹

The observed difference between consumer prices in the two marketing channels remains substantial.²

¹In the last two marketing seasons, 1974-75 and 1975-76, it was noted that certain Operations halted their buying campaigns: OACV, Rice Mopti and Rice Segou.

²If one takes as an example the city of Bamako where price fluctuations have been observed for a long time and where OPAM has substantial stocks of cereals and sales outlets, the reaction of OPAM and of the cooperative organization is timid. Their capacity to lower the price by offering greater quantities seems to be very feeble.

V. STORAGE

A. Current Situation

Among the expected results of the 1974-78 Plan, one finds the following under the heading of "Establishment of a Security Stock and Distribution to Towns and Deficit Zones."

The amount available for marketing is not entirely consumed. In effect, a certain portion is set aside each year to be stored. This portion is roughly equal to 10% of the needs of national trade, or about 14,000 metric tons of millet and 5,000 tons of rice. At the end of the Plan period a security reserve of 68,000 tons of millet and 27,000 tons of rice will have been established. It should be noted that 80% of this ¹ reserve is set aside by OPAM and 20% by individuals.

The objective of creating this stock of 95,000 tons will apparently not be reached as a result of prior circumstances due to the drought. The establishment of the stock should have taken place as follows.

Table XXIV. Projected Creation of a Security Stock (in 1000 metric tons)

	<u>197</u>	<u>'75</u>	<u>1975/76</u>	<u>1976/77</u>	<u>1977/78</u>	<u>1978/79</u>
Millet	10		20	30	40	50
Rice	<u>4</u>		<u>8</u>	<u>12</u>	<u>16</u>	<u>20</u>
Total	14		28	42	56	70

SOURCE: Plan, p. 55

The financial cost by product was 40 MF/kg for millet and 90 MF/kg for rice. This cost includes purchase price, marketing and transportation costs. Additional storage capacity required is 35,000 square meters, with a construction cost of 25,000 MF per square meter.

¹ République du Mali, Direction Générale du Plan et de la Statistique, Plan Quinquennal de Développement Economique et Social, 1974-1978, p. 44.

The current situation is that the projections of the Plan have been clearly exceeded. The combination of two good years for cereals and the late arrival of certain import orders has created an expansion of stocks to more than 60,000 metric tons in 1974/75 and to 70,000 tons in 1975/76. The latter tonnage is the amount expected at the end of the Plan period. By administrative Region and by nature of storage, capacity has been as follows.

Table XXV. Storage Capacity (in metric tons)

<u>Region</u>	<u>Warehouses</u>		<u>Silos</u>		<u>Total capacity</u>
	<u>number</u>	<u>capacity</u>	<u>number</u>	<u>capacity</u>	
Kayes .	7	7,300	6	3,000	10,000
Bamako	27	27,900	22	12,100	40,000
Sikasso	4	8,800	-	-	8,800
Segou	5	27,600	-	-	27,600
Mopti	29	27,600	16	8,800	36,400
Gao	<u>15</u>	<u>18,070</u>	<u>6</u>	<u>3,300</u>	<u>21,370</u>
Total ^a	90	103,722	50	27,500	131,222

^aFigures reproduced as received despite discrepancies.

SOURCE: OPAM

Note: see appendix for the distribution of this capacity by administrative Region and by Cercle.

B. The New Program

The initial program contained in the Plan was completely changed. The new storage policy distinguishes several kinds of stocks with a dominant place given to rice in comparison with millet/sorghum/maize and with new sites for storage centers. The new program can be summarized as follows:

Table XXVI. Storage Program Stocks

	<u>Maximum Stock</u> <u>(metric tons)</u>	<u>Average Stock/year</u> <u>(metric tons)</u>
Consumption stock	80,765	60,574
Buffer stock (Cercle)	16,145	16,145
Buffer stock (Region)	19,390	19,390
Annual reserve stock	15,000	15,000
Security stock	<u>70,000</u>	<u>70,000</u>
	201,300	181,109

The maximum stock is composed of cereals as follows:

	<u>Rice</u>	<u>Millet/Sorghum</u>	<u>Total</u>
Consumption stock	20,000	60,765	80,765
Buffer stock (Cercle)	10,000	6,145	16,145
Buffer stock (Region)	11,000	8,590	19,590
Annual reserve stock	9,000	6,000	15,000
Security stock	<u>50,000</u>	<u>20,000</u>	<u>70,000</u>
	100,000	101,300	201,300

The total amount of cereals to be stored will require virtually permanent financing.¹

The Commission uses these words to justify the primacy given to rice in the composition of stocks:

"Preference will be given to rice, which appears to be easier and more profitable to export, even after being stored for as long as two years."

The size of the storage program and the primacy of rice raise some questions:

¹Report of the Reorganization Commission, p. 30.

