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**MILLET AND SORGHUM PRICE POLICY
AND RELATED MARKETING PROBLEMS
IN MALI**

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U.S. DEPARTMENT OF AGRICULTURE
COOPERATING WITH
THE U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT**

MILLET AND SORGHUM PRICE POLICY
AND RELATED MARKETING PROBLEMS IN MALI

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INTRODUCTION

The importance of millet and sorghum in the Malian diet and the need for progressively larger imports of these commodities since the mid-1960's has created a strong desire in the Government of the Republic of Mali (GOM) to become more self-sufficient in these basic cereal crops. Feeling that presently administered marketing and price programs might be causing serious market distortions, the GOM requested a study of their pricing policy for millet and sorghum with a view to increasing the price at the village level. The U. S. Department of Agriculture (USDA) was asked by the U. S. Agency for International Development (AID) to provide a short-term consultant team to conduct this study.

The two-man team visited Mali during the spring of 1972 to examine the marketing situation and discuss price policy with Malian officials. The team reviewed background information available in Washington, D.C., and consulted regional AID officials in Dakar, Senegal, prior to visiting Mali. Consultations were held with many government officials, citizens, and representatives of international organizations. The team also made field inspection trips.

The team was to review Malian price policy for millet and sorghum and to see what might be suggested as alternative price policies for consideration by the GOM. The aim was to increase in the near future domestic supplies to meet urban and deficit area requirements.

Much background information, both on the general agricultural situation and the millet and sorghum situation are contained in the reports of prior studies. However, a short section on the general agricultural situation and farming practices is included for the benefit of those who may have neither prior knowledge or ready access to such information.

The most comprehensive, and perhaps most readily available, prior reports are: A Study and Plan for Regional Grain Stabilization in West Africa, Report No. 21, Food and Feed Grain Institute, Kansas State University, December 1970, and, Food Grain Production and Marketing in West Africa, by Checchi and Company under an AID contract, March 1970.

The authors appreciate the cooperation and hospitality given by officials of the GOM, Embassy Bamako, and USAID, as well as the gracious assistance provided by representatives of international organizations.

SUMMARY

The Malian price structure has given rise to an insufficient amount of grain flowing through the official grain marketing agency to meet the needs of urban population and deficit areas. And, total production of millet and sorghum has decreased over the past few years in face of a growing population. These are basic problems.

Important factors bearing on grain price policy are that the official buying price for millet and sorghum is substantially lower than the world market price as well as lower than millet and sorghum prices in neighboring countries, and lower than the price growers can obtain from private buyers.

Net and marginal returns are much higher for peanuts and cotton than for millet and sorghum at present levels of prices. Consumers vary in their opportunity to buy their grain from OPAM (Office des Produits Agricoles du Mali -- the official marketing agency). Most must resort to the illicit or parallel market for part of their food needs. The very poor who buy in small quantities must buy all their grain from the parallel market at prices currently 5 times the official price. We estimate average consumers buy from a third to half of their millet from the parallel market.

Four policy alternatives are:

- (1) continue the present policy;
- (2) increase buying price to 21 MF; ^{1/}
- (3) increase buying price to 25/26 MF; and
- (4) increase buying price to 30 MF.

The team recommend a change to a 25/26 MF buying price. This would:

- (1) encourage, in the long-run, increased grain production through increased acreage and improved cultural practices;
- (2) increase the quantity of grain offered to OPAM;
- (3) decrease trading in the parallel market;
- (4) possibly lower the amount of smuggling;
- (5) increase farm income and purchasing power;

^{1/} 1 U.S. dollar = 511.57 MF. Data for 1970 shown in Table IX reflect the then current exchange rate of 550 MF to the dollar.

- (6) decrease dependence on imports;
- (7) encourage farmers to spend more for production inputs; and
- (8) theoretically decrease OPAM unit costs because of the larger volume handled.

Major disadvantages are OPAM's managerial deficiencies in the face of increased volume and the anticipated pressure on wage policy.

The team recommends that the consumer price be adjusted upward to bear the full cost of the farm price increase and that the consumer price not be subsidized. Whether the upward adjustment in the new consumer price should be the full amount of the buying price increase depends upon OPAM managerial ability and the extent they can reduce unit costs with increased volume. Since this is doubtful at this point, a priority need is a program to increase OPAM's operating efficiency. Although a new consumer price need not be announced for another 6 months, it is doubtful this is enough time for a significant OPAM change. The GOM should be prepared to consider, therefore, a consumer price increase of approximately 7/8 MF.

Assuming these price changes would enable most consumers to buy most of their grain needs at the official price, the cost of grain for most consumers would remain approximately the same, and for the very poor, it should drop substantially. Consumers hardest hit would be those who have been able to buy all their grain at OPAM, who would feel an increase equal to 2.4 percent in the cost of living index.

The above price changes and tighter OPAM management are considered essential but not in themselves sufficient to optimize grain production. Also needed are:

- (1) A program of encadrement ^{1/} as presently envisaged, to increase grain production, but including within it a provision of farm credit;
- (2) removal of the physical impediments to OPAM buying through provision of more buying points, timely delivery of sacks, prompt payment, and maintaining a market throughout the year; and
- (3) adoption of a different system of financing and provision of adequate working funds to OPAM.

For the long-term, consideration should be given to the development of a different grain purchasing system below the cercle ^{2/} level. This might

^{1/} Encadrement is a planned program providing various production inputs including extension and applied research.

^{2/} Cercle is a geographic area and subdivision within a region.

involve specific agricultural personnel as credit and purchasing agents, and might also look to using bonded commission agents under a licensee system. Also needed is a study of the transportation system and transport costs. This could lead to serious consideration of a schedule of buying prices varying according to transportation costs.

COUNTRY BACKGROUND

Mali is landlocked with about 1.24 million square kilometers (465,000 square miles) and an estimated 5.4 million people. ^{1/} Population grows at about 2.5 percent a year. The median age is, or is very close to, 15 years.

Wage earners and salaried persons, including government employees, totaled about 52,000 in 1969. Their salaries are at low levels in relation to those in other countries and have been controlled at present levels since 1962.

About 93 percent of the population is rural and about 4 million people live on farms according to a 1969 census. The cultivated area was reported to be 1.8 million hectares or 4.23 hectares for each of the 402,000 farms enumerated. Assuming the same cultivated area at present, this is equivalent to 0.38 ha. (8/10 of an acre) per person.

There is no shortage of arable land. This was recently estimated at 251,839 square kilometers of which only 7 percent was under cultivation. An important limiting factor on cultivation expansion is the amount of land a farmer and his family can work, especially at planting time with available implements.

The primary motive of the typical Malian farmer is not income, but growing sufficient food to take care of his family needs. Thus, millet and sorghum -- the basic food crops -- are necessarily an initial part of any cropping system and take priority over other crops, even where cash crops like cotton or peanuts are grown.

Farming is in a transition period from traditional primitive cultivation methods to a system involving draft animals, simple plows, wagons, and limited quantities of chemicals.

Adoption of modern farming practices is, so far, concentrated in those areas where the cash crops cotton and peanuts are grown. For example, the team

1/ Many problems arise in the use of statistics for Mali. Official data are quite limited and there is a substantial lag in publication. For example, it was not possible to develop a supply and disposition table for millet and sorghum. In addition, a review of available agricultural data reveal inconsistencies. For price analysis purposes, data are completely inadequate.

was told that the only equipment used in growing millet and sorghum in one important area of production was the daba (a short handled hoe) and a hand scythe. In contrast, 75 percent of the land planted to cotton in 1971 was reported to have been plowed. Correspondingly, an estimated 40 percent of the 72,000 cotton growers have plows.

