

# FOOD GRAIN PRODUCTION AND MARKETING IN WEST AFRICA

Final Report of a Special Study Team

March 1970

Agency for International Development  
Contract No. AID/afr-664

CHECCHI AND COMPANY  
Washington, D. C.

Food Grain Production and  
Marketing in West Africa

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PREFACE

## PREFACE

While in some areas of the world the Green Revolution seems to be making great progress in expanding agricultural crop production, in others it has not taken hold. In fact, if the statistics are to be believed, food crop production in the latter regions is losing out in the race with population growth. One of these areas seems to be West Africa.

USAID officials in Washington and in West Africa have been questioning increasingly the efficacy of external assistance to West Africa in dealing with the apparently growing food grain deficit. While their concern was focused primarily on one component of U. S. assistance, namely aid provided under Public Law 480, they felt that other U. S. programs, and even those of other donor countries, appear not to be doing much to correct the situation.

USAID officials, therefore, sponsored a short but comprehensive study of the problem by a team of independent consultants. To permit a study in reasonable depth the geographic scope was limited primarily to four countries in the Savannah region of West Africa: Senegal, Mali, Upper Volta, and Niger. The subject matter concentrated primarily on the area's traditional food grains: millet, sorghum, and corn.

The five-man team consisted of three members of a private American consulting firm, Checchi and Company; a senior member of the Economic Research Service of the USDA; and a senior employee of World Food Program, who was formerly a staff officer of FAO. Two of the members of the private company, Roger Stewart and D. A. FitzGerald, have had many years of experience in the USDA, in the U. S. foreign aid program in general, and in PL 480 programs in particular. The third member, Sandra Willett, is an economist with fluent French. The member of the U. S. Department of Agriculture, Dr. Norris Pritchard,

is a marketing economist with extensive agricultural experience overseas. The WFP representative, Dr. S. F. Bethke, also is a marketing economist with extensive African experience in food production and marketing and with WFP development projects.

Each member of the team spent from two weeks to eight weeks in the survey area. Consultations and meetings were held with scores of government officials, local and foreign, with private citizens, and with representatives of international organizations. Team members also made some field inspection trips. Without exception, all those interviewed gave freely and generously of their time, knowledge, experience and judgment. The team wishes to acknowledge with the utmost appreciation the unexcelled cooperation it received from those interviewed.

Because of limitations of time and distance, Dr. Bethke did not participate in the preparation of the first draft report. A copy was airmailed to him so that his comments could be taken into account in any revision thereof. We believe, however, that the final report substantially reflects his views which he set forth at the conclusion of the field investigation in a statement included herein as Appendix A.

Dr. Norris Pritchard is almost exclusively responsible for Sections II and III. The other members of the team wish to express their appreciation for his excellent description and analysis of the situation.

The team has tried to avoid undue preoccupation with the program of any individual donor, particularly the U. S. , and to make recommendations so that any donor, national or multi-national, to the extent the recommendations appear meritorious, can adapt its program accordingly.

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SECTION I

SUMMARY REPORT

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SUMMARY REPORT

A.        INTRODUCTION

West Africa includes some 15 independent countries stretching east from Senegal. With the sole exception of Liberia, these countries were former colonies of France or the United Kingdom. They are all "underdeveloped," meaning that they are characterized by a low total and per capita GNP which is based on agriculture, high birth rates, mass illiteracy, and limited experience and capacity in governmental and entrepreneurial administration.

While most of these people have always faced the struggle for physical survival, recent evidence suggests that hunger, if not starvation, has become increasingly frequent. Emergency food imports have become the rule rather than the exception.

This situation appears to be particularly prevalent in certain newly independent countries which were former French territories. At the request of the AID Director of the Central and West African Office of Regional Activities, a study team recently conducted a comprehensive review of conditions in Senegal, Mali, Upper Volta, and Niger; a brief survey in Ivory Coast; and limited contacts in Dahomey.

The comments, evaluations, and recommendations which follow pertain specifically to Senegal, Mali, Upper Volta, and Niger but are believed to be equally applicable to other countries with roughly comparable conditions whether in West Africa or elsewhere.