1. The Size of the Program

The Plan's objective was 70,000 metric tons. The current program is for 200,000 tons, half of which would be rice. Despite the distinction made between consumption stocks and security or year-to-year stocks, it seems that the management of such a large volume would encounter difficult rotation problems. Management assumes an export outlet, but we have seen that this path is not all that easy to follow. Besides, financing will have to come from outside. There is also the fact that recent experience leads one to expect significant loss from contamination. The treatment of stocks against pests seems to have been ignored; in any case the program description is silent on the point.

2. The Primacy of Rice in Stock Composition

The operation calls for the establishment of a stock of 50,000 to 100,000 tons of rice, which would be equivalent to a marketed volume of 80,000 to 170,000 tons of paddy. This would represent one-third to two-thirds of the total annual production. The storage program would thus require considerable improvements in the rice production system, particularly in the control of irrigation in the Segou and Mopti rice fields. Furthermore, the marketing operation would have to be much more dynamic.

More analysis is required of the hypothesis that consumption habits will change significantly toward rice and away from millet/sorghum. It is unlikely that the situation depicted in the next table will undergo much modification.

Table XXVII. Per Capita Rice Consumption (kg per year)

1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974
20.6	19.2	22.9	19.4	17.2	18.0	16.8	18.1	18.2	19.1	20.3	21.5	17.7	20.7

Five-year Averages

<u>1960-64</u>	<u>1965-69</u>	<u>1970-74</u>
20.5	17.7	19.9

SOURCE: WARDA estimates

C. Village Stocks

Official documents and other sources have given little attention to private storage and to village storage in particular. Actually, rather efficient storage methods can be found in different areas of Mali. We will look at two examples:

1. Central Mali, near Ségou

Food grains are stored in bulk in granaries for a period of nine months. The amount stored per family varies according to family size between 500 and 2,000 kg. The stock is renewed annually. The type of management of the stock varies as well. Granaries, belonging to an extended family community and managed by the head of the community, coexist with those belonging to a single household within the community. The latter type is becoming more popular.

2. Dogon Plateau-Séno Plain

Millet is stored on the ear. Different sources have estimated that the storage period is from two to three years. Capacity depends on family size and varies between two and ten tons. One-half of the

amount stored is renewed every year or 18 months. According to technicians and anthropologists, storage conditions are satisfactory and there are few losses.

It would be desirable to use these storage methods as the basis for allowing farmers to establish multi-year stocks, accepting them as active participants who have direct access to markets. It would facilitate the creation of a permanent supply of cereals and open up possibilities for a dynamic export policy if storage at the farmer level could be mastered. By associating individual farmers or cooperative groups with the establishment of stocks, the new system of storage which covers the entire country would certainly be made more effective. How association would actually work remains to be determined. The weakness of the present cooperative groups does not in any case permit much optimism.

D. Losses

The facilities used to store food grains run the gamut from simple shelters to warehouses of all kinds. Often they are inadequate. As a result of humidity and poor ventilation, storehouses breed contamination by weevils, rats and other pests. Use of contaminated sacks makes matters even worse. The Commission for the Reorganization of OPAM estimated recent losses of food grains at one billion MF. Furthermore, these stocks are not treated in any way (see Appendix).

Appendix 1

Various Government Documents

- A. Compte Rendu de la Réunion Préliminaire d'Organisation de la Campagne, 1976-1977
- B. Note Technique Relative au Projet de l'Infrastructure de Commercialisation et de Stockage des Céréales...
- C. Décret: Portant Organisation de la Campagne Céréalière
- D. Barème Opération Riz - Mopti
- E. Barème Opération Riz - Ségou
- F. Barème: Mil Mais
- G. Barème Riz Office du Niger

MINISTRE des FINANCES

et du COMMERCE

DIRECTION NATIONALE des

AFFAIRES ECONOMIQUE

COMMERCE INTERIEUR

REPUBLIQUE du MALI

"UN PEUPLE - UN BUT - UNE FOI"

COMPTE RENDU de la REUNION PRELIMINAIRE d'ORGANISATION de la CAMPAGNE

1 9 7 6 - 1 9 7 7

Le Mardi 15 Juin 1976, a débuté à la Chambre de Commerce et d'Industrie de BAMAKO, la réunion Préliminaire d'Organisation de la Campagne 1976/1977.