Millet and Sorghum Production

Although the traditional and still common millet and sorghum production practices are primitive and labor intensive, they represent an adaptation to the local ecology. Typically, these basic food crops are planted in individual hills which are worked up -- about 16,000 to the hectare -- in an irregular pattern rather than straight rows with the hoe; weeded once or twice during the growing season; thinned; cut with a hand scythe; and threshed by hand. With such methods, it takes a man 6 days to plant a hectare.

Such a planting rate is a production limiting factor under prevailing conditions. For example, with the short rainy season (see table I) and the higher yielding varieties requiring 120 days to mature, the Agricultural Service ^{1/} recommends that all planting be done within 7 to 10 days. Perhaps this explains the report that Dogon peasants are buying eight plows for 18,000 MF, without credit and without much prompting. Using such a plow, a man can plant a hectare in 3 days rather than 6. Donkeys are reported to cost 4-5,000 MF. Even though farm labor is plentiful throughout much of the year, there is oftentimes a labor shortage during the peak planting season. Thus, labor saving methods are appropriate during this period and do not present problems of displacing labor. In fact, productive employment and grain production could be increased as labor saving methods help to increase the total area cultivated and output per man hour.

Similar reports indicate that the farmers will buy inputs and production equipment on their own initiative and without credit if such purchases will afford increased net income. Production of these crops have been encouraged with quite complete and well-designed programs. Cotton has very limited utility for the farmer, but it is a good cash crop in some areas and the farmer has had little hesitation in using credit if necessary to purchase goods and services that will increase his income from cotton and peanuts.

Grain production has benefited indirectly from the promotion of these commercial crops. To the typical Malian farmer, millet and sorghum are food, and food rather than money is security. The cotton, rice, and

^{1/} The Agricultural Service is roughly comparable to the USDA Extension Service; it is limited to agronomics but does research in that field.

peanut programs are bringing plows and fertilizer into the picture and, in a rotation with grain following fertilized crops, grain yields are increased. It must be recognized, however, that at present there is little planting of sorghum and millet with the intention of having substantial quantities to sell except in areas with a grain monoculture.

RECENT MARKETING AND PRICE POLICIES

Some knowledge of marketing and price policies of recent years is essential to an understanding of the millet/sorghum situation. Mali became independent in 1960. Before that, the present Malian area was a surplus grain producing area for most of West Africa. After independence, Mali continued to export grain to neighboring countries, but at lower levels as production per capita declined. Prices of most crops were fixed by the government at low levels. In the mid-1960's, the former socialist government moved toward collectivization of agriculture. That government also moved to replace the existing marketing system with state enterprises. These actions contributed to a stagnation in agricultural production.

Prices paid to farmers were increased for 1966, but grain production continued to decline although cotton and peanut output increased (see table II). Prices were also increased in 1967. But while the millet and sorghum price to farmers went from 15 to 16 MF, the Malian currency was devalued 50 percent as of May 5, 1967, when it became convertible with the French franc. This made Mauritania and Upper Volta a much more attractive market for Malian grain. In addition, prices in 1967 were increased 50 percent for peanuts and from 34 to 40 MF for unginned cotton.

It appears that the GOM recognized the need for foreign exchange and acted to increase such earnings by giving farmers an incentive to grow cotton and peanuts for export. Earlier reports have suggested that the former government either:

- (1) recognized that millet/sorghum had traditionally been produced on a subsistence basis and assumed that they would continue so regardless of policy, or
- (2) that they assumed farmers held the view that security was food and that production for their own needs would assure adequate supplies for urban and deficit areas.

In any case, farmers' actions indicated clearly the sensitivity of their pocketbook nerve. The devaluation was too late to be fully reflected in 1967 plantings. But, in 1968, acreage of cotton and peanuts was up substantially while marketing of millet and sorghum was down substantially from 1966 levels. Smuggling of grain was, of course, more attractive than prior to devaluation.

These developments have had serious political, social, and economic consequences. Instead of legal exports of grain, imports became necessary. Imports during 1963-69 included about 19,000 tons of sorghum, 36,000 tons of corn, and 21,000 tons of rice.

The government which took power in November 1968 moved to reverse the previous trend toward state control by adopting policies to encourage private initiative. The agricultural policies and programs were modified, producer prices for crops were increased, and there was some liberalization of restrictions on private trade.

A quick recovery of the rural economy would appear to have been a major objective. Specialized agencies were established to encourage the production of peanuts and cotton, and the need for agricultural credit was recognized.

Most of the state trading firms were continued. One of the most important of these is SOMIEX (Societe Malienne d'Import-Export) through which it was sought to keep down the cost of living (see table I).

SOMIEX had a monopoly on imports of a number of important consumer products and competed with private importers on many others. Thus, it dominated wholesale trade. It also operates retail outlets in the major cities and towns. It has a regular supermarket in Bamako. SOMIEX regularly sold below cost to soften the impact of devaluation on the cost of living. Nevertheless, when trade restrictions were liberalized, private traders began underselling SOMIEX in areas of low distribution costs. With the largest volume of any state enterprise, it incurred perhaps the largest deficit. Since early 1971, retail prices of major items with inelastic demand have been raised. Sugar and milk prices were most recently raised in mid-March 1972.

The government continues its policy to protect consumers by controlling the prices of major essential items. The rationale is that removal of price controls would raise the cost of living and increase the pressure for increasing wages. Basic wage rates have remained unchanged for a decade. However, some relief was provided to wage earners by the replacement of the tax on wages and salaries with an income tax, the latter having a lower rate than the former.

OPAM is the important trading firm for marketing agricultural products. Created in 1965, it assembles and distributes grain throughout the country. Purchase prices are the same everywhere, but selling prices differ substantially among areas. The selling prices are lowest in areas of surplus production and highest in the deficit Sixth Region. ^{1/}

^{1/} Mali is divided into six geographic regions, each with its own governor.

OPAM is responsible also for establishing and maintaining reserve and stabilization stocks. Unfortunately, it has never been able to maintain such stocks.

In its early days, OPAM had a monopoly in the grain market. The market was opened to private dealers for the campaign of 1968-69 but the results were judged unsatisfactory and OPAM's monopoly was restored the following year during the campaign season at the cercle level and higher. With the 1971 campaign, OPAM again became the sole legal grain dealer at all levels and for the entire year.

On the basis of all available information, OPAM is inefficient. It is financed through loans from the State Bank. Reports differ as to the availability of funds. It appears, however, that money has not been available to pay for grain at harvest time in all years, or at all buying points, or continuously once purchases were begun.

There are reports of purchasing beginning quite late at some points. OPAM does have storage in all areas, and the capacity is probably adequate. It relies on the state transportation enterprise (Regie des Transports Maliens) and private entrepreneurs to move grain, except for a few trucks serving relatively inaccessible areas and handling emergencies.

OPAM affords a good structure for implementation of a program that would effectively encourage grain production. It has the authority and facilities essential to a national grain marketing system. Employees are located in each of the Nation's 42 cercles. Associated federations and cooperatives provide representation for buying and selling down to the arrondissement^{1/} level.

The farmer-retail price spread on millet and sorghum affords some indication of the opportunity for improvement in operations. The selling price of 33 MF per kilo in Bamako, the major outlet, is inordinately high relative to the 18 MF buying price but substantially below the price in the uncontrolled market (see table III). Nevertheless, OPAM has consistently incurred losses on its operations. This probably is due in major part to the limited amount of grain it has been able to buy and to high transport costs. With between 500 and 600 employees, it hopes to buy 25,000 tons of the 1971 crop. Operating costs per ton should be very substantially less if twice this volume could be purchased.

The greatest deficiency in the present system is that it does not serve the needs of those people who most need low-cost food. The present system of protecting the consumer against higher grain prices penalizes the farmer and benefits the affluent urban people.

1/ An arrondissement is a geographic and political subdivision. Its geographic area is smaller than the cercle.

