SOUTHERN AFRICA: FOOD SECURITY POLICY OPTIONS

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MARKET LIBERALIZATION AND FOOD SECURITY IN MALI

J. Dione and J. Staatz [1]

INTRODUCTION

Since 1981 Mali has been fundamentally restructuring its economy, aimed at placing greater reliance on the market as a coordinating mechanism, redefining the state's role in the economy, and stabilising macroeconomic variables such as the balance of payments, the government budget, the rate of inflation, and the growth of national income. This structural adjustment process has involved a broad range of activities, including rewriting of the commercial and fiscal codes. The centerpiece of the reforms has been the liberalization of the cereal markets, under the multi-donor financed Cereal Market Restructuring Project, known by its French acronym, PRMC.

This paper describes the background and goals of the PRMC, evaluates its performance during its first six years, discuss the role of food security research in informing the reform process, and draws implications from the Malian experience for the design of market liberalization and related policy research elsewhere in Africa.

BACKGROUND TO THE PRMC

A short history of agricultural policy in Mali

Mali is among the poorest countries in the world, with a 1985 per capita GNP estimated at US$150 (World Bank, 1987, p. 202). The physical resource base is perhaps the most diverse of any Sahelian country, ranging from the Sahara desert in the north (which covers approximately 65% of the country's total area) to Sudano-Guinean areas in the south receiving over 1,400 mm of rainfall per year. Dryland agriculture and livestock raising employ the bulk of the population. Irrigated farming, flood-recession agriculture, and fishing are important along the country's three major rivers--the Niger, the Bani, and the Senegal.

Approximately 70% of total calories in the Malian diet come from cereals, with millet, maize and sorghum accounting for about 85% of the cereal cal-

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[1]Graduate Research Assistant, Department of Agricultural Economics, Michigan State University and former Director of the CESA-MSU Food Security Research Project in Mali; and Associate Professor, Department of Agricultural Economics, Michigan State University, respectively.

ories. Rice, of which approximately 50% is imported, is produced mainly in government-organized perimeters such as the Office du Niger, and is widely-consumed in urban areas. Cotton (grown in the south) and livestock are the two most important foreign exchange sources. Although in recent years the Malian government and donors have given priority to university training in agriculture and social sciences, trained personnel are extremely scarce, and the quality of statistical data on the rural economy is limited.

The French colonial strategy called for Mali, with its low population density and irrigation potential, to become the breadbasket of French West Africa. Until the mid-1960s Mali was a food exporter, but since that time bad weather and bad policy have slowed agricultural growth. Throughout the 1970s Mali became increasingly dependent on food imports, particularly food aid (MSU-CESA Working Paper, 86-04).

At independence in 1960, Mali opted for a radical socialist development path, aimed at achieving rapid economic transformation through extracting the economic surplus from agriculture for investment in other sectors.[2] The Modibo Keita government (1960 to 1968) adopted central planning and set up a plethora of state enterprises, including state farms, producer cooperatives, and state trading organizations. In 1964 the state created an official grain marketing agency, the Office Malien des Produits Agricoles (OPAM), to replace a similar colonial entity set up in 1958, and granted OPAM a legal monopoly on the grain trade. OPAM sold grain through consumer cooperatives, mainly to government employees. Roadblocks were established to limit illegal grain movement.

The state fixed official consumer and producer prices for cereals, with the stated aim of achieving three seemingly incompatible objectives: increasing rural incomes, providing cheap cereals to the urban areas, and extracting a surplus from agriculture to finance state investment in other sectors. These objectives could be achieved simultaneously only if productivity grew rapidly in the cereal subsector, but lacking basic investment in research and rural infrastructure, no productivity gains were forthcoming. In practice, the goals of providing cheap grain to the cities and extracting a surplus from agriculture dominated, and official producer prices were held low. Because farmers were unwilling to voluntarily sell sufficient grain to the state at these prices, OPAM resorted to forced deliveries and to financing the subsidized consumer price through accumulated deficits.

A military coup in 1968 brought the present government to power. The new leaders abandoned some of the more radical economic initiatives and in

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[2]This paragraph draws heavily on Humphreys, 1986, pp 1-2.

early 1969 abolished OPAM's official monopoly. However, the experiment with liberalization was shortlived, as OPAM accused the private merchants with whom it had contracted for grain of failing to honor their agreements. By the end of 1969, the government reinstated OPAM's legal monopoly, which remained in effect until the PRMC got under way in 1982. In addition, during and shortly after the drought of the late 1960s and early 1970s the government set up, often with strong donor support, numerous integrated rural development organizations. These "Operations de Developpement Rural" (ODRs) and "Actions," were responsible for regional development operations and these ODRs often acted as cereal-marketing agents of OPAM.

Even during the Modibo Keita regime, OPAM's monopoly was more fictional than real. Although private trade was repressed, it continued to operate, and OPAM handled only 20-40% of total grain marketings (Humphreys, 1986, p. 5). Since merely 15% of total production was marketed, only about 3-6% of total production moved through OPAM at official prices. OPAM's share of rice marketings was much higher than its share of coarse grains (millet, maize, and sorghum), as rice was produced largely in irrigation perimeters controlled by the ODRs. The repression of private trade, while not enough to eliminate it, undoubtedly increased transaction costs. Although private trade in cereals remained illegal under the new regime (except for the brief experiment with liberalization in 1969), private trade was tolerated, but the degree of toleration varied depended on market conditions. With the 1971 to 1973 drought, OPAM also became the main distribution channel for food aid in Mali, a role which it has retained.

Pressure for cereal market liberalization

During the drought years of the early 1970s, Mali imported large amounts of grain on both commercial and concessional terms. OPAM was obliged to sell the commercial imports at the low official consumer price, which led to an increasing budget deficit. To stimulate production after the drought, the government raised official producer prices, but without a proportional increase in consumer prices, and forced OPAM to finance the implicit consumer subsidies. As a result of these actions and OPAM's weak financial management, OPAM's cumulative budget deficit reached CFAF 20 billion (US$80 million) by 1976-77, equivalent to three times its annual grain sales (Humphreys, 1986, p. 7).

Donor pressure for cereal market reform built during the late 1970s. Donors were increasingly reluctant to finance OPAM's accumulating deficits due to concerns about OPAM mismanagement (the U.S. cut off food aid to Mali for three years because OPAM was unable to account for previous aid) and the perception that OPAM's official monopoly and the system of official prices acted as major disincentives to domestic grain producers. In 1978,

FAO and the major donors commissioned a study (the de Meel report), the conclusions of which reinforced the donors' concerns and called for a major overhaul of grain-marketing policy in Mali. In response to the de Meel report, the government agreed, in March 1981, to a reform program that aimed at increasing official producer and consumer prices; liberalizing grain trade to include private traders; and improving OPAM's operating efficiency.