Ont participé à cette réunion les organisations suivantes:

- le Chef de Cabinet du M.F.C. -PRESIDENT
- le Directeur O.R.S.P.
- le Directeur Adjoint O.R.S.P.
- le Chef du Commerce Intérieur
- l'Adjoint au Chef du Service du Commerce Extérieur
- C.M.D.T.
- la Direction des Nouvelles Affaires Economiques
- C.M.T.R.
- S.O.M.A.S.A.C.
- U.N.C.T.R.
- O.P.A.M. (le Directeur Général, le Directeur Général Adjoint,
l'Inspecteur Général Itinérant, le Directeur Financier,
l'Inspecteur Itinérant, l'Inspecteur Régional)

- la Direction de l'Agriculture
- l'Opération Vallée du Sénégal Térékolé-Magui
- l'Opération RIZ Ségou
- l'Opération de la Haute-Vallée
- la S.O.M.I.E.X.
- le Chemin de fer du Mali
- l'Office National des Transports (O.N.T.)
- le Directeur de l'Opération du Développement intégré Baguinéda
- S.C.A.E.R.
- l'Opération Riz Mopti
- le Directeur Général de l'Office du Niger
- le Chef du Service Commercial de l'Office du Niger
- le Directeur Général O.A.C.V.
- la Direction O.A.C.V.
- B.D.M.
- le Directeur des Ponts et Chaussées
- le Directeur Opération Mil Mopti
- la Ferme Semencière Samé
- la Direction Nationale de l'Agriculture
- S.E.P.O.M. Koulikoro
- la Chambre de Commerce et d'Industrie de Bamako
- la Coopération

Les points retenus à l'ordre du jour ont été les suivants:

- 1^o/ - Analyse critique et résultats définitifs de la Campagne 1975/1976
- Prévisions de production et de commercialisation 1976/1977

2°/ - Besoins en sacherie

3°/ - Inventaire des moyens de transports, programme des évacuations

4°/ - Barèmes des prix

S.Gta
OFFICE DES PRODUITS
AGRICILES DU MALI

REPUBLIQUE DU MALI
Un Peuple Un But Une Foi

B A M A K O

N° 202 /OPAM

NOTE TECHNIQUE RELATIVE AU PROJET DE L'INFRA-
STRUCTURE DE COMMERCIALISATION ET DE STOCKAGE DES
CEREALES A L'INTENTION DU MINISTRE DU DEVELOPPEMENT
RURAL POUR LE CONSEIL DES MINISTRES DU C.I.L.S.S.

(Référence Lettre n°0560 MD du 24-4-1976)

A - Dans ce domaine, l'O.P.A.M. estime qu'il est indispensable d'implanter des magasins dans les zones de production, au niveau des Arrondissements importants et ceux d'accès difficile, des cercles et Régions...

La capacité de ces magasins peut être située entre 200 et 1.000 Tonnes suivant les possibilités de commercialisation, d'évacuation vers les centres de stockage et des besoins d'autoconsommation.

Le principal avantage d'une telle infrastructure est la protection des stocks contre les intempéries dès la collecte.

Pour assurer un ravitaillement correct des populations, il serait également nécessaire de doter les Arrondissements les plus déshérités des zones déficitaires de magasins confortables pour abriter les stocks de consommation.

Ces points sont généralement situés dans le Nord du Pays et souvent isolés en raison des distances qui les séparent des centres auxquels ils sont rattachés.

Dans ce contexte, l'O.P.A.M. élabore un tableau joint conforme à ses besoins en général.

Compte tenu des urgences, l'O.P.A.M. désire voir se réaliser dans l'immédiat, les magasins énumérés ci-dessous par cercle et Région, les devis Techniques seront communiqués ultérieurement.

NOTA: Dans le cadre du stockage prolongé et de la conservation des stocks de sécurité, la construction de silos en béton doit faire l'objet d'une étude spéciale.

Il serait donc nécessaire dans ce cas de prévoir 2 silos de 5.000 T par chef lieu de Région.

Si cette solution est maintenue, les capacités énumérées ci-dessus au niveau des Régions viendraient en déduction de celles proposées au niveau Régional.

		Surface	Prix	TOTAL
			m 2	
<u>REGION DE KAYES:</u>				
- Cercle de Kayes	1 de 5.000 T	2.500 m2	50.000	125.000.000
- "- de Kita	1 de 5.000 T	2.500 m2	50.000	125.000.000
			Total..=	250.000.000
<u>REGION DE BAMAKO:</u>				
- Cercle de Bamako	1 de 5.000 T	2.500 m2	46.000	115.000.000
- "- de Dioïla	1 de 2.000 T	1.000 m2	26.000	46.000.000
			Total..=	161.000.000
<u>REGION DE SIKASSO:</u>				
- Cercle de Sikasso	1 de 5.000 T	2.500 m2	52.000	130.000.000
- "- de Koutiala	1 de 5.000 T	2.500 m2	52.000	130.000.000
- "- de Bougouni	1 de 2.000 T	1.000 m2	52.000	52.000.000
			Total..=	312.000.000
<u>REGION DE SEGOU:</u>				
- Cercle de San	1 de 5.000 T	2.500 m2	48.000	120.000.000
- "- de Ségou	1 de 10.000T	5.000 m2	48.000	240.000.000
			Total..=	360.000.000
<u>REGION DE MOPTI:</u>				
- Cercle de Sévaré	1 de 5.000 T	2.500 m2	56.000	140.000.000
- "- de Bankass	1 de 2.000 T	1.000 m2	56.000	56.000.000
- "- de Koro	1 de 2.000 T	1.000 m2	56.000	56.000.000
- "- de Djénné	1 de 2.000 T	1.000 m2	56.000	56.000.000
			Total..=	308.000.000
<u>REGION DE GAO:</u>				
- Cercle de Gao	1 de 5.000 T	2.500 m2	64.000	160.000.000
- "- de Bourem	1 de 3.000 T	1.500 m2	64.000	96.000.000
- "- de Tombouctou	1 de 5.000 T	2.500 m2	64.000	160.000.000
			Total..=	416.000.000