There are three broad food consumer groups in Mali; millet and sorghum are the major foods for each. Farmers constitute by far the largest group, and they generally grow their own requirements, storing in a good crop year rather than selling production in excess of food and seed needs. People living in rural areas who do not grow grain, or sufficient grain, comprise a second group. They generally acquire their needs from local production, in a trade that -- although not legal -- OPAM overlooks, perhaps because it fills a need which the state enterprise is not equipped to serve. Finally, there is the urban population, which OPAM considers to be its first responsibility, plus the military and the Sixth Region.

In the urban areas, OPAM has found it difficult to fully meet its responsibility. Reports indicate that it is frequently without stock. It prefers to sell in 100 kilo sacks from its own warehouses, a purchase necessitating a 3300 MF outlay for the consumer. Smaller quantities are available through cooperatives, but even a kilo purchase is often beyond the means of the very poor. Many low-income people buy their grain not by the kilo, but by the pannier, 1/ at 25 MF. Bought in this fashion, the parallel market price was 150 MF per kilo in April 1972, in Bamako. In Mopti, the price was 50 MF per kilo when purchased by the kilo.

OPAM's task is clear, formidable, and attainable. To effectively assemble and distribute grain from domestic production, OPAM must:

- (1) Convince the urban consumer that he has no reason to hoard.
- (2) This cannot be accomplished without convincing the farmer that he will benefit from increased millet/sorghum production and, in addition,
- (3) he will not be disadvantaged by selling to OPAM.

Failing to accomplish all of these, the GOM will have no alternative but to rely on the humanitarianism of other nations to avoid continuing and evermore acute shortages. Even if basic food needs should be met through continued grants, perpetuation of the present grain price policy would, in the judgement of the team, result in a progressive stagnation in the economy.

FACTORS INHIBITING MILLET/SORGHUM PRODUCTION AND MARKETING

There are many factors hampering production and normal movement of millet and sorghum from the producer to the ultimate consumer in deficit areas of Mali.

1/ A pannier is a locally used volume measure about equal to 6 oz. of sorghum.

Principal recognized inhibitions, without regard to priority or importance, relate to:

- (1) The level of the purchase price;
- (2) the more attractive purchase price maintained for other crops, particularly cotton and peanuts;
- (3) the lack of a program of encadrement for millet and sorghum comparable to that which exists for cotton and peanuts;
- (4) holding of any surplus by producers for personal use in a bad crop year;
- (5) smuggling, illicit trade, and sale in local village or area;
- (6) inadequate marketing system particularly in that OPAM is unable to provide an accessible market to many millet and sorghum growers and there is no other legal market;
- (7) inadequate financing of OPAM;
- (8) withdrawal of OPAM as buyer from market for several months before new crop is harvested;
- (9) difficulties which inhibit normal marketing processes such as inability or failure to provide sacks when needed;
- (10) insufficient moisture in some years, given present farming practices;
- (11) subsistence nature of grain farming; and
- (12) limited use of fungicides, higher yielding varieties, and other production inputs which increase output per hectare and per day of work.

These factors, combined with the greater increase in prices for crops other than millet and sorghum in recent years, have resulted in a substantial downward trend in the hectareage and production of millet/sorghum. This occurred during a period when overall agricultural production was increasing substantially in terms of value and aggregate volume. Almost half of the total cultivated cropland was devoted to millet and sorghum in 1967, according to the Annual Statistics, 1968. The 1969 proportion is shown as less than a third in the Rapport de l'Enquete Agricole 1969-1970. During this period, millet and sorghum production declined from about 830,000 tons to 603,000. ^{1/} Production estimates for 1971 by agents of the Agricultural Service are almost identical with the estimate they made for 1969 despite a campaign for increased production in 1971. However, the weather in 1969 was considered to be better.

^{1/} Rapport de l'Enquete Agricole 1969-1970, p. 24.

While it is not possible to develop a reliable food consumption table, production has declined more per person than in the aggregate due to the increase in population. Substantial quantities obviously would have to be deducted from production for seed use and smuggling, if not hoarding, to arrive at the amount available for domestic food use. A report published by an international organization carries a table showing unrecorded exports estimated at 4 to 9 billion MF annually during the period 1967/68-1970. Such unrecorded exports, which would be comprised largely of grains and livestock, average 55 percent of the exports shown in official trade statistics.

Smuggling is a special problem for Mali. Perhaps it defies solution. We do not see how it can be substantially eliminated under present or foreseeable conditions. Mali has traditionally been the surplus producing area for millet and sorghum in West Africa. Similarly, it has been the long-time source of supply for some parts of West Africa which are traditionally food grain buyers. These areas are now independent nations. But the establishment of national boundaries does not stop traditional trade. Moreover, the fact that millet prices in neighboring grain deficit countries are substantially higher than in Mali makes the trade more attractive and lucrative than prior to independence. Likewise, limited transportation facilities and the underdeveloped nature of the border areas facilitate rather than hinder smuggling. Conceivably, so long as Malian grain is cheaper than that from other sources, Mali may have to produce enough grain to supply the needs of contiguous areas plus its own before it can retain sufficient grain for domestic needs. Fortunately, Mali has the potential to do just that.

Estimates of millet and sorghum consumption per person were sought from numerous persons. They ranged so widely, from 70 to 200 kg. per year, as to cast very substantial doubt upon any average figure. Evidence points clearly, however, to a progressively tighter supply situation in recent years with frequent periods of shortage. This conclusion is supported by reports of cassava and other crops such as bullrush millet being regular substitutes for grain in the diets of many people prior to harvest time as well as by increasing imports.

ALTERNATIVE APPROACHES TO INCREASING PRODUCTION AND MARKETING OF MILLET AND SORGHUM

No single action will solve the problem of encouraging larger millet and sorghum production and increased deliveries to consuming urban and other domestic deficit areas. The granting of a monopoly to OPAM has not worked. Although such an organization is essential to a grain stabilization program, its monopolistic position is not likely to be an efficient long-time solution. However, with price levels below those in the world market and neighboring countries, it may be necessary for OPAM to retain its present status.

This system has involved a price well below what would be an equilibrium price in a free market, and below the price at which the farmer is a willing seller. Obviously, such a program would have limited success in a region where farmers have not generally produced grain for a cash market except in areas with a millet monoculture. Farmers will take advantage of any more favorable marketing alternative when it becomes necessary to market grain to pay taxes, finance a wedding, or purchase essential. Why, for example, should a peasant walk 50 kms. to a buying point -- the average distance from village to buying point as reported in the Fourth and Fifth Regions -- with a donkey and 100 kgs. of grain if a speculator will pick it up nearer the village for the same or more money?

The principal purpose of OPAM's program is to procure a larger supply of grain for consumers, but it reflects no provision for increasing production except the increase in buying price from 16 to 18 MF in 1969. There were larger simultaneous increases in the buying prices of peanuts and rice, crops for which there is great potential for expansion. A prior study shows gross returns from these crops to be 89 percent and 29 percent, respectively, higher than those from millet.

We believe that an adequate price incentive to farmers is a necessary part of any meaningful plan to increase millet and sorghum production and sales to OPAM. It has been recognized that cash incentives and assured markets had to be offered to producers to increase output of cotton and peanuts. It would appear that there was less recognition, until annual shortages developed, of the possibility that an unbalanced agricultural development policy would adversely affect the national grain supply.

The need for foreign exchange has quite logically been a factor in the government's agricultural policies. The appeal of low food prices is another casual factor in price policy decisions. But low food prices do not protect basic consumer interest when they lead to food shortages which are becoming more serious. Should donations not be available to largely cover the deficit in millet and sorghum requirements, the GOM would have no alternative but to go into the world market to buy grains. This would put a greater strain on the limited amount of foreign exchange available.