B.        CURRENT SITUATION

All four countries reviewed are extremely underdeveloped. The interior countries -- Mali, Upper Volta, and Niger -- have per

capita GNP's ranging from \$50 to \$100.<sup>1</sup> Government budgets are extremely tight with little or no room to maneuver. All four countries run substantial trade deficits ranging from 3.1 billion francs CFA for Niger in 1967 to 7.4 billion for Senegal in 1968.<sup>2</sup> There is little immediate chance for significant improvement. In the long run, exploitation of mineral deposits might contribute to a more rapid growth of GNP but any such exploitation in the interior countries will be inhibited by the inadequacy and high cost of transportation. In the meantime, these countries must rely primarily on agriculture as the major contributor to GNP and growth therein.

Per capita real income probably has not changed appreciably in the decade since independence. Economic growth has only slightly exceeded the 2.0 to 2.5 percent increase in population. Workers in all of the countries receive extremely low wages. In Mali, the median monthly income of non-farm workers is about \$22. In Upper Volta a factory worker receives only slightly in excess of \$40. Government wages are higher but still very low. Civil servants in Upper Volta receive an average of \$100 per month.

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<sup>1</sup> The team was unable to place complete reliability on the available statistics on several countries other than Mali. For example, if all the data on Niger were accurate, there could not have been a food crisis in that country in 1969. Yet, such a crisis existed so that production estimates must have been far too high or population estimates far too low. The team's observations on the four countries led it to conclude that the per capita statistics could not be depended upon for the purpose of comparing one country with another. For the team's purpose, however, the apparent errors in the background data were only a minor handicap. The team's own observations and those of experienced analysts representing the International Monetary Fund, World Bank and others with whom the team consulted gave adequate support to the qualitative portrayal throughout the report on the current situation and trends.

<sup>2</sup> International Financial Statistics, November 1969, International Monetary Fund. Approximately 278 CFA francs equal \$1.00 U.S. and 556 Malian francs equal \$1.00 U.S.

From 80 to 96 percent of the population lives in rural areas and is dependent on agriculture for income. The incomes of these families are even lower than those of the city workers. Large numbers of the able-bodied farm population in Upper Volta migrate to the Ivory Coast and Ghana seasonally or permanently to improve their earnings.

The inadequacy and excessive cost of transportation in all of the countries, particularly in the interior, are major obstacles to economic growth. Costs of moving imported grain from African ports to interior distribution points in Mali, Upper Volta, and Nigeria appear to range from \$35 per metric ton in Mali to \$65 in Niger. Roughly half these costs is attributable to handling and transportation from the discharge port to the interior country's nearest point of entry.

Illiteracy is widespread and all of these countries suffer from a shortage of trained technical and administrative personnel.

Millet, sorghum, and corn are the basic diet of the population. The human and land resources have always been and are now available to produce these crops in adequate supply even for a growing population, but erratic variations in rainfall cause annual fluctuations in crop production. Today many farmers do not produce enough for their own use let alone the needs of the urban populations. Although production may have increased slightly in recent years, it has not kept pace with the population growth. The outside world has provided the food required to forestall widespread hunger. In contrast, production of export crops, principally peanuts and cotton, increased sharply during the same period.

The roots of this problem lie in government policies dating from the colonial period and largely continued thereafter. In the case of peanuts and cotton, dependable markets were established. Attractive prices were fixed. Research, extension services, credit, production

requisites, and French financial assistance were pinpointed at these crops. No comparable efforts were made for the subsistence crops apparently under the assumption that farmers would always produce sufficient food without similar incentives. Marketing of the subsistence crops is left to petty traders who profit from extreme seasonal fluctuations in prices. It is not uncommon for food grain prices to range from 8 francs CFA per kilo at harvest time to 40 francs CFA or more in the months immediately preceding harvest. In such circumstances, fertilizers cannot be afforded on food crops and limited extension efforts are ineffective. Experience with and the need for cash stimulated farmers' interest in peanuts and cotton rather than in millet, sorghum, or corn. The adverse consequences of these policies are now obvious.