The reforms that became embodied in the PRMC were based on the idea of using food aid to finance market reform. In exchange for a series of promised reforms, 10 major donors[3] pledged multi-year shipments of program food aid. This food aid was sold, with the reflow money going into a common fund controlled by the donors. These funds were to be used to finance specific market-restructuring actions agreed to both by the donors (who first had to agree unanimously among themselves on a course of action) and the government. Donor proposals were initially developed by a donor technical committee, debated among the various donors at the political level, and then proposed to the Malian government.

Basic assumptions of the reforms

The PRMC was launched with several preconceptions on the part of both the donors and the government about how the cereal subsector functioned, but with very little empirical information on the structure of production and marketing. For example, in 1981 the only time series on market prices of cereals (as opposed to official prices) that existed was for retail prices in Bamako. Lacking any farm- or rural-market-level price series, it was impossible to have baseline figures against which to measure the impact of liberalization. Furthermore, the initial design of the PRMC made little provision for strengthening the capacity of the government to monitor the impact of the reforms at the farm level, although it did set up a program of monitoring retail prices in the regional capitals.

Five basic assumptions undergirded the initial phase of the PRMC:

- Official producer prices matter. The PRMC program assumed that by raising official producer prices, farm-level incentives to produce cereals would increase. This in turn assumed that official prices were closely related to the prices farmers actually received for their cereals

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[3]The World Food Programme (which acted as the project secretariat), Belgium, Canada, the European Community, France, Great Britain, the Netherlands, the United States, West Germany, and Austria.

(which was true for rice produced in large irrigation perimeters, but much less true for coarse grains), and that farmers made their cereal production decisions primarily based on commercial considerations. It also assumed that if farm prices increased, farmers had the capacity and were willing to expand production in response to those prices.

- o All farmers are net sellers. The PRMC called for higher producer prices to not only increase production but also to raise rural incomes, as the donors argued that previous price policy had taxed rural producers to the benefit of urban consumers. Higher grain prices were seen as uniformly helping all farmers, since all farmers were assumed to be net sellers of cereals.
- o Private traders would quickly seize the opportunities opened up by liberalization. The designers of the PRMC implicitly assumed that the major constraint facing private grain traders was the anti-merchant policies of the state. Once these were lifted, private traders would rush in to fill the vacuum left by OPAM's relinquishing of its official monopoly. This assumed that traders would immediately accept the reforms at face value and, hence, rapidly invest in expanding their operations. It also assumed that traders faced few other constraints in expanding their operations, such as a lack of working capital.
- o OPAM should continue to exist. At no time did anyone seriously suggest abolishing OPAM. The desire to maintain OPAM reflected both the donors' need to have a Malian government institution through which they could channel food aid and recognition of the political necessity of protecting certain of OPAM's privileged clientele, such as the army, from higher grain prices. These factors explain the apparent paradox that most of the actions undertaken during the first phase of the PRMC were aimed at strengthening OPAM, rather than the private sector.
- o Mali would continue to experience cereal deficits. This assumption had two implications: official prices, if not raised, would always lie below market prices and act as a brake on production, and food aid would continue to be an appropriate mechanism to fund the reforms.

The experience of the next 6 years showed that all these assumptions, except that "OPAM should continue to exist", were to some degree incorrect.

IMPLEMENTATION AND ACHIEVEMENTS

To achieve the goals of increasing official producer and consumer prices, liberalizing the grain trade, and improving OPAM's operating efficiency, the government, with donor financing, undertook the following actions during the 6 years from 1981-82 through 1986-87:

Actions with respect to OPAM

The pressures leading to the implementation of the PRMC evolved mainly from the progressively disastrous financial situation of OPAM during the 1970s. It is therefore not surprising that most of the actions of the program aimed explicitly at improving OPAM's operations and its management of food aid, in order to reduce or eliminate its financial losses and the need for heavy government budget subsidies. These actions included:

Structural measures

- o Reduction of personnel to lower payroll costs. The number of permanent employees was reduced by 14.4% between 1981-82 and 1985-86, while temporary employment dropped by 97.8% (Table 1). Paradoxically, the total payroll bill of OPAM increased by 18.1% over this 4-year period, mainly because newly hired staff had a higher level of training.
- o Reduction of the vehicle fleet to minimize fixed costs and contracting with private truckers for most regular transport operations. OPAM's truck fleet decreased by almost two-thirds between 1981-82 and 1985-86 (Table 1), resulting in savings of CFAF 41.7 million (20.5%), on depreciation accounts in 1985-86 compared with 1981-82, in spite of a significant increase in the number of OPAM warehouses and amount of other equipment during this period.

Operational measures

- o Improvement of marketing management. The programme provided and supported two expatriates to develop and assist in implementing improved market information and accounting systems for OPAM.
- o Increased access to funding. Of the CFAF 11.7 billion reflow funds beween 1981-82 and 1985-86, 65% went directly or indirectly to or through OPAM (Table 2). The improvement in financing is reflected in the agency's total level of indebtedness, (including short-term loans for working capital), which fell by 48% in 1985-86 as compared with 1981-82--despite a doubling of the volume of coarse grain it traded (82,000 mt in 1985-86 vs 41,000 mt in 1981-82). The reduced level of

Table 1. Evolution of OPAM's personnel and vehicle fleet, 1981 to 1986, Mali.

	1981-82	1982-83	1983-84	1984-85	1985-86
Personnel					
Total	1869	1015	946	828	755
Permanent	869	819	792	820	744
Temporary	500	196	154	8	11
Number of trucks	64	35	23	23	23
Payroll (CFAF million)	270	285	275	302	319
Depreciation (CFAF million)	200	155	155	157	159
OPAM's coarse grains purchases ('000 mt)	41	41	26	25	82
OPAM's share of coarse grains (%)	18	20	15	18	28

Source: OPAM's Report, national seminar on cereal policy (June 1987).