Problems of inadequate food supplies are seldom simple. More often they reflect a combination of factors which are interrelated in a complex manner. Each of several factors may be quite important. The USDA team believes, however, that the lack of an adequate millet/sorghum price to the farmer is the most important single reason for Mali's increasing need for grain imports.

We do not submit that a higher price and nothing more will assure adequate food grains, and it should be recognized that the full effect of a higher price will not be reflected immediately. Farmers are hesitant about changing their way of doing things, if only because they pretty well know what will result from conventional operations. Thus, they want to have considerable confidence of success before making a change.

For assured success in a grain self-sufficiency program, a well designed and properly implemented program of encadrement would be appropriate. We are confident, however, that a program providing such things as technical assistance, improved varieties, credit, fungicides, and a better marketing system will not solve the grain problem unless it also provides the farmer a more attractive price. We believe that, once he is confident of gaining enough additional money for the same work, the farmer will find ways of increasing his output.

It is not easy to determine the specific production prices and price ratios resulting in a desired grain supply. What is needed is a price that will make delivery to OPAM more attractive and smuggling less attractive. It is proposed that such a price to the farmer ought to be part of a broad well-coordinated effort which would include:

- (1) Continuous access to a market for the farmer;
- (2) coordination of needed arrangements and supplies;
- (3) adequate funding of OPAM; and
- (4) provision of credit as needed to permit farmers to buy those things which would increase output per hectare and per day of labor.

In addition, it would be appropriate to consider a change in the pattern of government expenditure to permit a larger proportion of the total to be devoted to agriculture. Only 7 percent of the 1971 budget was for agriculture and livestock. This is very small in relation to agriculture's dominant role in the economy.

There is need for a program of encadrement for food grains. Some work is being done in this area and more is planned, but emphasis to-date has been on cotton and peanuts. We are aware of reports that the use of fertilizer for these crops and their rotation with grain have raised yields of the latter. But no progress is evident, no step has been announced, which would assure the farmer of an adequate price or even a continuous market for his millet and sorghum once he has produced and is ready to market the crop. To attain a degree of self-sufficiency in food grains consistent with comparative economic advantage, the government must establish a firm policy to provide, on a national scale, market prices and services for food grain crops as attractive to producers as those provided for export crops or greatly expand output in the areas having a millet monoculture. The response of Malian farmers to low prices and only one remote buyer for millet and sorghum when more attractive and assured markets exist for both cereal grains and export crops has been logical.

The GOM concern for price stability is appreciated and respected. A lack of price stability certainly would increase the pressures for an increase in wages and salaries, which have been frozen for a decade. We understand some relief has been afforded by upgrading jobs as well as through the adoption of an income tax with a lower incidence than the former tax on wages and salaries, but there has been and continues to be pressure for an increase in wages and salaries.

While price stability is indeed appropriate as a national goal, it should be recognized that such a policy can be adhered to too strictly and for too long. For example, a freezing of prices over an extended period can lead to a stagnation of the national economy and a lack of private investment and development. A stagnated economy poses problems no less real than does an inflationary situation. Thus, policy on wages and salaries presents a difficult problem to the GOM. It must be faced up to because it will not go away if ignored. Wages rise with economic growth. It would make sense politically to raise wages and salaries when the selling price for millet and sorghum is raised. The USDA team believes there is great need for increased purchasing power in rural areas and that the millet/sorghum buying price should be raised prior to and to a much greater extent than wages.

A transfer of resources -- namely changes in the use of land, labor, and capital -- cannot be effected without paying larger monetary rewards. If these larger payments are compensated for by increased productivity, the impact on the price level will be minimal. To illustrate, let us assume -- as we read and were told repeatedly -- that:

- (1) Half of the urban millet and sorghum requirements are bought in the uncontrolled market;
- (2) by adopting a buying price of 26 MF, OPAM could buy grain to the extent that only a third instead of half of the urban requirements were bought in the "free" market;
- (3) OPAM increased its selling price through the coops from 33 to 37 MF, and
- (4) free market prices remained the same as last reported, that is, 75 MF/kg. in October 1971.

Given these changes the average of the two millet indexes in table VI would be 301.0 as compared with 324.2 as of the latest date for which data are obtained. If only a fourth of requirements are assumed to be acquired in the parallel market, the average would fall to 281.8. Actually, increased volume with attendant improved efficiency which should be achievable could permit part of an 8 MF increase in buying price to be absorbed. In addition, we believe prices in the parallel market would decline if sales in that market were reduced substantially. Alternatively,

should it be determined that it would be necessary to increase the selling price by 8 MF/kg, an average of the millet indexes reflecting a third of the total purchase in the parallel market and two-thirds from the coops would still be below the 324 shown above. Similarly, when weighted a fourth from the parallel market and three-fourths from coops and OPAM, the combined average would be 300.0 vs 324.2 for October 1971. Thus, an increase in the selling price would not increase the average price paid for millet if most of the requirements could be bought from the cooperatives.

The major grain price policy alternatives of the GCM, as envisaged by the USDA team, are those listed below. To facilitate comparisons and a quick grasp of our views, we present these major options in a semi-tabular rather than straight narrative form. Clearly, there are various modifications that could be made in these options which address themselves to buying price in rural areas.

Alternative 1

No change in policy.

Advantages:

Continuation of the present policy would make it easier to hold down the level of the official cost of living index, minimize the risk of a decline in the output of export crops, and minimize the strain on OPAM resources. Otherwise there are no real advantages to continuing to try to buy OPAM requirements at 18 MF. This policy has certainly permitted, if not caused, production to trend downward as import requirements steadily increased.

1. It would lead to a further progressive decrease in production of millet and sorghum in subsequent years because it would continue to provide too little incentive to produce for sale to OPAM. At the same time, it would encourage the continued shift of acreage from grains to export crops because price disparity gives income incentive toward the latter.
2. It would lead to continued and greater dependence upon imports as sales to OPAM decline and the urban population continue to increase.
3. Higher imports would put further strains on the economy, particularly the transportation facilities, and a continuing decrease in customs receipts because of inadequate transportation to maintain other imports.

4. It would discourage the use of production increasing things -- for example, animals for power, plows, and fungicides -- and could result in loss of investment in a millet demonstration project due to lack of farmer response.
5. It would hamper any efforts to obtain greater support for the government from the farm population.
6. It would lead to an increasing diversion of marketings from OPAM and contribute to an increase in smuggling to neighboring countries, although the amount of smuggling is also determined by the relative shortages of grain in neighboring countries.
7. It would not hold down the real cost of living as more people bid for the grain available in the parallel market. Consumer expenditure for millet and sorghum would continue to rise, particularly if foreign grain donations do not fill the gap between production and requirements. In addition, price in the parallel market would rise as OPAM supply dwindles.
8. If foreign donations (which depend on supplies available and relative gravity of needs) decrease in relation to import needs, the GOM will have to make up the difference by buying in the world market. In addition to using up scarce foreign exchange, this would involve substantial transportation costs when Mali, in fact, has some comparative advantage in millet and sorghum production.
9. It would encourage hoarding by producers as well as non-producers of millet and sorghum. Progressively, most production surplus to rural needs would flow through private channels of trade at speculative prices.
10. In the longer run, the regressive nature of the present system, to the extent that it functions with large numbers of farmers subsidizing a small class of relatively affluent city people, may be more socially disruptive than a rise in the cost of living.

Alternative 2

Increase OPAM buying price to 21 or 22 MF.

Advantages:

1. If OPAM bought from the beginning of harvest and provided a continuous market, it would maintain at least the present official buying price. There are repeated reports that farmers are often faced with situations offering no alternative to selling at less than 18 MF/kg.