RECAPITULATION

I	Kayes.....	250.000.000
II	Bamako.....	161.000.000
III	Sikasso.....	312.000.000
IV	Ségou.....	360.000.000
V	Mopti.....	308.000.000
VI	Gao.....	416.000.000

Total Général. = 1.807.000.000

B - TRANSPORT DES CEREALES

Il a été constaté, depuis plusieurs années, qu'en raison de la pénurie de plus en plus aiguë des moyens de transport et du coût élevé de la T.K., que la réduction du prix de revient des céréales ne peut être obtenue qu'à la condition de doter l'O.P.A.M. d'un parc automobile lui permettant de faire face non seulement aux problèmes de collecte et de ramassage, mais aussi à celui de l'évacuation des stocks constitués au niveau des cercles producteurs vers les centres de consommation ...

Une telle conception du problème O.P.A.M. permettra, si elle est réalisée, d'évacuer à peu de frais les céréales des points d'achat à destination des magasins de stockage et d'assurer régulièrement en toutes saisons le ravitaillement des populations des centres et des Régions déficitaires de Kayes, Bamako mais particulièrement de la Région de Gao.

<u>Affectation</u>	<u>Véhicules à deux ponts</u>	
	<u>10 Tonnes -</u>	<u>30 Tonnes</u>
BAMAKO.....	16	10
KAYES.....	3	-
SIKASSO.....	10	-
SEGOU.....	15	-
MOPTI.....	10	-
GAO.....	3	-
TOMBOUCTOU.....	3	-
Total.....	60	10

BAMAKO, LE 14 MAI 1976
LE DIRECTEUR GENERAL
de l'O.P.A.M.

EL HADJ THIEMOKO COULIBALY

AMPLIATIONS:

M.F.C. " PCR 2 pjttes "
M.A. SOW 'Pour info -"- "

O/D
 PRESIDENCE DU GOUVERNEMENT

 SECRETARIAT GENERAL DU GOU-
 VERNEMENT

REPUBLIQUE DU MALI
 UN PEUPLE - UN BUT - UNE FOI

D E C R E T N^o 176 /PG-RM

Portant organisation de la Campagne Céréalière 1976/77

LE PRESIDENT DU GOUVERNEMENT DE LA REPUBLIQUE DU MALI,

VU la Constitution du 2 Juin 1974 de la République du Mali ;
 VU le Décret n^o224/PG-RM du 6 Juin 1961, portant réglementation des Prix en République du Mali ;
 VU le Décret n^o66/PG-RM du 2 Mars 1962 réglementant le conditionnement des Produits du Mali ;
 VU le Décret n^o190/PG-RM du 4 Novembre 1969 définissant les Régimes de commercialisation des Produits ;
 VU le Décret n^o157/PG-RM du 25 Septembre 1975, portant remaniement ministériel ;

STATUANT EN CONSEIL DES MINISTRES :

D E C R E T E :

ARTICLE 1er.- La date d'ouverture de la Campagne de Commercialisation des céréales 1976/1977 est fixée au 1er Novembre 1976 ;

ARTICLE 2.- Les achats seront effectués exclusivement par l'OPAM avec le concours des Groupements Ruraux et Fédérations Primaires, sous le contrôle des Autorités Administratives. Toutefois, les Opérations Spécialisées pourront commercialiser dans leurs zones d'intervention sur la base du barème OPAM.

- Les stocks seront rendus aux Chefs-lieux d'arrondissement et resteront propriété de l'OPAM.

Toutefois, les Opérations Mil commercialiseront pour le compte de l'OPAM dans leurs zones d'intervention : KORO, BANKASS et KAARTA.

ARTICLE 3.- Les frais de transport des stocks commercialisés, des Chefs-Lieux de Cercles aux centres de consommation sont à la charge de l'OPAM.

ARTICLE 4.- L'exportation du Riz, du Mil, du Maïs et du Blé relève du monopole exclusif de l'OPAM.

ARTICLE 5.- Les prix d'achat des céréales au producteur sont uniformément fixés comme suit sur toute l'étendue de la République :

-Mil :.....	32,00	francs le kilo
-Maïs :.....	32,00	francs le kilo
-Blé :.....	55,00	" "
-Paddy blanc :.....	40,00	" "
-Paddy mélangé :.....	31,20	" "
-Paddy rouge :.....	22,40	" "

ARTICLE 6.- Le Paddy est considéré comme mélangé dans la limite de 50% de Paddy rouge. Au delà de ce taux, il sera classé comme Paddy rouge et payé comme tel.