Table 2: Allocation of PRMC food reflow funds, 1981-87, Mali (CFAF million)

Allocation	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87
OPAM deficit coverage	452.0	195.0	408.0	0.0	0.0	0.0
IPAM (miscellaneous)	0.0	0.0	0.0	0.0	1,161.5	0.0
Public sector imports	0.0	0.0	425.0	1,211.0	0.0	0.0
National security stocks	0.0	0.0	725.0	0.0	0.0	726.0
Price support through OPAM	0.0	0.0	244.2	247.8	2,454.0	0.0
ON / OPAM	0.0	0.0	0.0	0.0	896.0	539.2
ORS & ORM / OPAM	0.0	0.0	0.0	0.0	0.0	600.0
Office du Niger	0.0	0.0	0.0	152.0	0.0	0.0
Price Stabilisation and Regulation Agency (OSRP)	0.0	0.0	0.0	397.0	550.0	0.0
Studies and Consulting	0.0	0.0	0.0	0.0	0.0	0.8
Private Trader Credit	0.0	0.0	0.0	0.0	0.0	500.0
Farmer Coop Credit	0.0	0.0	0.0	0.0	0.0	500.0
Total funds used	**1,095.4**	**2,840.5**	**3,567.3**	**2,607.3**	**1,815.4**	**11925.0**
Total funds available	**452.0**	**195.0**	**1,802.2**	**2,007.8**	**5,061.5**	**2,873.2**
OPAM's debt	**19,769.0**	**21019.0**	**6,834.0**	**6,545.0**	**10305.0**	**NA**
OPAM's interest cost	**488.0**	**466.0**	**450.0**	**22.0**	**211.0**	**NA**

ON = Office du Niger; ORS = Operation Riz Segou; ORM = Operation Riz Mopti
Source: PRMC Report, National Seminar on Cereal Policy (June 1987)

faced, from CFAF 488 million in 1981-82 to CFAF 211 million in 1985-86.

- o Improvement of the overall financial situation. This goal was achieved by a combination of actions, which included:
  - -- a reduction of physical grain losses from about 12% in 1981-82 to 2.5% for domestic grains and 5% for imported grains in 1985-86 as a result of less but better handling, tighter store security, improved conservation techniques, and enforcement of penalties for losses under private transport contracts;
  - -- better forward planning to minimize grain shipments;
  - -- a reduction of fixed truck fleet costs;
  - -- a reduction of interest costs following Mali's entry in the West African Monetary Union (WAMU); and
  - -- an increase of the spread between official producer and consumer prices.

These actions reduced OPAM's annual operating deficits, from CFAF 2.6 billion in 1980-81 to CFAF 833 million in 1985-6 (Table 3).

Table 3. Evolution of OPAM's deficit, Mali, 1973-74 to 1985-85 (CFAF million)

Period Year	Deficit	Cumulated Deficit	Subsidies
1973-74	5,922		5,966
1974-75	1,012	6,934	0
1975-76	1,946	8,880	0
1976-77	2,088	10,968	0
1977-78	370	11,338	0
1978-79	2,188	13,526	560
1979-80	4,273	17,799	1,627
1980-81	2,600	20,399	588
1981-82	1,611	22,010	452
1982-83	1,423	23,433	195
1983-84	1,382	24,815	408
1984-85	1,029	25,844	269
1985-86	833	26,677	NA

Source: OPAM's accounts, PRMC Reports.

Trade liberalization

The first official step in grain trade liberalization was a decree signed on December 24, 1981, which authorized any person or association performing a commercial or an agricultural activity--and authorized by the Ministry of Commerce to do so--to trade coarse grains (millet, sorghum and maize) all over the country during the 1981-82 campaign. This decree was followed by two laws in February 1982 that legalized private trade, eliminated OPAM's monopoly rights, and redefined its role as:

- o supplying public-interest institutions (the army, police, hospitals, schools and penitentiaries) and chronic deficit zones;
- o constituting and managing national security stocks of grain;
- o intervening through buying and selling on the market to enforce official producer and consumer prices;
- o managing and distributing food aid.

These official actions led to the elimination of roadblocks, the opening of all coarse grain trade to licensed merchants, and the legalization of private imports without taxes, quotas or restriction of access to foreign exchange. Only private exports of grains remained prohibited. However, the relatively good harvests of 1985 and 1986 induced some waivers in the foreign grain trade regulations: private traders may now export with special authorization of the Ministry of Commerce, while rice imports are temporarily stopped.

Domestic rice trade liberalisation started much later and only progressively in 1984-85. Full private trade in the main rice production zone (the Office du Niger) was authorized only in 1986-87. The slow pace of domestic rice trade liberalization is explained by a combination of factors. Key among them were the resistance of the public sector to abandon its control over such a strategic commodity for its powerful political clientele (army, police and civil servants) and the fear that rice development projects (ODRs) would lose their best loan recovery instrument by giving away their monopoly rights on paddy marketing. Thus, paddy trade liberalization occurred only after these projects were guaranteed that the rice farmers that they supervise remained obligated to deliver to them at least enough rice to repay annual loan instalments.

Changes in official prices

A critical assumption underlying the PRMC price objectives was that official grain prices were set to protect the urban consumer at the expense of depressed producer prices, which in turn constituted one of the main disincentives to increasing domestic cereal production for the market. Therefore,

the PRMC assumed that actions to yield a more adequate pricing system should aim at:

- o progressively increasing producer prices, taking into account production costs and the official prices of neighboring countries to inhibit unofficial exports and foster domestic production; and
- o gradually increasing consumer prices to bring them in line with both official producer prices and private-market consumer prices, to avoid the need for consumers subsidies.

These concerns were translated into the programme's price objectives, as shown in Tables 4 and 5. Official producer prices were to increase by 100% for coarse grains and 163% for paddy during the 5-year period extending from 1981-82 through 1986-87. Over the same period, official consumer prices would be raised by 156% for coarse grains and 65% for rice.

However, as shown in the above tables, none of the producer price objectives was met. In fact, by 1986-87, the official producer prices adopted were 21.4% lower than the objective for coarse grains and 30% below the target level for paddy. On the consumer price side, the objectives were met in 1985-86 and 1986-87 for rice, but fell 13.6% below the target for coarse grains in 1986-87. Worse, in real terms, official producer prices were 3.6% lower in 1985-86 than in 1980-81 for coarse grains, and only 11.1% higher for paddy. Official consumer prices in real terms changed by less than 2% for coarse grains and fell by 14.4% for rice between 1980-81 and 1984-85.

These outcomes occurred mainly because:

- o Even before the PRMC, and in spite of the legal monopoly of OPAM, official prices had very little impact on the actual prices producer received or consumer paid for coarse grains. Hence, the program could not completely ignore the market price level in implementing its price policy.
- o Partly because of the drought and also because of rising donor pressures, official producer prices had already been increased by 119% for coarse grains and 90% for paddy during the 4 years (1977-78 to 1980-81) preceding the PRMC. The program could hardly put more upward pressure on prices than had the previous drought.
- o The quasi-total control of rice production and marketing by state agencies, even during almost the entire period of the initial PRMC, guaranteed the success of the program with regard to the consumer price objectives for rice. Moreover, these price objectives were set less ambitiously than those for coarse grains. Whereas the official consumer prices for rice had increased by 78.6% during the 4 years prior to the PRMC (1977-78 to 1980-81), the PRMC itself sought a total increase of 65% over 6 years. The modest targets for nominal price increases in rice reflect the fact that rice represents a significant

Table 4. Official producer prices of coarse grains, 1970-71 to 1986-87, Mali (CFAF/kg).