2. It might stabilize acreage and production. But persons who should be knowledgeable state that it would have no effect on farmers' decisions. There would be little risk of any negative impact on production of export crops.
3. It would be a positive action demonstrating that the GOM has some flexibility. At the same time, the effect on the urban cost of living would be minimal if it should be determined that a 3-4 MF raise could not be absorbed and must be passed on to the consumer.

Disadvantages:

1. It would not increase acreage and production significantly because it leaves cereal prices low relative to export crops and is too small an increase to cause farmers to bring new land into production.
2. It would not significantly affect OPAM purchases. Except for distress sales, most farmers reportedly can presently get 22 MF and better from private traders or in local markets. In addition, prices in neighboring countries would continue to be much higher than in Mali.
3. It would be insufficient to encourage expenditure by farmers for production increasing items such as plows, donkeys, and fungicides even if credit should be made available.
4. It may be viewed as an uncertain halting step, not likely to increase supplies in the market, and would cause negative reaction in the urban areas without bringing much in the way of results in the rural areas.
5. The risk may be too great. It seems to have all the political disadvantages and none of the economic benefits of a meaningful increase. If the retail price was raised, it would increase the cost of living index. Moreover, a small retail increase this year might have to be followed by a second and larger increase in a year or two.

Alternative 3

Increase the OPAM buying price to 25 or 26 MF. Stand ready to buy in all areas where grain might be for sale at all times when it might be offered.

Advantages:

1. It would encourage, and probably result in, an increase in acreage, particularly in 1973 and subsequent years if there were complete implementation and follow-through for the 1972 crop.
2. It would increase the quantity of millet and sorghum offered to OPAM.
3. It would make clandestine, illicit trading in the parallel market much less profitable because as OPAM provided a larger part of urban needs there would be less buying in the uncontrolled market, fewer retailers in the parallel market, and there would be less opportunity to maintain the present wide price differential between OPAM and the parallel market.
4. It would tend to reduce smuggling because the disparity in prices between Mali and neighboring countries would be reduced and the domestic legal market would be significantly more attractive than at present.
5. It would increase farm income even before major production response is obtained. We believe additional purchasing power in rural areas would provide a healthy stimulus to the total economy.
6. It would decrease dependence on imports.
7. It would save the transportation costs and foreign exchange required to import grain.
8. It would encourage expenditures by farmers for things such as plows, donkeys, oxen, wagons, fungicides, and seed of higher yielding varieties which increase the money earned from a day's work as well as output per hectare.
9. It would increase OPAM efficiency by increasing the volume handled per employee. The present low volume contributes to high costs per ton and per employee. A larger amount per employee would permit a substantial reduction in the handling cost per unit.

10. It would increase support for the GOM from the farm and rural population, which are over 90 percent of the total population, because they would know the government had taken actions beneficial to them individually and collectively.

Disadvantages:

1. It may look too ambitious to GOM.
2. The view may be held in some quarters that OPAM is too inefficient and, in fact, not capable at this time of successfully carrying out the program envisaged. The team considers OPAM to have many good features and to provide a basically sound and essential national grain marketing organization. In addition, the team would strongly support a GOM request for technical assistance to improve the administration and management of OPAM's operations.
3. It would cause concern in urban and deficit areas. Consumers would anticipate higher prices even though total expenditures for grain could be lower as described above.

Alternative 4

Increase buying price to 30 MF or more.

Advantages:

1. It would take even more of the profit out of smuggling and other illicit trade.
2. It would definitely give farmers an incentive to increase acreage and production of millet and sorghum, particularly the acreage planted for marketing rather than personal use.
3. It would encourage development by making expenditures for production increasing goods profitable to farmers especially in areas where farmers have little opportunity to do anything except grow grain.
4. It should substantially increase OPAM purchases.
5. The difference between prices received by the farmer and paid by the consumer buying in the parallel market would be substantially narrowed if supply, particularly the OPAM supply, increased as expected.

Disadvantages:

1. It involves unnecessary risks. There is no way of determining farmers' response in advance, and it would be better to test the market with a smaller increase than take a chance on setting the price too high. It might result in surpluses for export, and, while exports would earn needed foreign exchange, the GOM would want to be sure that 30 MF plus transportation and other costs would not result in an F.O.B. port price above the world market price.
2. It would be even more unpopular in urban areas. If the OPAM selling price were raised by the same amount it could cause hardship, at least initially, to urban and Sixth Region consumers who have been buying all their millet from OPAM.
3. It would be more inflationary than a 26 MF buying price.
4. It might force the GOM to grant salary and wage increases almost immediately whereas a lag of a year or two might be preferable.
5. It could create funding problems.
6. It might put a major strain on OPAM facilities before there is sufficient time to prepare for handling the volume that might be offered.

Recommended Action

The USDA team believes that the central problem is how to move more grain through OPAM to the urban areas and the Sixth Region. We believe that the GOM has taken many appropriate actions. The nation is very fortunate in that there is no population pressure on the land. It is even more fortunate in that it has a tremendous potential for increased production. Although there are factors that will hinder the early attainment of anything near the full potential, it would not seem unrealistic to expect up to 2 million tons of millet and sorghum to be produced annually during the 1980's.

We propose announcing as soon as possible, as a first action, an OPAM buying price of 25-26 MF/kg. for the 1972 crop of millet and sorghum. There should be total commitment to the policy once it is established and an unquestioning determination throughout the GOM to see that it works and works well regardless of any concern about operating details. An announcement and subsequent failure to fully implement it would be quite harmful because it would jeopardize future programs designed to develop the rural economy. Again Mali is very fortunate in having a well-structured though presently inefficient national grain marketing organization. There remains a full 6 months during which any operational problems can be worked out prior to the beginning of harvesting.

In determining a new buying price, we urge that the government consider very carefully what we believe to be facts:

- (1) All reports indicate that for farmers who have a choice, cotton and peanuts are much more profitable than millet or sorghum by the conscious decision of the Malian Government. There is no apparent reason to think that any likely buying price that might be established for grain would have an important impact on the export crops.
- (2) That a token increase of 3 or 4 MF/kg. will have no significant impact on farmers' decisions regarding grain production. We understand the major factor limiting grain production at present is the available labor supply at planting time. This suggests that to obtain significantly more grain, producers must be convinced that there will be an accessible market and that returns from increased production will be enough to justify some action or actions such as hiring labor, buying tools or animals that increase output per person, spending money for fungicides, taking the risk of planting a different variety, etc. We believe that when the farmer is convinced that he will have more money after selling his surplus, he will find ways to increase his production. This may very well require some credit system for grain farmers, which will be discussed later. The point here is that the increase in the buying price must be sufficient to influence farmers if it is to be effective.
- (3) An inadequate increase will have the same disadvantages as one that is adequate. In other words, any increase will be equally unpopular with the urban resident.
- (4) A token increase might and probably would result in a situation where another increase would have to be made a year or two from now. A second increase so soon would be harder than a larger one now. To summarize, we think a buying price of 26 MF/kg. would in the near future increase significantly the amount of grain procured by OPAM.

OPAM's Selling Price

We recognize that the consideration of a higher buying price immediately raises the question of OPAM's selling price. Our judgment is less definite on an appropriate selling price than it is for a buying price. Actually, the selling price was outside our terms of reference as we understood them when this study was undertaken. Neither is the market situation as clear as the supply problem. The OPAM selling price is, however, so closely related to the determination of a buying price that we submit a few comments for consideration.

First, any announcement regarding an exact selling price apparently could be deferred for 6 months. Secondly, the present farm-retail spread (the difference between 18 and 33 MF) is inordinately wide. Reportedly, it does not cover OPAM's costs. Yet it is wider than we would have expected to find and wider than we have encountered previously. Clearly, it is in the national interest to study carefully the question of why the costs are as high as reported. We are not sufficiently knowledgeable of OPAM to have an opinion as to where savings might be made. We do think that a careful study should be initiated by a competent person having no connection with the organization. Among the areas that might be examined first are transportation and personnel. The tonnage purchased and handled per employee appears to be much too low even for the methods used. It will be less than 50 tons per employee if the 25,000 tons target for 1971-72 is attained.