Les Prix de retrocession du Paddy dans les centres producteurs sont fixés comme suit:

Dans les autres localités non productrices de Paddy ces prix seront majorés des frais d'approche calculés selon les barèmes officiels sur l'itinéraire et par le mode de transport le plus avantageux.

ARTICLE 7.- Le prix à la production du riz pilonné est fixé comme suit sur toute l'étendue du Territoire de la République du Mali :

-Riz pilonné blanc :..... 88,50 frc le kilo
-Riz pilonné mélangé :..... 73,50 " "
-Riz pilonné rouge :..... 58,50 " "

ARTICLE 8.- La marge de commercialisation des points d'achat jusqu'au niveau des centres de stockage au Chef-Lieux d'arrondissement est uniformément fixée à 2.786 frcs par tonne pour toutes les céréales des circuits OPAM.

ARTICLE 9.- Les prix de rétrocession du Mil et du Maïs aux organismes de distribution et les prix de vente au consommateur sont fixés comme suit sur l'étendue du Territoire de la République du Mali.

-Prix de rétrocession :.....50 Frc le kilo
-Prix de vente au détail :.....51,50 Frc le kilo

ARTICLE 10.- Les Prix de cession, de rétrocession et de vente au consommateur du blé dans les centres de Diré et Goundam sont fixés comme suit:

-Prix de cession..... = 60,05 frcs le kilo
-Prix de rétrocession..... = 69,50 frcs le kilo
-Prix au consommateur..... = 71 frcs le kilo

Dans les autres localités de la République, ces prix seront majorés des frais d'approche calculés aux tarifs officiels, sur l'itinéraire et par le mode de transport les plus avantageux.

ARTICLE 11.- Le prix de rétrocession aux Organismes de distribution et le prix de vente au Consommateur des différentes qualités de Riz sont fixés tels qu'ils figurent au Tableau ci-après sur toute l'étendue du Territoire de la République du Mali.

RIZ OFFICE DU NIGER ET RIZ OPAM

<u>QUALITES</u>	<u>PRIX DE CESSION</u> (F. M.)	<u>PRIX DE RETROCESSION</u> (F. M.)	<u>PRIX DETAIL (F. M.)</u>
-ELB :.....	110,50	122	123,50
-R.M. 25 :.....	102,60	114,10	115,60
-R.M. 40 :.....	98,50	110	111,50
-BB :.....	80	91,50	93

RIZ O P A M (R.M. 40) NON LOGE

<u>PRIX DE RETROCESSION :</u>	<u>PRIX DETAIL</u>
- le kilo :.....110	111,50

ARTICLE 12.- Les barèmes de prix annexés au présent Décret sont adoptés.

ARTICLE 13.- Les infractions aux dispositions du présent Décret sont passibles des sanctions.

ARTICLE 14.- Toutes dispositions antérieures contraires sont abrogées.

ARTICLE 15.- Le Ministre des Finances et du Commerce, le Ministre de la Défense, de l'Intérieur et de la Sécurité, le Ministre du Développement Rural et le Ministre des Transports et des Travaux Publics sont chargés, chacun en ce qui le concerne, de l'application du présent décret qui sera enregistré, publié au Journal Officiel de la République du Mali./-

KOULOURA, le 20 AOUT 1976

LE MINISTRE DES FINANCES
ET DU COMMERCE, P.I.