Period (Year)	PRMC price Objectives (CFAF/KG)		Producer prices in current terms (CFAF/KG)			Producer prices in constant terms (Base year = 1985)		
	Coarse Grains	Paddy	Millet/ Sorghum	Maize	Paddy	Millet/ Sorghum	Maize	Paddy
1970-71	NA	NA	9	10	13	35	39	49
1971-72	NA	NA	9	10	13	35	37	46
1972-73	NA	NA	10	10	13	35	35	43
1973-74	NA	NA	10	10	13	33	33	41
1974-75	NA	NA	16	16	20	50	50	62
1975-76	NA	NA	16	16	20	41	41	51
1976-77	NA	NA	16	16	20	37	37	46
1977-78	NA	NA	18	18	23	39	39	48
1978-79	NA	NA	20	20	25	39	39	49
1979-80	NA	NA	25	25	30	44	44	53
1980-81	NA	NA	35	35	38	57	57	61
1981-82	40	50	43	45	50	62	62	73
1982-83	46	65	45	45	55	62	62	75
1983-84	53	80	50	50	60	62	62	74
1984-85	60	90	50	50	65	54	54	70
1985-86	70	100	55	55	70	55	55	70
1986-87	70	100	55	55	70	NA	NA	NA

NA = not applicable
Sources: PRMC, OPAM and Bureau pour le Development Agricole (BDPA).

Table 5. Consumer prices of coarse grains, Mali, 1970-71 to 1986-87 (CFAF/kg).

Period (Year)	PRMC price Objectives (CFAF/KG)		Producer prices in current terms				Official consumer prices in constant terms (Base year = 1985)	
			Official		Private Market[a]			
	Coarse Grains	Paddy	Millet/ Sorghum	Rice	Millet/ Sorghum	Rice	Millet/ Sorghum	Rice
1970-71	NA	NA	18	39	29	57	65	145
1971-72	NA	NA	18	40	36	62	61	139
1972-73	NA	NA	18	44	58	73	57	144
1973-74	NA	NA	18	44	39	79	54	137
1974-75	NA	NA	26	56	35	75	67	144
1975-76	NA	NA	26	56	36	73	60	130
1976-77	NA	NA	26	56	57	97	56	120
1977-78	NA	NA	29	69	82	145	56	134
1978-79	NA	NA	33	75	54	131	57	133
1979-80	NA	NA	39	90	95	153	63	146
1980-81	NA	NA	43	100	104	165	62	146
1981-82	53	110	58	115	83	171	79	157
1982-83	68	120	63	125	105	163	78	155
1983-84	81	135	63	125	140	177	67	135
1984-85	95	150	63	125	131	174	63	125
1985-86	110	165	95	165	90	173	NA	NA
1986-87	110	165	95	165	NA	NA	NA	NA

[a]Private market prices are for Bamako
Sources: PRMC, OPAM and Bureau pour le Development Agricole (BDPA).

share of the urban civil servant's food budget and therefore constitutes a wage good *par excellence*, and that the prospects for imports of cheap rice could not be ignored by the designers of the PRMC.

It is surprising that one of the main recommendations of the de Meel report of 1978, namely the substitution of the concept of a price band for single panterritorial official buying and selling prices, was not adopted by the PRMC. The main reasons for this may be that the single price system remained appealing because it is operationally easier to implement, and because, for alleged equity reasons, the government resisted the idea of geographical price differences for its employees, who receive roughly the same salary all over the country.

Price support efforts

No reliable market data are available to test whether the PRMC had any effect on actual producer prices during its first 4 years (1981-82 to 1984-85). Nevertheless, the fact that the early 1980s were years of drought and short supply logically suggests that the official producer prices remained significantly below private market prices. Data do exist on the relationship between official prices and market prices at the consumer level, and they indicate that private market prices were 30-55% above official prices for coarse grains (23-30% for rice) during the first 5 years of the PRMC (Table 5).

Furthermore, analysis of the trends and variability in market prices of sorghum and millet in Bamako shows that the initial impact of the PRMC was a sharp decline in millet and sorghum prices (40% and 52%, respectively, in January 1982), mainly due to a significant increase in the total grain supply. The donors' enthusiasm for the program resulted in an increase of food aid by 60% in 1982, despite a 21% increase of domestic production, so that average per capita availability of grain rose by 21% in 1982 over 1981. However, the combined effects of the drought of the early 1980s and the legalization of private trade in coarse grains led to an adjustment process by which market prices rose more rapidly during the first 4 years of the PRMC than over the 4-year period prior to the program (MSU-CESA Working Paper 86- 02).

The first year during which the capacity of the PRMC to support producer prices was put to a true test was in 1985-86 when, thanks to relatively good rainfall, domestic coarse grain production was 72% above the average of the first 4 years of the program. OPAM initially planned to purchase 21,300 mt of coarse grains, but this quickly proved to be too small to affect market prices. The PRMC donor community along with the banking system then stepped in to support OPAM financially, enabling it to buy a total of 82,000 mt of millet, sorghum, and maize. This record-level intervention, which

amounted to CFAF 4.5 billion at official producer prices, had a clear impact on private-market producer prices, which remained less than 10% below the official target of CFAF 55/kg even in the most productive southern zones during the 3 to 4 months (December 1985 to March 1986) of official buying operations (Fig. 1). By March, however, OPAM ran out of funds and retreated from the market, leading prices to fall precipitously (MSU-CESA, Working Paper No. 86-03).

After OPAM's withdrawal from the market, rural market prices in the CMDT zone (the major cereal surplus area of the country) never again reached the level of CFAF 50/kg during the 1985-86 crop year (Table 6 and Fig. 1). OPAM's modest overall impact on prices was partly due to the fact that official purchases, despite their high absolute volume, represented merely 5% of total domestic coarse grain production and 28% of total marketed quantities in 1985-86.

Furthermore, not all farmers were positively affected by the price support intervention in 1985-86. Analysis of farmer transaction data (Tables 7 and 8) shows that even in the two most southerly rural development zones (the CMDT and OHV), only 48% of the farms were net sellers of coarse grains versus 39% who were net buyers in 1985-86 (MSU-CESA, Working Paper No. 87-02). Almost 92% of net sales were accounted for by the top 30% of farms units; and 74% of the net sales came from the south of the two zones as compared with 26% in the north. Moreover, farms with a full set of animal traction equipment, representing 36% of the total farm population surveyed, accounted for 70% of total net sales, while semi-equipped farms (35%) and the non-equipped farms (29%) accounted for 21% and 9% of all net sales, respectively. Finally, net sellers were concentrated in the south (59%) and among fully or semi-equipped farms (53% and 29%), while net buyers were mostly found in the north (70%) and among semi-equipped and non-equipped farms (42% and 39%).