At the same time, we think OPAM's costs should be recovered through the price at which it sells rather than through the national budget. The problem may be to determine unit costs for a more efficient operation.

In addition, and importantly, the cost of living index is not representative of prices being paid or of actual expenditures for food, because there are periods when the cooperatives do not have millet and sorghum. Also, there are people who for other reasons have to buy in small quantities. Of several purchases made by the measure in Bamako through reliable Malians during April 1972, the least expensive was equivalent to 147 MF/kg. Millet similarly purchased by the kilo cost 50 MF in a market adjacent to the warehouse where OPAM was currently buying grain. The point, as stated earlier, is that OPAM can buy enough grain to meet their requirements.

We suggest that OPAM consider establishing additional buying points as a way of increasing its supply. As envisaged, this could be done by using individuals as subcontractors for OPAM without any increase in OPAM employees or Federation buying locations. Perhaps a mutually satisfactory arrangement could be worked out whereby an individual using his own funds would purchase grain and deliver it to OPAM at the cercle or regional warehouse. Such an arrangement could be controlled through a licensing system of bonded commission agents.

Wage and Salary Policy

Wage and salary policy is another matter closely interrelated to grain prices. Although wage policy is outside our area of responsibility and has not been studied, we submit the following comment supplementary to earlier references.

In any consideration of the granting of a salary increase to government employees and salaried workers attendant to higher grain prices, the actual cost of the latter to the consumer should be calculated. To illustrate, one approach to the impact of a higher millet selling price

is the importance of millet as a component of consumer expenditures. Millet represents 10.2 percent of the urban cost of living index. This indicates that a full pass through to the retail level of an 8 MF increase in the buying price for millet and sorghum should add only a relatively small amount to consumer expenditures.

In fact, we calculate that a 7 MF/kg. increase in retail prices of millet would raise the official cost of living index only 2.4 percent. This should not be construed as a recommendation of a wage and salary increase and the amount thereof. Rather, it is an endeavor to put a raise in the grain selling price into perspective. In our opinion, a large increase in wages and salaries would not be the right response economically to the higher millet prices recommended in this report.

Whether it would be the right answer politically is a matter for the GOM to decide. To avoid being misunderstood, we are not recommending that wage and salaries continue to be frozen at present levels. In our judgment any increase that would be acceptable to wage earners, assuming it would be more than 5 percent, should be for reasons other than or additional to any prospective higher OPAM and cooperative selling price for food grains.

Recommendations for the Longer-Term

With respect to the longer term, we submit five recommendations for consideration. If they were implemented, the people of Mali would, in our opinion, benefit substantially. They relate to a program of encadrement for millet and sorghum, data development, transportation, the development of a more efficient marketing system with additional buying points, and the exploration of the possibility of developing a regional grain marketing system.

We have stated earlier that a change in price policy was of primary importance in the long-run in order to increase the flow of commercialized grain through OPAM's channels of distribution. A change in price policy is equally important for achievement of the longer run objective of a substantial increase in production.

In addition to a price increase to encourage greater production, one must include the planning and execution of a program of encadrement in important food grain producing areas. This program of encadrement should include:

1. Research on varietal development, fertilization, cultural practices, and soil conservation. A well-executed program of agro-economic research at the farm level should be included.
2. Field testing under farmer conditions of recommendations developed by the research stations.

3. A program of extension and basic literacy.
4. Provision at cost of fungicides and small equipment. As better varieties of millet and sorghum are developed, and, as the use of fertilizer proves its profitability, provision of seeds and fertilizer at cost.
5. A credit program to enable farmers to buy small implements, fungicides, improved seeds, and other production inputs.

Mali is fortunate to have a number of years of increasingly successful experience with this type of a program. Operation coton (cotton) and operation arachide (peanuts) provide excellent models and the experience they provide should be drawn upon.

An excellent start toward the activation of such a program is set forth in the publication "Avant Projet de Developpement des Cereales de Culture Seche dans la 5^e Region." The USDA team supports the approach this plan takes to increasing cereal grain production. It gives adequate recognition to the need for more research information and anticipates an initial trial in one region rather than an effort to cover the entire nation from the start. We agree with the statement contained in the Avant-Projet "one must avoid creating too large and costly a structure at the beginning that might compromise the future."

The provision of an adequate credit program is of extreme importance since any substantial expansion of acreage must involve a change from use of a daba to simple farm equipment using animal traction.

The present system of agricultural credit in Mali is apparently satisfactory, that is to say, (a) medium-term loans for agricultural material such as plows, harrows, cultivators, carts, etc., for a period of 2 years at 3 percent interest and (b) operating loans for fertilizer and pesticide payable at harvest without interest.

We could only suggest that the interest rates indicated will not cover the cost of the credit program, and to this extent, if a program is developed and present rates continue, the program will require subsidization.

The study team suggests that responsibility for execution of the credit program must be the responsibility of the Agricultural Service through appropriate personnel assigned to such a program of encadrement.

Such a program of encadrement will be expensive and serious attention must be paid to its costs and financing. The proposed initial program has been estimated to cost approximately 112 million MF for an estimated maximum increase in grain production of 15,000 tons per year. This does not include the provision of a revolving audit fund.

The program of encadrement would then cost the Government of Mali an additional 7 MF for every additional kilo of grain produced. Although this is not necessarily excessive as an additional cost, every effort should be made to reduce this per kilo cost since it must be financed from one source or another.

As a first source we would suggest serious consideration of a system of partial self-financing. From a price to the farmer of 24 MF/kilo, one MF might be retained and turned over to operation mil (millet) for the program of encadrement in those cercles when the program has been initiated. If the farmers are able to see the extent of the benefit which arrives to them from participation in the program, there should be no problem in obtaining their agreement.

This amount would not cover the costs of the program and additional funds must be sought either from the treasury or from international sources.

Steps should be taken as soon as resources permit to improve the timely collection of reliable information on acreage and production of major crops. This should include forecasts of production by regions for millet and sorghum. A farm stabilization program depends on accurate forecasting of crop production well in advance of harvesting. Time is needed to plan the financing, storing, and distributing of grain to be purchased by the government. A prerequisite to such planning is a reasonably good knowledge of the amount of grain being produced and the location of such production. If the GOM should promise farmers a higher price and not maintain a continuous market with prices at, or close to, the announced purchase price, an expansion in production would be in jeopardy. In addition, and importantly, information on probable production is essential to useful price analysis work.

Forecasting of crop production is a technical subject. In its most simple forms it requires selection of particular locations, the conditions of which would be representative of the total for the area and nation. Crop conditions on the sample plots have to be reported at predetermined intervals, summarized, and expanded to a national equivalent without delay. Generally, conditions as of any specific time can best be interpreted in relation to previous experience. Thus, a period of time is required to build up a base.

In regard to transportation, Mali has some good arterial highways, a long, dry season after millet and sorghum mature, and an impressive capability for movement by truck. Nevertheless, transportation is a special problem. The country does not enjoy direct access to ocean shipping and rail transportation capability is quite limited. Production goods and people cannot readily or dependably reach the interior farm population at reasonable cost. Similarly, grain cannot be withdrawn from the interior at reasonable cost. Repeatedly, about a third of the

OPAM selling price represents transport costs. The cereal grain component, as well as the entire economy, is not likely to reflect substantial development until this problem is solved. Improved transport can parallel an area-by-area development of agriculture.