Unfortunately, donor nations either have not recognized the problem or have not oriented their policies and assistance toward correctional measures. Bilateral food assistance from the United States, the European Community, and Canada has all been directed toward meeting food deficiencies during emergencies. It has been helpful for this purpose. To the extent that these donated foods were sold, little if any of the sales proceeds were used to help overcome the basic causes of the emergencies the donors were called upon to meet. For a number of years, the FAO and World Food Program have made some effort to encourage and assist the countries to deal with their food problem. However, the only project undertaken by them to date, which was directed specifically at food grain market stabilization within the four countries, has been dropped.

Foreign currency financing similarly has not been particularly helpful in stimulating food grain production and marketing. Eventually, there may be some benefits such as may result from French financed research on millet and sorghum varieties. But for

the most part, French financing of export crop production and marketing has contributed to an imbalance in total crop production.

Positive results from European Community financing appears to be handicapped by a lack of objectivity in selecting and limiting the number of projects to support. In contrast, Nationalist China has concentrated on rice production projects and appears to have been quite successful in this specific area. It remains to be seen, however, whether local producers generally will adopt the relatively advanced production technology and whether prices likely to be received by producers generally will be sufficiently remunerative to provide the necessary production incentives.<sup>1</sup>

C. CONCLUSIONS

On the basis of the field survey and additional pertinent study, the team concludes that:

1. It should be physically and economically feasible for Senegal, Mali, Upper Volta and Niger to become, in due course, largely or wholly self-sufficient in the production of millet, sorghum, and corn. This will require significant changes in existing agricultural policies and the initiation and evolution of programs to implement these policies.

2. Limitations in the availability of trained managerial and technical personnel, in physical and financial resources, and in basic production and marketing data will mean that progress will be relatively slow at best. Every effort will need to be made to put first things first and to start only those programs and activities for which

*This list of items Team*

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<sup>1</sup> See Section II for a more extensive discussion of the agriculture of the region and its problems, and Section III for further country details.

human and financial resources, including those from external sources, are in hand or in reasonable prospect. This will not be easy. There are so many things that need to be done. In certain important respects, too, they are all inter-related so that effective progress in one element is dependent upon progress in all other elements. Nevertheless, priorities must be established even though progress may not be as rapid and effective as if all elements could be initiated simultaneously.

3. The first necessity is for these countries to adopt a policy of giving as much attention and support to the production of food crops as traditionally has been given to export crops, particularly peanuts and more recently cotton. The countries visited are, to varying degrees, moving in this direction. They need promptly to establish "equity of treatment" as a firm government policy.

4. To implement this policy and to provide the incentives necessary to expand the production of millet, sorghum, and corn, farmers need to be assured of accessible market outlets, reasonable prices, and prompt payment. Until farmers are convinced that the so-called subsistence crops can produce a cash income approximating that of export crops, campaigns to encourage increased production through the use of better seeds, better tillage, more fertilizer, insecticides, etc. will have little effect. Hence, the team considers as a top priority for prompt government action:

a. timely announcement of the prices to be paid producers for millet, sorghum, and corn. Such prices should be at levels which will make the return to farmers reasonably comparable to the returns from sales of export crops. Prices to be paid producers for all crops should be announced at the same time.

b. provision of reasonable access for farmers to buying stations, permanent or mobile, especially during the harvest period.

c. cash settlements to farmers at the time the food grains are delivered to the buying stations.

d. establishment of national grain authorities to implement this program.

It is clear that the establishment of an effective nationwide grain marketing system cannot be accomplished overnight. Neither the technical and administrative competence nor the financial resources from local sources are likely to be adequate. It will take time and money to construct the necessary physical storage and possibly transportation facilities and to develop the indigenous managerial and technical competence to manage properly such an enterprise.

Concomitantly with the establishment of a national grain authority steps must be taken to obtain and/or upgrade managerial and technical personnel who not only will have the competence and the integrity to handle the financing, buying, and accounting affairs of the authority, but who either have or have access to experts having extensive knowledge of grain grading, storage, transport, and handling.

5. As promptly as trained personnel and financial resources permit, steps should be taken to improve the collection of dependable and timely information from which periodic estimates of crop production can be made, thereby improving both the accuracy and timeliness of forecasts of the magnitude of surpluses and shortages by areas. In addition to improving the internal operation of the national grain authorities this should make it possible to meet emergencies requiring grain imports in a more timely and efficient manner. Whether this crop forecasting is undertaken by the national grain

authority or by some other entity of the government will depend on an internal decision by each government on how it can be done most efficiently and economically.