LE PRESIDENT DU GOUVERNEMENT

COLONEL MOUSSA TRAORE.-

LE LIEUTENANT COLONEL KISSIMA DOUKARA.-

LE MINISTRE DE LA DEFENSE DE
L'INTERIEUR ET DE LA SECURITE

LE MINISTRE DU DEVELOPPEMENT RURAL

SORY COULIBALY.-

LE LIEUTENANT COLONEL KISSIMA DOUKARA.-

LE MINISTRE DES TRANSPORTS
ET DES TRAVAUX PUBLICS

LIEUTENANT COLONEL KARIM DEMBELE.-

BAREME OPERATION RIZ - MOPTI

CAMPAGNE 1976 - 77

PREVISION - 8.000 TONNES

	PADDY BLANC	PADDY MELANGE	PADDY ROUGE
1 - Prix au Producteur :	40.000	31.200	22.400
2 - Déchets d'essiccation 5% :	2.000	1.560	1.120
3 - Frais de collecte et de marché : ...	2.475	2.475	2.475
4 - Frais de ramassage 62 x 65 :	4.030	4.030	4.030
5 - Frais d'encadrement :	PM	PM	PM
6 - <u>PRIX DE REVIENT PADDY RENDU USINE</u> •	48.505	39.265	30.025
7 - Valeur riz rendement 62% :	78.233	63.330	48.427
8 - Frais d'usinage :	8.695	8.695	8.695
9 - Prix de cession nu :	86.920	72.025	57.122
10 - Usuresacherie paddy $\frac{660 \times 16 \times 62\%}{2}$:	8.516	8.516	8.516
11 - Sacherie B'Twill $\frac{558 \times 10}{2} =$	2.790	2.790	2.790
12 - Prix de revient riz logé :	98.234	83.331	68.428
13 - Frais financiers 5% sur 12 mois : ...	5.486	4.628	3.772
14 - Transport pondérés :	6.000	6.000	6.000
15 - Taxe O.P.A.M. :	5.000	5.000	5.000
16 - Marge détail :	1.500	1.500	1.500
17 - PRIX CONSOMMATEUR :	116.220	100.459	84.700
18 - Soutien O.S.P. :	620		
19 - Prix au consommateur :	115.600	100.500	84.700

BAREM OPERATION RIZ - SEGOU

PREVISION - 20.000 t Paddy

DESIGNATION DES POSTES	VALEUR
1 - Prix au Producteur :	40.000
2 - Déchet dessiccation 2 % :	800
3 - Frais de collecte et de marché :	3.131
4 - Frais de ramassage 15 x 65 = :	975
5 - Frais d'encadrement :	4.300
6 - Prix de cession OPAM :	49.206
7 - Usure sacherie $\frac{558 \times 10}{2}$ = :	2.790
8 - Prix de revient Paddy OPAM (1) :	51.996

(1) - Sans frais d'encadrement ce poste est de 47.696

MINISTRE DES FINANCES
ET DU COMMERCE

REPUBLIQUE DU MALI
UN PEUPLE - UN BUT - UNE FOI

CAMPAGNE 1976/77

BAREME : MIL MAIS

PREVISIONS : - 60.000 T

DESIGNATION DES CHARGES	VALEUR
1 Prix au producteur :	32.000
2 Frais de collecte :(1)	2.786
3 Prix de cession OPAM chef-lieu d'Arrondissement/.	34.786
4 Frais de ramassage :(2)	3.000
5 Prix de revient chef-lieu de cercle :(3)	37.786
6 Déchet 2,50 % :	800
7 Sacherie B'TWIL :	(.PM.)
8 Frais bancaires :	2.172
9 Taxe O P A M :	5.000
10 Frais de transport pondéré :	4.000
11 Prix de rétrocession :	49.758
Arrondi le kg :	50 f
12 Marge détail :	1,50 f
13 Prix unique au consommateur le kg :	51,50 f