A network of paved roads is not envisaged. It is essential to development, however, that there be farm-to-market roads so that the typical grain producer will not be walking behind a "donkey" that carries a bag of millet from a village to a buying point 50 kms. away. The established rate for hauling by truck over the ground roads is 18.5 MF per ton per km., equivalent to 92.5 MF for a 100 kg. sack for 50 kms. The producer still has a 50 kms. trip back to his village.

A brief examination of the Malian situation suggests that it is not independent of grain supplies and demand in neighboring countries. Areas outside Mali have relied upon the latter as a regular source of supply. In contiguous areas which are regularly deficit, the price levels are higher than in Mali. Given these conditions, a single nationwide price, and a tight supply situation, there exists opportunities for clandestine trade. Such trade is much less advantageous to the GOM than legal exports.

The most advantageous way for the Government of Mali to address this problem is to join with its neighboring state in a regional grain marketing program.

Consideration must also be given to the question of how OPAM can best serve Mali's needs over time. At a minimum, OPAM should:

- (1) Be a ready and willing grain buyer at a set minimum price for the producer.
- (2) Be a ready and willing seller at a fair maximum price to the consumer (and by these two actions establish non-speculative market prices).
- (3) Establish and maintain a strategic stock of grain to protect against crop failures, and
- (4) Be the import-export agency for grains.

In fact, OPAM's present mandate is substantially wider than the above, the agency being legally named the sole buyer and seller of grain in all markets.

Serious consideration for the long-run should be given to the high probability that OPAM can never achieve such a monopoly position. In fact, responsibilities on the buying and selling side of the market may be too wide for management control by OPAM. The use of private entrepreneurs with adequate safeguard in some phases of OPAM's operations could lead to greater market efficiency.

Admittedly, recent experience using private entrepreneurs for grain buying has been disastrous. However, some of the major reservations about permitting private trade could probably be resolved by one or all of the following policies:

1. Establishing a system of differentials in the OPAM buying price to reflect transportation and/or other costs which vary according to location.
2. A simple system of grades and standards.
3. A system of bonding and licensing.

As a first step, OPAM could license and contract with a small number of known and trusted contractors to buy grain at the farm level for delivery to the arrondissement or cercle level in selected pilot regions. Ideally, margins allowed to dealers would reflect variations in handling and transportation costs caused by distance and road conditions.

Alternatively, an immediate start in this direction could be made on a pilot basis to improve buying practices through the proposed encadrement of operation mil. As suggested in the Avant-Projet of this project cited elsewhere, agents socio-economique could be employed by the project charged with the responsibility to purchase at the village level using private entrepreneurs as required and delivering grain to OPAM at the cercle level.

This scheme would have several additional advantages. It would make the grain program roughly similar to buying practices for export crops.

It would also locate responsibility both for farm grain purchases and for extending farm credit in the same hands.

Either of these steps would have the effect of reducing the scope of responsibility of OPAM to the point where it can do a better job of its major responsibility -- feeding the urban population and the Sixth Region -- with the resources at its disposal.

Adequate and timely funding is essential to the effective implementation of a pricing policy such as is being carried out in Mali. OPAM has no capitalization. It has resorted to short-term loans from the state bank, a practice which has caused serious delays and interruptions to field operations.

Perhaps the GOM has considered capitalizing OPAM and decided not to do so. Obviously, if it should be capitalized and not fully recover costs, there would be the question and problem of how the deficit would be covered.

Alternatively, should the GOM see fit to give OPAM its own funding, there are possible sources of capital. The following are cited without any suggestion as to their availability:

1. The Mali Treasury.
2. Cash grants-in-aid or long-term loans from foreign sources.
3. The people of Mali.
4. Funds generated through the sale of sorghum donated by other nations to meet deficits in millet and sorghum supplies.

With regard to (3) -- the people -- it could be argued logically that as Malians buy food they presently finance the inefficiencies and inadequate quantities of grain procured by OPAM. While working capital could be guaranteed by the people in the amount they pay for food, it would not be appropriate for OPAM to adopt a policy of endeavoring to make a profit from its operations.

If the GOM raises the grain purchase price by 8 MF/kg. and determines that this amount cannot be fully recovered through efficiencies, plus increased selling price, funds generated by the sale of donated grain could theoretically provide a means of financing a transition. It will be understood from earlier comments that the team does not recommend the use of such funds to permit for a year or two a lower OPAM selling price than would otherwise be established.

* * * * *

Food problems generally are complex. Many involve changing the behavior pattern of farm people. In addition, food problems often demand that the necessary changes be compressed into a shorter period of time than that taken for solving other problems. Thus, the food problems often seem difficult.

The important thing is that Mali's problems can be solved. But neither economic nor political stability will be maintained without enough food.

We feel that the policies recommended in this report would, if implemented, be a substantial step in solving Mali's serious food problem.

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TABLE I. - PRICES OF ALL FOOD PRODUCTS
(July 1962/June 1963 = 100)

		January	February	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.	Annual Averages
1965	<u>1/</u>	114.9	119.6	116.2	120.1	115.9	119.5	121.6	122.6	111.2	111.1	117.0	115.0	117.1
	<u>2/</u>	164.2	188.2	160.2	164.2	154.7	159.5	164.5	159.6	178.6	159.8	145.6	166.7	162.2
1966	<u>1/</u>	116.0	116.5	112.4	116.5	117.1	123.4	129.5	129.0	134.1	126.5	121.1	126.0	122.3
	<u>2/</u>	169.7	161.8	161.2	156.0	168.2	169.9	176.0	175.6	218.7	197.1	199.4	188.5	170.2
1967	<u>1/</u>	127.1	138.9	132.1	133.4	137.0	138.4	156.0	176.5	165.7	161.2	154.8	152.5	147.8
	<u>2/</u>	204.2	185.6	188.5	174.2	175.3	182.0	200.7	212.3	199.0	197.0	185.2	188.5	191.0
1968	<u>1/</u>	150.6	147.6	151.5	155.6	156.5	155.6	155.0	154.1	158.2	156.8	163.7	152.0	154.8
	<u>2/</u>	184.8	197.1	198.6	196.8	194.2	195.8	196.1	195.1	185.9	185.0	188.2	170.0	190.6
1969	<u>1/</u>	154.7	147.5	152.8	158.1	162.2	161.8	172.7	171.7	166.1	169.7	154.6	169.1	161.9
	<u>2/</u>	172.3	167.7	172.4	180.0	193.1	206.9	215.5	221.1	203.9	191.3	187.0	178.0	190.4
1970	<u>1/</u>	149.6	156.1	153.9	159.6	165.1	175.1	172.6	184.3	184.7	178.7	174.8	179.1	159.5
	<u>2/</u>	174.2	184.8	171.2	187.0	188.3	206.4	208.0	201.5	203.1	199.0	194.4	209.1	194.3
1971	<u>1/</u>	170.6	175.2	177.5	180.8	186.4	194.2	193.8	202.8	196.0	193.8			
	<u>2/</u>	200.6	202.2	206.3	200.4	220.6	240.2	241.5	255.9	252.1	250.7			

1/ Cooperative price index (controlled prices)

2/ Price index composed of "free" market price index for millet and rice, and cooperative price index for the rest.

SOURCE: Direction Générale du Plan et de la Statistique

TABLE II. - OPAM PRICES FOR MILLET AND SORGHUM, 1971-72

<u>BUYING</u>	<u>MF/kg</u>
Paid to producer	18.00
Payment to Federation as buying agent in arrondissement for delivery to cercle	<u>3.20</u>
Price delivered at cercle	21.20

<u>SELLING</u>	
Bamako	33.00
Kayes Region	35.00
GAO Region	41.50
Other areas	28.50

NOTE: Selling prices are for bags of 100 kgs. and exclude deposit for bags. Sales to cooperatives, which sell in smaller quantities, are 1.50 MF/kg below above prices. Thus, OPAM's spread to cover all costs on grain bought through the Federation and sold in Bamako through cooperatives is 10.30 MF/kg, or 57 percent of the price paid to producers. The latter reportedly transport their grain an average of 50 km. to reach a buying point.