From the same analysis, it appears that in the OHV zone, where cash crop production is low, 80% of farmers' coarse grain sales occurred during the 5 months immediately following harvest (November-March). The main motivation for selling at this time, in spite of low prices, was to pay head taxes, which are due by May 31 of each year. Tax payments were cited as the number one reason for sales by 73% of all sellers interviewed in this zone.[4] Taking all these facts into account, it becomes obvious that the

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[4]In the cotton zone (CMDT), most coarse grain sellers pay their taxes out of cotton revenues, which allows these farmers to time their grain sales later in the season, when prices are higher.

FIGURE 1 PRODUCER CEREAL PRICES

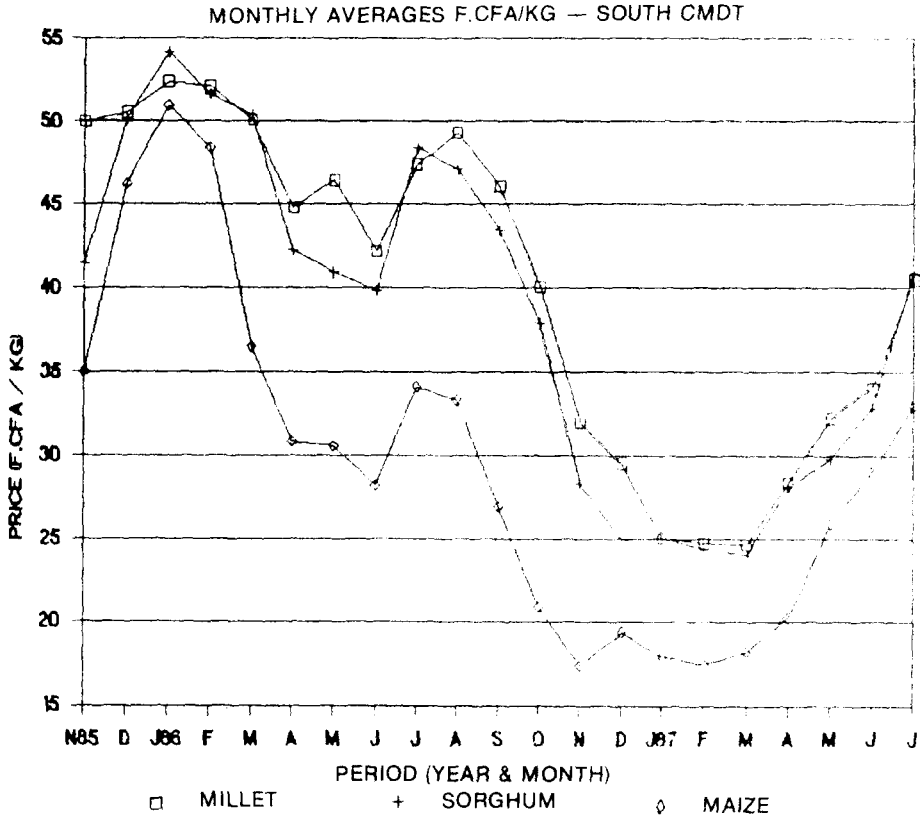

Table 6: Rural market producer prices of coarse grains, Mali, 1985 to 1987 (CFAF/kg)[a]

Period (month)	MILLET		SORGHUM		MAIZE	
	South CMDT	North CMDT	South CMDT	North CMDT	South CMDT	North CMDT
Oct. 1985	50.0	55.0	40.0	50.0	27.5	27.5
Nov. 1985	50.0	50.0	41.5	45.0	35.0	30.0
Dec. 1985	50.5	52.5	50.2	52.5	46.2	52.6
Jan. 1986	52.4	52.8	54.2	51.3	51.0	51.0
Feb. 1986	52.1	50.7	51.6	50.6	48.4	51.6
Mar. 1986	50.1	53.0	50.4	51.5	36.5	48.9
Apr. 1986	44.8	45.3	42.3	46.0	30.8	35.0
May. 1986	46.6	41.8	41.9	42.0	31.4	NA
Jun. 1986	42.2	39.2	39.8	39.6	28.2	32.1
Jul. 1986	47.4	46.0	48.4	46.2	34.1	27.9
Aug. 1986	49.3	48.8	47.1	49.5	33.3	35.0
Sep. 1986	46.1	44.3	43.5	45.0	26.9	24.1
Oct. 1986	40.1	32.0	37.9	30.8	20.9	20.0
Nov. 1986	32.0	25.1	28.3	26.8	17.4	22.5
Dec. 1986	29.5	26.4	24.9	25.9	19.4	27.5
Jan. 1987	25.1	25.5	25.1	25.4	18.0	15.6
Feb. 1987	24.7	20.4	24.5	23.9	17.4	15.0
Mar. 1987	24.7	20.3	24.0	24.6	18.2	NA
Apr. 1987	28.4	27.6	28.1	29.2	20.3	15.0
May. 1987	32.2	32.7	29.8	32.2	25.9	18.8
Jun. 1987	34.0	32.1	32.8	32.4	29.0	20.0
Jul. 1987	40.5	42.6	40.9	43.2	32.9	NA

[a]Weighted monthly average prices, NA = not applicable.
Source: MSU-CESA Food Security Project (1985 to 1987).

Table 7. Coarse Grain sales, Mali, 1985-86.

ZONES SUB-ZONES STRATA	Farms Selling (%)	Average Sales per Farm (kg)	Production Sold (%)	Total Net Sales (%)
South - CMDT	68.8	457	10.4	70.4
North - CMDT	64.6	166	5.6	19.9
South - OHV	56.3	49	3.0	3.2
North - OHV	50.0	119	8.9	6.5
CMDT 7 OHV By stratum				
Equipped farms	79.9	433	9.0	70.4
Semi-equipped non def.	77.3	241	7.3	18.0
Semi-equipped deficit	45.4	56	3.3	2.6
Non-equipped farms	52.9	89	7.9	9.0

Source: MSU-CESA Food Security Project, farm surveys (1985-86).

Table 8. Concentration of coarse grain sales, survey areas, Mali, 1985-86.