6. When the national grain authority has reached a reasonable degree of maturity, and crop reporting services have attained certain reliability, some arrangement for consultations among the national grain authorities in the area should be initiated. They and the countries in which they are established, will have many interests in common, and coordination, even though wholly informal, between national grain authorities and their governments should improve the effectiveness of individual country programs. Topics which may be appropriate for an exchange of views would include:

- minimum prices to farmers, maximum prices to consumers;
- grain standards and grading;
- movement of grain across state borders from surplus to deficit areas;
- crop prospects; and
- methods of storage, drying, insect control, and costs, etc.

As soon as circumstances permit, perhaps under regional egis, a comprehensive economic analysis of agriculture and agricultural marketing in the region should be undertaken to provide the basic economic intelligence required to facilitate the implementation of national grain marketing programs. While such economic intelligence would be very useful from the outset, its development requires a degree of economic and analytical sophistication which is not likely to be available indigenously. A study by a donor country or international organization is a possible solution. It could be conducted with less local participation than the organization and operation of national grain authorities.

7. The effective execution of a successful food grain production and marketing program need not be at the expense of the export crops. These are the principal earners of foreign exchange and are, therefore, important to these developing countries. Fortunately, for the time being at least, land is not a limiting factor, so the expansion of food grain acreage and production does not have to be at the expense of export crops. In the longer run, the use of improved cultural practices would permit steady expansion of both if markets therefor warranted.

D. RECOMMENDATIONS

The following are generalized recommendations to donors on the one hand, and to donees on the other. They should be adapted to meet the legal and other requirements of such countries and international organizations.

1. Uniform five-year "blanket" agreements should be negotiated with each of the four countries, Senegal, Mali, Upper Volta, and Niger, which would set forth the conditions under which the donor(s) would contribute financial, commodity, and technical assistance to these countries to help them achieve increases in food grain production necessary to feed their growing populations and to procure, store, and distribute the food grains efficiently and effectively.

2. Each agreement would commit donee governments to:
- a. initiate promptly domestic policies for food grains designed to expand adequately the production thereof; such policies would be worked out in cooperation with donors.
  - b. establish national grain authorities to implement such policies.
  - c. contribute from national sources progressively larger portions of the funds required to finance the program.

d. make maximum use of the technicians provided by the donors.

e. gradually, as local production and physical facilities and financial resources permit, build up stocks of food grains sufficient to meet basic geographic, seasonal, and annual consumption requirements under all but the most adverse circumstances; initially such stocks could be supplied in part by donations from abroad, but eventually they should be provided from increased domestic production induced by the expansion program.

f. inform the cooperating donor(s) on the earliest possible date of any commitment(s) by non-cooperating donor(s) to supply food grain.

g. participate informally and as needed on a regional basis on activities of mutual interest, such as the level of prices guaranteed to farmers, uniform grain grading standards, inter-country grain transfers, etc.

3. Each agreement would commit the donor to:

a. provide a shipment to each country of about 10,000 tons of grain a year for five years; any individual shipment being cancellable by mutual agreement; shipments to be scheduled to arrive in time to be available for distribution during the "soudure" season.<sup>1</sup>

b. provide for additional shipment in years in which adverse weather reduces supplies below market requirements,

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<sup>1</sup> The "soudure" season runs approximately from May through August in most regions in this area. It is the period preceding the harvest when food supplies are scarce, if not exhausted. Food shipments from outside the area should arrive by May or June to be of any benefit.

provided that sufficient lead time is available to permit shipments to arrive in time to be available for distribution during the period of the shortage.

c. provide for a minimum of five years a team of technicians from donor countries to work throughout the region advising and assisting donee countries to develop the capacity and competence to conduct the proposed program; such a team should include most, if not all, of the following personnel:

- team leader,
- agricultural price economist,
- grain marketing economist,
- agricultural engineer - storage,
- transportation expert,
- farm management economist,
- training officer,
- extension specialist, and
- accounting systems specialist.

4. Each agreement would authorize sale of grains furnished by the donors at non-discounted prices to be mutually agreed, with sales proceeds to be deposited in a special government account and released therefrom by joint signature for financing specifically budgeted, mutually agreed projects designed to contribute to expansion of grain production and distribution to meet domestic needs.