(1) Manutention ensachage : 486

 Transport village arrondissement 50 km..... 2.000

 Chargement et déchargement : 300

(2) Transport chef-lieu d'arrondissement chef-lieu cercle 75 km

(3) pour les arrondissements centraux ce prix est de 34.786

CAMPAGNE 1976 - 77

BAREME RIZ OFFICE DU NIGER

PREVISION-PADDY : 70.000 Tonnes

RIZ USINE : 31.000 Tonne pour 50.000 de Paddy

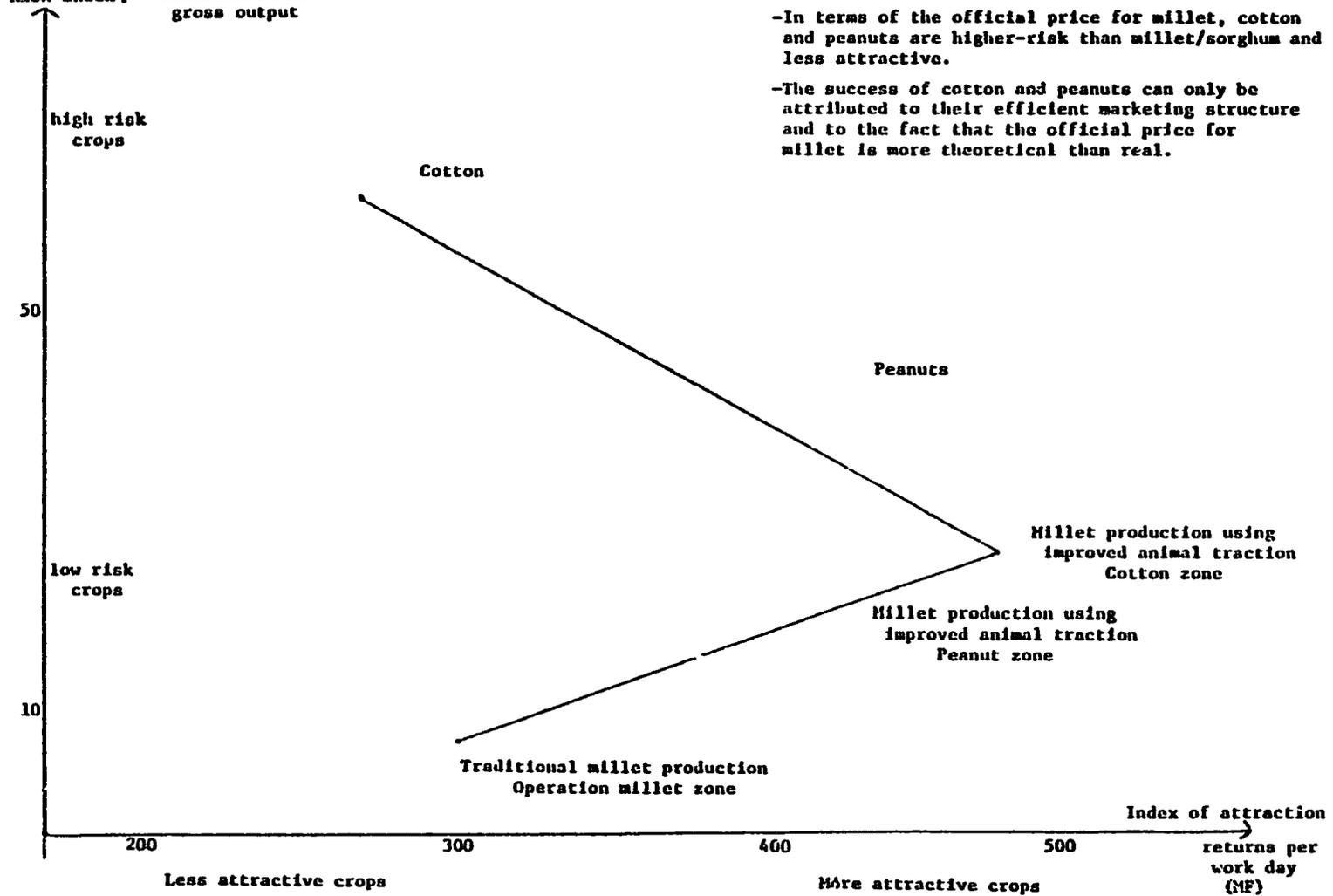
DESIGNATION	DES CHARGES	VALEUR
1	Prix au Producteur :	40.000
2	Dechet déssication 5 % :	2.000
3	Frais de collecte :	4.507
4	Frais financiers :	1.898
5	Sacherie Paddy + ficelles :	3.000
6	Transport et Manutention sur usines :	3.209
7	Participation aux Frais généraux :	6.580
8	Prix de revient Paddy rendu usine :	61.194
	Valeur Riz Rendement 62 % :	98.700
9	Frais d'usinage :	8.695
10	Prix de revient du Riz carreau usine :	107.395
11	Transports et manutention :	3.232
12	<u>Prix de Revient du Riz Qai Ségou</u> :	110.627
13	Prix de cession reconduit :	102.138
14	Soutien O.S.P. sur tonnage livré O.P.A.M. :	8.489

	<u>PRIX CESSION O.N.</u>	<u>PRIX RETROCESSION OPAM</u>	<u>PRIX CONSOMMATION</u>
ELB	110,50	122	123,50
RM 25	102,60	114,10	115,60
RM 40	98,50	110	111,50
B.B.	80	91,50	93

Appendix 2.

Risk-incentive Analysis for Different Interchangeable
Malian Crops

Risk index: $\frac{\text{monetary costs}}{\text{gross output}}$



-In terms of the official price for millet, cotton and peanuts are higher-risk than millet/sorghum and less attractive.

-The success of cotton and peanuts can only be attributed to their efficient marketing structure and to the fact that the official price for millet is more theoretical than real.

SOURCE: S. Michailof

FOOD GRAIN STOCKS

A. Definition and Locality

1. Consumption stock located in the principal town of an Arrondissement.

The purpose of this stock is to meet the annual needs of the non-agricultural population, of certain organizations and of the farm population that has been unable to produce enough. Part of these needs is covered by traditional village trade, and it is only during the so-called "soudure" period just before the new harvest that these stocks become important. For each Region the following amounts require storage.

Table 1. Required Storage, by Region (metric tons)

1st Region (Kayes)	9,105
2nd Region (Bamako)	30,115
3rd Region (Sikasso)	6,730
4th Region (Segou)	4,185
5th Region (Mopti)	5,300
6th Region (Gao)	24,330
Total	<u>79,765</u>

2. Buffer stock located in the principal town of a Cercle.

This stock is in addition to and distinct from the consumption stock of the Cercle's Central Arrondissement. The purpose of this stock is to meet annual unexpected needs of the Arrondissements that make up the Cercle. These needs could arise as the result of a miscalculation of needs or the accidental destruction of a stock. A list of the buffer stocks to be established in the principal towns of Cercles and the amounts of grain needed to meet their respective needs will be found in

Appendix 1-B. Each Region will require the following amounts for buffer stocks.