GROSS SALES		NET SALES	
Percent of farms	Percent of sales	Percent of farms	Percent of sales
4.7	36.1	4.7	41.0
9.9	49.9	9.9	55.5
14.9	60.9	14.9	67.7
20.4	69.8	20.4	77.6
24.9	67.4	24.9	84.7
30.1	84.4	30.1	91.9
35.3	89.9	34.9	95.9
39.7	93.0	40.0	98.5
45.1	95.5	45.0	99.7
49.9	97.7	47.6	100.0
55.1	99.1	NA	NA
59.9	99.9	NA	NA
64.3	100.0	NA	NA

Source: MSU-CESA Food Security Project, farm surveys (1985-86).

price support effort mostly benefited fully and semi-equipped farmers of the cotton producing southern zones; while hurting a large number of semi-equipped farms and almost all non-equipped farms in the non-cotton producing zones, where most farmers are net buyers--even in a good rainfall year such as 1985-86.

Finally, the official intervention of OPAM to support producer prices in 1985-86 induced a distortion in the seasonal pattern of prices (Fig 1). Market producer prices rose to and remained around CFAF 50/kg during a few months of the immediate postharvest period when OPAM was actively buying, then dropped to levels which never reached the December-March peak for the rest of the campaign. This distortion created a significant disincentive to private traders' investment in grain storage which, combined with their very limited access to formal credit, discouraged private storage (MSU-CESA, Working Papers No. 86-04 and 86-05). Hence, the way the PRMC attempted to meet its price support objective conflicted with its goal of seeking more active private involvement in domestic grain marketing.

OPAM's market intervention in 1986-87 was much more limited than in 1985-86 because of inflexibility in the rules governing its commercial operations. Due to the bumper harvest, market prices were significantly below official prices at the consumer level throughout 1985-86. Nonetheless, OPAM was forced to sell at the official price. Because OPAM found few customers at the official price, most of its working capital was tied up in unsold grain stocks, which prevented the grain board from making significant purchases in 1986-87.[5] OPAM's actions in 1986-87 included only the purchase of 10,000 mt of coarse grains to replenish the national cereals security stock.

Direct actions with the private sector

Most observers agree that the PRMC did very little in terms of actions aimed at directly improving the private sector's capacity to market cereals efficiently. This fact is nicely stated in a USAID consulting assessment, which notes that "the ambiguity of policy reform is reflected in the ironic situation in which the PRMC program--with a major focus on increasing pri-

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[5]Part of the pressure to sell only at the official price came from the PRMC donors, who did not want losses on lower-priced sales to show up on OPAM's books and make the programme look as though it was not achieving its aim of improving OPAM's efficiency. Although OPAM was actually losing money on storing the grain, OPAM's balance sheet did not reflect these losses, because the inventory was valued at the unrealistically high official consumer price.

vate sector participation in a freer cereals trade--has spent most of its expatriate staff time and financial resources attempting to keep the state trade agency afloat" (Wilcock, Roth, and Haykin, 1987).

This contention is confirmed by the fact that OPAM benefited directly or indirectly from 65% of all PRMC food aid reflow money from 1981-82 to 1985-86, in addition to two full-time expatriate experts. Furthermore, thanks to the donors' financial commitment, the state grain marketing agency's market share rose to 28% in 1985-86, a level not reached since 1978-79, and an all-time record in terms of the quantity of coarse grains purchased by the official system.

With the exception of the legalization of the private trade, the PRMC undertook virtually no direct activity in favor of private grain merchants or producer associations before the 1986-87 campaign. The benefits of liberalization gained by the private traders included more freedom of action; the subsequent increase in the scale of their activities resulting in reduced operating costs (especially reduced transaction costs) and possibly higher profits. Meanwhile, MSU-CESA Food Security research data indicate that in 1986, 63% of coarse grain wholesalers in four major trading cities (Bamako, Mopti, Sikasso and Koutiala) complained about the low level of their working capital and their limited access to formal financing institutions; 55% of them pleaded for a reduction in their business taxes, which were the equivalent of 55% of their net revenue; and 15% reported the search for financing to acquire trucks or warehouses as their major concern. In addition, almost 25% of these wholesalers complained about the cost incurred due to frequent public inspections by the *controle economique*, resulting often in arbitrary and unofficial fines.

With the good harvests of 1986, which resulted from a second good rainy season in a row, the PRMC policy makers realized that because of constraints in both the public and the private marketing channels, the Malian cereal market was facing gridlock. By fixing official consumer prices too far above market clearing prices, the state put OPAM in a situation where it could hardly sell any of the grain it bought in 1985-86. With its huge carryover stocks and resulting debt (CFAF 10.3 billion), OPAM had neither available storage space nor the required financial capacity to intervene effectively in a collapsing coarse grain market in 1986-87. Furthermore, because of limited financial capacity and uncertainty about what OPAM would do with its stocks, private traders were both neither able nor unwilling to buy and stock large quantities of grain in anticipation of a seasonal price rise.

To at least partially solve the problem, the PRMC donor community agreed to support a credit program of CFAF 1.0 billion, half for private traders (and implemented via private banks and the Chamber of Commerce and

Industry), and half in favor of village producer associations. For the private merchants, the banking system was requested to match the PRMC's CFAF 500 million with an equal amount, but it was forbidden to do so by the Central Bank of West African States (BCEAO), which had imposed an overall limit on credit creation by commercial banks in order to curb inflation. Therefore, this first attempt at direct action to help private cereal market agents was modest in its focus and impact. Indeed, the credit program could cover merely 14,000 mt at the wholesale level and an additional 25,000 mt at the village association level.[6] These 39,000 mt, when added to the 10,000 mt purchased by OPAM with PRMC funds for the national security stock, represent approximately 16% of the marketable surplus of 300,000 mt of coarse grains in 1986-87.

Beside the modest level of financing, private merchants complained about the delay in availability of funds at the bank-level (the loan process started only in March, 4 months after harvest); the long and slow administrative procedures of loan processing; the provision of funds in small disbursements, which did not permit traders to finance large-scale operations; and the non-involvement of the Chamber of Commerce in loan application procesing. This test credit program is presently under evaluation by the MSU-CESA Food Security project and USAID in order to generate useful information and recommendations for reshaping it for the next campaign (1987-88).

PRMC program monitoring

Most of the shortfalls of the PRMC can be blamed on the weak empirical basis upon which the program was designed, implemented, and periodically assessed. In designing the program, the government and the donors had very few studies on the structure, conduct and performance of the Malian cereals market on which they could draw. Moreover, most of the previous reports and studies were heavily biased toward the description of the state marketing system and provided very little insight into the private market. Hence, almost all the initial package of actions of the PRMC was defined not on the basis of facts but on assumptions about how the private trade was organized, how it operated, and how it performed.