5. Provision could be made for unilateral withdrawal after due notice by any party to the agreement if such party concludes that the purposes of the agreement are not being fulfilled.

E. COMMENTS ON RECOMMENDATIONS

The team does not minimize the difficulties which will be encountered in implementing these recommendations. Progress in achieving the objectives implicit in them will be slow at best. As Robert Burns has said "The best laid schemes o' mice an' men gang aft agley."

It seems essential that previous emergency measures, which have been directed not toward effectively eliminating shortages in domestic food grain supplies but rather toward ameliorating their consequences on a temporary basis, should be replaced by comprehensive plans to which both donors and donees would make multi-year commitments.

The team makes no claim that the problem of domestic food shortages will be solved in five years -- but any shorter period appears almost certain to be inadequate -- and the shorter the period, the more it will militate against successful effort. Even the proposed five-year agreements might usefully incorporate a renewal provision for further multi-year periods.

The donee governments will need substantial financial assistance, or its equivalent, to supplement their limited resources, if the program is to have any chance of success.

In some donor countries, the E. E. C., Canada, and the U. S., food grains are in long supply and thus may be more freely available than direct financial assistance on the one hand and, for the intermediate term at least, appear likely to be urgently needed in the donee countries on the other. Shipments to the four donee countries to meet emergency food shortages during 1967 and 1969 have exceeded 100,000

tons. Although unusually favorable weather in 1969 apparently may obviate the need for any emergency food shipments in 1970, there is every reason to believe, based on past records, that this fortunate situation will not become the rule.

While provision is to be made for emergency shipments to meet shortfalls in domestic production growing out of unfavorable weather or similar conditions, modest regular annual shipments to these four countries are recommended.

We believe that each of these countries can use constructively these quantities of food grains if arrival is timed so that they are available at the beginning of the soudure season. It is appreciated that the demand for food, particularly in these economies, is highly inelastic, but the team is convinced that modest quantities of grain in this shortage season will have beneficial results. Consumers will benefit from greater supplies and somewhat lower prices. Producers will not be disadvantaged because they normally have nothing to sell at this season of the year. Indeed, like consumers they will benefit because most of them are net buyers at this time when they are often weakened by lack of food and when their work load is the heaviest.

Moreover, these shipments will generate local currency with reasonable regularity so that not only can more total resources be devoted to carrying forward agreed food development and distribution programs but also these programs can be planned more systematically and carried out on a continuing basis.

We do not believe that the food shipments contemplated in the recommendations should be initiated unless full agreement is reached for the provision and use of a broad range of technical assistance. These services should cover, on the one hand, the formulation and implementation of economically sound agricultural development

programs and policies for food grains and, on the other, the development and operation of efficient national systems of marketing these commodities. Although donee countries do have on board or have requested a limited number of such technicians, these persons cannot be expected to provide assistance in the range and scope which appears required.

The team would prefer to see a single donor undertake the provision of the technical assistance team. Such a team is likely to be more integrated, efficient, and mutually self-supporting than a team recruited from several sources, no matter how competent these individuals are. Moreover, responsibility for the competence and quality of the individual experts would be pin-pointed.

A vital element in any successful program is the price levels established -- buying prices and selling prices. The former should be established at levels designed to make cash returns to farmers competitive with returns from export crops. Initially the level may have to be no more than an uneducated guess, but it should become more and more accurate as experience in pricing is gained. Eventually, such prices probably should incorporate variations for location -- higher in deficit areas and lower in surplus producing areas -- and quality, but these refinements should be incorporated only as growth in experience and competence of the national grain authority permits.

The team believes that these national grain authorities can and should be self-supporting so that the prices at which they sell will be sufficient to cover their operating costs and to permit some accumulation of capital. Operating costs initially will be high, at least by standards of more developed countries. If farmers are to have reasonable access to buying stations as they should, such stations will have

to be numerous, and the volume handled in each small. Thus, buying costs will be high. Transportation costs will continue to be high. Costs of preservation and storage will be significant particularly if, as, and when sufficient stocks are carried over from one year to another to help offset substantial variations in annual crop production.