TABLE III. - MILLET AND SORGHUM BOUGHT BY OPAM, 1964-69 ^{1/}

Region	1964-65	1965-66	1966-67	1967-68	1968-69	1969-70
	metric tons					
Sikasso	2,185	4,960	8,929	10,732	2,160	8,556
Segou	4,784	7,493	18,294	18,443	4,662	7,378
Mopti	6,770	6,920	9,694	12,054		4,082
Gao		31	311	664		
Kayes	1,963	1,920	7,353	5,393	181	1,687
Bamako	1,710	4,578	12,051	11,129	136	4,662
Total	17,412	25,902	56,632	58,415	7,139	26,765

^{1/} "La commercialisation du mil." Represents domestic production marketed through the state enterprise responsible for assembling and distributing requirements for urban and deficit areas and the military. OPAM had a preferred if not a monopoly position in buying.

SOURCE: Rapport d'Activites 1970/1971, OPAM.

TABLE IV. - CROPLAND CULTIVATED BY REGION, 1967

Crops	KAYES	SIKASSO	BAMAKO	SEGOU	MOPTI	GAO	ALL REGIONS		
							Total	Percent	
	1000 Hectares							1967	1969
Millet and Sorghum	105	207	193	155	177	46	882	49.3	32.6
Rice	9	19	22	55	72	16	192	10.8	7.8
Fonio (local cereal)	4	34	3	16	19	-	77	4.3	4.1
Peanuts	59	22	25	19	1	-	126	7.1	5.7
Cotton	-	36	16	15	3	-	71	3.9	4.0
Corn	11	10	4	3	3	-	31	1.7	1.4
Other Crops	1	22	6	6	5	1	42	2.3	2.0
Mixed Crops	21	121	74	93	56	3	367	20.6	42.4
Total	209	473	342	363	337	65	1,788	100.0	100.0

SOURCE: Annual Statistics 1968 of the Republic of Mali for 1967 data and Rapport de l'Enquete Agricole 1969-1970 for 1969 distribution.

TABLE V. - PRODUCTION OF PRINCIPAL CROPS

Crop	1964 ^{1/}	1966	1967	1968	1969
	1000 metric tons				
Millet and Sorghum	651	737	830	558	603
Rice	130	158	172	134	162
Peanuts	148	159	119	96	136
Cotton	54	32	42	50	44
Corn	109	76	66	66	151

1/ Excludes the Sixth or Gao Region

SOURCE: Rapport de l'Enquete Agricole 1969-1970, page 19.

**TABLE VI. - MARKETED PRODUCTION AND PRODUCER PRICES OF MAIN AGRICULTURAL CROPS,
1964/65 - 1970/71**

(Production in thousands of metric tons; producer prices in MF/kg)
(Area planted in thousands of hectares)

	1964 65 <u>1/</u>	1965 66 <u>1/</u>	1966 67 <u>1/</u>	1967 68 <u>1/</u>	1968 69 <u>1/</u>	1969 70 <u>1/</u>	1970 71 <u>1/</u>	1971 72 <u>1/</u>
Millet and sorghum								
Marketed production	17		57	51	18	26	20	25
Producer price	10-11	10-11	15	16	16	18	18	18
Planted			830	882				
Rice (paddy)								
Marketed production				35	26	36	45	
Producer price	12.5	12.5	16	18	18	25	25	
Planted			169	192				
Corn								
Marketed production				2.3	3	1.2	2	
Producer price	13	13	16	17	17	20	20	
Planted			22	31				
Groundnuts (in shell)								
Marketed production				29	27	57	74	63
Producer price	13	13	16	24	24	30	30	30
Planted			122	126	218	242	314	260
Cotton								
Marketed production				33	43	45	53	
Producer price	34	34	34	40	40	44	48	48
Planted			47	70	71	69	66	78
Climatic conditions				Good	Poor	Very Good	Fair	Fair

1/ Statistique Annuelle, 1968

SOURCE: Data provided by the Malian authorities.

TABLE VII. - RETAIL PRICE INDICES FOR MILLET AND RICE

(1962/63 = 100)

Average Unit Price/kg

1962/63: Parboiled rice: MF 37.0
Millet: MF 16.5

	Parboiled rice		Millet	
	Cooperatives 1/	Markets 2/	Cooperatives 1/	Markets 2/
July 1965	121.6	240.5	106.1	272.7
January 1966	121.6	273.0	106.1	309.0
July 1966	121.6	245.2	106.1	97.0
January 1967	154.1	343.2	133.3	484.8
July 1967	154.1	275.7	133.3	303.0
January 1968	154.1	254.1	133.3	254.5
July 1968	154.1	270.2	133.3	266.7
January 1969	148.6	210.8	172.7	266.4
July 1969	139.2	287.6	172.7	357.6
January 1970	155.4	224.3	172.7	266.6
July 1970	164.9	254.0	187.8	300.0
January 1971	164.9	245.9	200.0	309.1
July 1971	164.9	324.3	200.0	327.3
October 1971 <u>3/</u>	--	--	193.9	454.5

1/ Controlled prices

2/ Free market prices

3/ Calculated from prices published in Monthly Statistical Bulletin

SOURCE: Direction Générale du Plan et de la Statistique.

TABLE VIII. - RAINFALL, AVERAGE 1931-60 and 1971

MONTH	BAMAKO		KAYES		SIKASSO		SEGOU		MOPTI		GAO	
	Average	1971	Average	1971	Average	1971	Average	1971	Average	1971	Average	1971
	millimeters											
January	0.8	0.0	0.6	0.0	0.5	0.0	0.4	0.0	0.5	0.0	0.4	0.0
February	.2	.0	.6	.0	6.7	.0	.3	.0	.1	.0	.3	.0
March	3.4	17.6	.1	.0	17.0	3.0	2.7	.0	.4	.0	.5	.0
April	15.4	16.1	1.8	.0	40.8	31.0	11.5	.5	2.7	.0	.5	.0
May	59.5	13.0	21.4	1.1	121.9	37.0	25.6	40.7	18.6	20.5	5.9	1.6
June	145.2	81.4	99.5	101.8	161.9	125.6	90.5	46.8	55.4	33.7	26.7	1.5
July	250.9	296.7	172.3	153.4	273.4	188.0	190.3	143.6	153.8	126.7	75.0	44.4
August	333.6	461.5	250.7	275.8	337.8	331.1	247.9	174.0	192.7	203.0	100.6	117.0
September	220.4	147.1	180.8	59.4	282.0	100.7	126.5	56.1	103.8	101.0	35.8	10.2
October	57.8	6.5	50.5	4.0	104.9	27.7	23.7	19.7	19.5	4.8	5.4	.0
November	12.2		8.9		14.8		3.1		.7		.1	
December	.3		.3		2.1		.1		.2		.1	
TOTAL ^{1/}	1,099.7	1,039.9	787.5	595.5	1,363.8	844.1	719.9	481.4	548.4	489.7	251.3	174.7

^{1/} For 1971 represents only 10 months, however, abnormally low September and October rainfall suggests negligible precipitation thereafter.

TABLE IX. - MALIAN EXPORTS, 1970

COMMODITY	VALUE
	million MF
Livestock	6,759
Cotton	4,060
Peanuts	1,635
Fish (dried, salted, smoked)	1,520
Peanut oil	712
Cotton cloth	667
Coffee, tea, spices	522
Peanut cake	423
Cottonseed	278
Leather and skins	179
Other	2,540
Total	19,295

Conversion rate: 550 MF equals \$1 U.S. currency.

SOURCE: Embassy Report on Foreign Trade, 1970.