Nevertheless, the PRMC donor group made a remarkable effort to monitor the program throughout its implementation. On an *ad hoc* basis, the donor Technical Committee met almost weekly to discuss program progress and

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[6]These quantities are estimated by dividing the total loan funds available for each component by the post-harvest prices at both the wholesaler and village levels in the major cereals producing zone.

reach agreement on how to reshape current activities and define new lines of intervention. In addition, many donors sponsored annual assessment and evaluation missions, carried out by outside consultants over the 6-year period (1981-82 to 1986-87), which led many observers to note that the PRMC is doubtlessly among the most evaluated programs in Africa!

However, these *ad hoc* and outside evaluation efforts could not generate the appropriate data required for a thorough monitoring of the program. The major weakness of the monitoring process was that except for consumer price data, which are collected monthly in all regional capitals and each 10 days in Bamako, the program monitoring teams had practically no usable data on the private market until 1985. The lack of basic data on the private cereals market explains in large part the weakness of most PRMC evaluation reports. For instance, because no data are available on actual producer prices prior to 1985, it is impossible to assess the impact of the program on farmers' income during its first four years (1981-82 to 1984-85).

It was only in 1985 that the Canadians and Americans decided, as an additional contribution to their participation in the policy reform process, to support major data collection and analysis activities to inform the PRMC. The Canadian International Development Agency (CIDA) provided an agricultural economist who not only served as Canada's representative on the Technical Committee, but also undertook primary data collection in a few major rural markets in the administrative subdivision of Diola (between Bamako and Segou), as well as case studies of the operations of a few private grain wholesalers in Bamako. This effort generated weekly producer price data (though very limited geographically) and a few analyses and reports based on primary data on private market channels and behavior (Gagnon, 1986).

The most important monitoring-related research activity to date was initiated in 1985 through the MSU-USAID Food Security in Africa Cooperative Agreement which, in Mali, was implemented as a joint project with Mali's National Commission for the Oversight and Evaluation of the Food Strategy (CESA). The aim of the MSU-CESA research was to develop a better understanding of the structure, conduct and performance of the private market for domestic coarse grains and, in so doing, empirically test some of the major assumptions underlying the PRMC. Since the inception of this research project in October 1985, the research team has collected, processed, analyzed and disseminated basic information on the private market for coarse grains.

The data generated by the MSU-CESA Food Security Project cover a large set of market conduct and performance indicators, including:

- monthly coarse grain transactions (sales, purchases, barters and gifts) for a sample of 190 farmers distributed among 16 villages in 4 rainfall subzones in the south of the country the (CMDT and OHV zones);

- o weekly transaction data for the main rural market of each of the 4 subzones; and
- o monthly transaction data for a sample of 101 grain wholesalers in 4 major cities (Bamako, Mopti, Sikasso and Koutiala).

In addition, several one-shot surveys have been carried out to gather information on farmers' strategies for coping with their own food security (available resources, activities and means to meet food needs, major constraints that jeopardize their food situation, major policy and technological factors that enhance their food security, etc.); traders' resources, constraints, and strategic behavior, especially in response to the risk and uncertainty that traders face from unexpected policy changes and supply variability; and the interactive effects of different macro-level policies (fiscal, credit, pricing, extension, etc.), on both traders' and farmers' strategies with respect to their production and marketing activities.

The information and analyses from this project flowed directly to the PRMC policy makers through the USAID representative to the PRMC Technical Committee, regular meetings between the project's researchers and this committee, periodic debates organized around working papers with CESA, meetings with outside consultants, and participation of the project's lead researcher in national and international seminars and workshops on cereals policy.

EVALUATION OF ACHIEVEMENTS AND IMPLICATIONS FOR THE SECOND PHASE OF THE PRMC AND FOR MARKET REFORMS ELSEWHERE IN AFRICA

Achievements of the first phase of the PRMC

The PRMC achieved encouraging results during the six years of its initial implementation phase; however it was not a complete success. Despite the progressive liberalization of domestic trade and imports of cereals, many aspects of the private trade remain heavily regulated: freedom of entry in grain trade is restricted to some extent by the demanding requirements that an individual must meet to obtain a trading license (minimum bank deposit, proper storage, etc.); exports require licensing under a very long and cumbersome administrative process; and private traders' access to formal financing is severely limited.

Given the lack of data on producer prices in the private market before PRMC and during the first 4 years of the program, it is virtually impossible to quantify the impact of the policy reform on farmers' incomes. One may speculate that by increasing the number of merchants buying cereals from producers, the market liberalization increased competition among buyers, with

the consequence of increasing producer prices to some extent. Similarily, during the deficit years of 1981-82 and 1984-85, deficit producers probably benefited directly or indirectly from the effect of food aid on consumer prices. In the bumper crop year of 1985-86, strong financial support by the donors allowed OPAM to buy considerable quantities of cereals at official prices, which were higher than prevailing market prices. This led to a transfer of income from the donors to those surplus producers who sold during the OPAM buying campaign.

Of all the parties concerned, the state appears to have gained the most from the activities of the PRMC during its initial phase. OPAM benefited from the sales of food aid by using the reflow money to cover its annual deficits and to finance its price support operations. It was also the recipient of almost all the technical assistance provided by the donors. OPAM also gained from the increase in its margins permitted by the revision of the official price schedules. In addition to its actions toward OPAM, the PRMC also provided financial support to other public agencies, such as the rice producing Office du Niger and the Price Stabilization and Regulation Office (OSRP).

The PRMC increased consumers' access to cereals at lower prices, thanks to the combination of greater competition among private traders, freer movement of cereals within the country, the liberalization of imports, and the increase and improved coordination of the food aid provided by the donor group supporting the program.

However, mainly due to design and implementation shortfalls, many problems remain to be tackled if the performance of the whole system is to improve. First, greater program and policy flexibility is needed at several levels:

- Administrative and regulatory burdens (e.g., in obtaining export clearances) continue to inhibit private traders' ability to adjust quickly to volatile market conditions. The volatility of the markets results in part from uncertainty about what actions the public sector is planning to take in these markets.
- Official prices, if retained at all, need to be linked to market prices, particularly if OPAM is constrained to buy and sell at official prices. Otherwise, during years of short harvests, such as 1984-85, market prices will lie above official prices, creating few incentives for producers to sell to OPAM but increasing the incentives for consumers to try to buy from OPAM at the subsidized official consumer price. In years of good harvests, such as 1985-86, just the opposite occurs. In both cases, OPAM loses.
- Flexibility is needed with respect to the financing of the PRMC itself. Whereas using food aid to finance cereal market reform may make

sense in years of substantial production shortfalls, as occurred during the first 4 years of the project, it creates disincentives for both farmers and private traders in years of good harvests, when market prices are already likely to be depressed--even in the absence of inflows of food aid. The donors have begun to address this problem; in 1987, the US contributed US$1 million in cash to the PRMC in lieu of food aid.