1st Region (Kayes)	1,820 metric tons
2nd Region (Bamako)	6,030
3rd Region (Sikasso)	1,345
4th Region (Segou)	835
5th Region (Mopti)	1,260
6th Region (Gao)	4,875
Total	<u>16,165 metric tons</u> of which 10,815 are in deficit Cercles

3. Regional buffer stock located in the regional capitals.

This is distinct from the buffer stock for the Cercle in which the Regional capital is located. Its purpose is to meet the annual unforeseen needs of Cercles within the Region. The amounts of cereals required have been estimated as follows.

1st Region (Kayes)	2,185 metric tons
2nd Region (Bamako)	7,230
3rd Region (Sikasso)	1,615
4th Region (Segou)	1,000
5th Region (Mopti)	1,520
6th Region (Gao)	5,840
Total	<u>19,390 metric tons</u> of which 15,255 are in deficit Regions

The totality of these consumption and buffer stocks is supposed to be sold in the course of the year and at the latest by the time of the next

harvest. These are not reserve or security stocks but rather stocks that are turned over each year.

Consumption stocks located in the principal towns of Cercles or in urban centers reach their maximum levels around the month of January and their minimum in September, which corresponds to the end of the soudure period. For financing purposes, their average annual level can be considered to be 75% of the maximum.

The buffer stocks located in the principal towns of Cercles and in Regional capitals are in a way reserve stocks against unforeseen emergencies. In principal, if all goes well and as planned, their levels will hardly vary. Although they are renewed each year, for financial purposes one can consider the buffer stocks to be permanent.

4. Annual reserve stock.

The purpose of this stock is to even out the fluctuations of supply from one year to the next without having to resort to the security stock. Appendix 1-B gives some details on the use, augmentation, establishment and construction of these stocks. The most appropriate locations for these stocks are the following, with the amounts to be stored indicated.

Table 2. Storage Locations

<u>Location</u>	<u>Total Volume (metric tons)</u>	<u>Rice</u>	<u>Millet/ Sorghum</u>
Segou	11,800	9,000	2,800
Koutiala	1,300		1,300
Sikasso	900		900
Bougouni	1,000		1,000
Total	15,000	9,000	6,000

The choice of sites has been made according to the principle of a progressive optimization, minimizing transportation and handling costs and taking into account certain constraints:

- in a normal year the stock would not be used,
- in a slightly deficit year the stock would be drawn down,
- in a year of surplus the stock would be built up.

In calculating the financial cost of carrying this reserve stock, it can be considered to be permanent in nature.

5. Inter-Annual Emergency Stock

Its aim is to ensure the availability of food to populations living in the most vulnerable areas in the event of an important shortfall of production, (50%).

Table 3. Food Supply of Most Vulnerable Areas (tons)

<u>Location</u>	<u>Tonnage</u>	<u>Consumption Area</u>
Gao (6th)	7,000	6th region/Exp. Niger
Tombouctou (6th)	3,000	6th region/Exp. Niger
Mopti (5th)	6,000	6th region (reserve)
San (4th)	4,000	6th region (reserve complem.)
Segou (4th)	39,500	Bamako, 6th region/Exp.
Koutiala (3rd)	2,500	Bamako/Exp. Niger
Kita (1st)	3,000	Kita-Kayes/Exp. Senegal
Kayes (1st)	5,000	Kayes, Yelimane, Nioro/Exp. Senegal
TOTAL	70,000	

The varietal makeup of this cereals stock has not yet been determined. Rice would be preferred because of its easy exportation and because it remains profitable, even after a 2-year storage period.

Because this stock is permanent, its financing must be arranged on a basis of permanent capital as well, 50% of which will be provided by multilateral sources, whereas the remaining 50% will have to be financed from the national budget.

B. Requirements to be Met in Any Case.

1. Knowledge of Stocks.

A quantitative and qualitative inventory of stocks must soon be taken; quantity here seems to be a secondary issue and a quick estimation by volume would suffice, rather than the precise weighing of bags, an overly costly operation.

Indeed, the real issue is to find out whether the stocks are still fit for consumption, for sale, and on what terms. Stocks unfit for consumption must be quickly removed and, in any case, must not take space in the best storage facilities which should be kept vacant for the new harvests.

A central record of existing stocks must be established. This record must be kept up to date with respect to inventory changes as soon as these take place.

2. Elimination of Defective Storage Facilities.

O.P.A.M. reports that, in many cases, the lack of temporary storage facilities leads to a quick deterioration of accumulated resources. It is imperative that such facilities disappear. If the space made available by the removal of deteriorated stocks is not sufficient, new facilities must be sought and provided for adequate storage.

3. Stock Treatment

As of now, stocks are practically untreated and most of them are, therefore, contaminated, particularly by weevils. Moreover, old and new crops are mixed in storage areas, and the latter are thus quickly attacked. In some instances, the great quantity of rodents in OPAM warehouses is becoming a very grave problem.

We have been told that a treatment of the stocks was scheduled for September. The removal of deteriorated stocks must, therefore, take place previous to this operation.

Stock treatment must in the future become customary and be included in planned expenditures.