Second, private traders face severe financial constraints that prevent them from undertaking larger scale cost-saving operations and investing in means to achieve better vertical coordination of their activities, especially improved transportation and storage facilities. They also lack adequate market information that would enable them to plan their business operations more effectively, such as timely information on market prices; public and private stocks; timing and level of planned public-sector purchases and sales; domestic production; current and projected imports; the place, timing, and level of nongovernmental organizations' food aid interventions; and ongoing changes in current policy directions.

Third, despite remarkable progress, OPAM's costs remain high. In fact, significant savings were made only on fixed costs, due mainly to the sharp reductions in the agency's truck fleet and in interest costs, thanks to the PRMC funding. Payroll costs increased both in absolute and relative terms during the first 5 years of the program (Table 9). OPAM now faces the

Table 9: Evolution of OPAMs cost structure, Mali (1980-81 to 1985-86).

Period (year)	Total Costs (CFAF million)	Percentage share of:				
		Payroll Costs	Depreciation	Payroll & depreciation	Transport costs	Interest costs
1980-1981	2,046	12.8	11.3	24.1	30.5	24.6
1981-1982	1,965	13.7	10.2	24.0	30.7	24.9
1982-1983	1,877	15.2	8.3	23.5	27.9	24.8
1983-1984	1,708	16.1	9.1	25.2	21.5	26.3
1984-1985	1,141	6.6	13.4	40.0	21.0	1.9
1985-1986	1,825	16.8	8.7	25.5	38.6	15.2

Source: OPAM's accounts, PRMC reports.

problem of being simultaneously overstaffed quantitatively and understaffed qualitatively. It still lacks the analytic capacity to properly plan and manage its activities.

Fourth, the combination of price supports and fiscal policies (head taxes) reduced the food security of more than one-third of the farmers in the major cereals producing region who are net grain buyers. These include mainly small farm households with little or no animal traction equipment, which may have the highest propensity to invest in farming in order to raise their agricultural productivity. However, they are unable to do so, because they find themselves in a poverty trap where they have to rely heavily on their small cereal production to pay taxes and loans at harvest time, and rebuy cereal at higher prices (often on credit) to feed themselves during the hungry season. Therefore, this class of farmer is never in a position to adopt a sales strategy that would allow them to maximize their income and save.

Fifth, the above remark points out a more general constraint to relying solely on market liberalization to overcome poverty and hunger problems; namely that a large number of urban and rural consumers, including small wage earners, unemployed rural migrants, and many farmers, lack adequate income to assure access to the cereals market. The full potential of the PRMC is unlikely to be achieved unless the program is accompanied by efforts to increase incomes and hence the effective demand for cereals. This requires attention to increasing productivity in food, cash-crop, and livestock production; promotion of non-farm enterprises; and urban job creation. The synergies between food crop production and other enterprises require particular attention; the findings in Mali indicate clearly that rural household food security was highest among those families with greatest involvement in cotton production and off-farm activities.

Implications for the second phase of the PRMC and the design and implementation of marketing policy reforms elsewhere in Africa

The PRMC was initially funded for 5 years, from 1982 through 1986. In 1986 the donors agreed to a 3-year extension of the program, through 1989. What lessons can be drawn from the experience of the first phase for subsequent PRMC activities and for similar programs elsewhere in Africa?

The most apparent lesson that emerges is the critical importance of having reliable knowledge about how the food system works in order to design effective food policies. The lack of empirical information on the cereals subsector was clearly one of the major weaknesses during the initial design of the PRMC and the first 4 years of implementation. Without such information, it was impossible to test the basic assumptions on which the project was based concerning private traders' capacity to respond to opportunities

opened up by liberalization, farmers' net selling positions, merchants and farmers' reactions to prices, their market related constraints, etc. Most of the initial assumptions ended up being wrong to some degree, necessitating ongoing modification of the program.

The required understanding of the food system is unlikely to be obtained by relying solely on short-term external consultants. Not only are external consultants often unaware of many of the subleties of how the local food systems work, but also they are constrained to work with the existing data base, which is often inadequate. Without investing in increasing the in domestic capacity to generate and analyze information on the food system, policies will continue to be made largely out of ignorance.

The experience of the PRMC suggests that the following types of information are critical in designing successful market liberalizations and related reforms:

- o Prices paid and received at various stages in the subsector.
- o Cost data at various stages in the subsector, which, when combined with the price data and data on trader practices, allow estimation of traders' margins.
- o Information on the likely incidence of proposed policies. For example, in evaluating a proposed price support program it is critical to know what proportion of farmers are net sellers, how many are net buyers, and what are the characteristics and sales strategies of each.
- o Enough information on farmers' and traders' strategies and constraints to interpret observed fluctuations in prices and quantities sold. For example, what influence do tax obligations have on farmers' seasonal sales strategies and hence the seasonal pattern of prices? What are the determinants of traders' storage strategies? This information is also critical in assessing how market participants will react to policy changes.

Research needs to focus on testing the basic assumptions underlying the reforms. At the same time, researchers must to be highly selective in determining which variables to observe, as it is easy to fall into the trap of collecting too much data, which prevents timely analysis and feedback to policy makers.

In Mali, as in most African countries, the question of what role the state can and should play in cereal market stabilization remains an important topic for future research. Instability in these markets probably discourages farmer and trader investment and specialization in the grain subsector, but given the very limited financial resources of most African countries and the thinness of the markets, the feasibility of running a price support program through grain board purchases is highly questionable. Despite strong donor support, OPAM's attempts at enforcing an official producer price above the

market price were largely unsuccessful. What alternative roles the state, with its very limited resources, could play in reducing the volatility of cereals markets remains an area for both theoretical and empirical investigation.

The PRMC experience also points out that generating empirical information to inform the policy reform process involves much more than just data collection and analysis. Considerable effort has to be invested in creating channels to feed back research findings in a timely way to policy makers. Elaborate reports presented after 2 years of analysis are frequently useless to policy makers, as the issues they analyze are often out of date. In addition to emphasizing timely analysis (which has important implications for the types and amount of data collected), researchers may initially have to devote considerable energy to "selling" their results. In Mali, there was no tradition of issuing preliminary results in the form of working papers, and Malian policy makers were at first skepitical of these reports and slower than the donor Technical Committee to grasp the usefulness of their findings for policy design. However, after the project director spent considerable time interacting with members of the Malian Food Strategy Commission Malian policy makers became strong advocates of the need to foster local research capacity to inform policy.

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