Grain from donor countries, whether the annual increment or emergency supplies needed to offset intermittent weather-related shortfalls in domestic production, should be bought and paid for by the national grain authority at its sales prices less a fixed charge per unit designed to cover its handling costs. Imported grain should be sold at the same prices as domestic grain unless consumer preferences are so significant as to require some price discount or premium.

The sales proceeds of donor grain to the grain authority would be deposited in a special account in the name of the donee government. These funds would be used only for purposes which will contribute directly to the objectives of the program -- adequate domestic food grain production and distribution. Releases from the special account for these purposes must be made jointly, and of course, every effort must be made to select purposes which have the highest potential. Probably a general list of categories of eligible uses should be made. Some are obvious and direct, such as storage and transportation facilities. Less direct uses might include covering local costs of training programs, or local expenses of the recommended team of technicians. Investments exclusively or largely for the use of the grain authority should be capitalized by the authority and amortized. Projects in the public sector, such as feeder roads, would not be charged to the authority's costs.

Each authority will, in due course, need substantial operating

capital. Elsewhere in this report, an estimate is made that each authority might be expected eventually to handle up to 100,000 tons of grain a year. At this level the cost of grain purchases could exceed one billion CFA. Capital of this magnitude will be difficult to obtain. Since it is important that farmers have an assured market for their food grains and be paid on delivery, it may be necessary upon occasion to tap the special account to supplement other sources of operating capital. The team believes it important that if this is done the funds be loaned, not granted, to the authority and be repaid at interest to the special fund as receipts from grain sales by the authority are received. Otherwise there will be great temptation to dissipate resources by various and sundry subsidies including reduced prices to consumers. The objective should not be to stabilize grain prices per se, but to establish prices to the consumer that will cover the grain authority's costs and permit it to establish prices to producers that will encourage them to produce the requisite quantities.

It is recognized that from time to time and from place to place situations will arise in which groups of consumers will not have sufficient income to pay the going prices for their minimum grain requirements. Under such circumstances grains may have to be provided free of cost, or at discount prices. It should not be the responsibility of the national grain authority to absorb the cost of these relief programs.

The team suggests that when food must be provided free to individual consumers the voluntary relief agencies be the preferred vehicle. If the situation is not desperate but the government nevertheless believes that sales at discount prices to identified individuals or identified areas are necessary, it may instruct the national

grain marketing authority to act as its agent to make such sales with reimbursement for the difference between the regular and the subsidized sales price.

As noted above, progress in achieving a nationwide marketing system will be slow. Senegal, Upper Volta, and Niger must start practically from base zero. Training and experience are required to develop the necessary competence of managers and technicians. Erection of the ultimately required physical plant and the purchase of equipment are possible only as financing is available. The team, therefore, visualizes a phase-by-phase development which may vary in detail country-by-country within the same general pattern.

Initially, the buying and warehousing operations may need to be initiated in selected areas within the country, probably in those of greatest surplus and where facilities for purchase, transport, and storage are reasonably adequate. At this stage, the procedures would be determined by the abilities of supervisory personnel and labor. Grain purchases need only be by weight with a simple discount for foreign material (in some areas of high humidity, ability to dry grain would be essential). As rapidly as the finances, the facilities, and the personnel are available, the area of operations would be extended until nationwide coverage is attained.

Refinement of the operations -- the improvement of facilities, the upgrading of personnel, the expansion of grade standard requirements, the improvement of crop reporting and forecasting, and the assumption of more efficient accounting -- would also be a gradual process from the time operations are initiated and continuing until or after nationwide coverage has been accomplished. At the same time, but elsewhere within the governments, similar expansion and refinement of extension education, food crop research, and steps to make production requisites

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**SECTION II**

**BASIC AGRICULTURAL PROBLEMS OF THE REGION**

available should take place. Eventually, the operational "know-how" should reach the point where locational price differentials, based on transport and other related costs, could be established.

The team has one final observation relating to the implications of the use of the word "donor(s)" in its recommendations. It had noted during its stay in West Africa that there was, to all intents and purposes, no coordination of the programs of individual donors. As far as could be determined this was more largely a sin of omission than a sin of commission but the net effect seemed to the team to be a certain amount of duplication, overlapping of programs, conflicts in objectives, and generally less than the most efficient use of resources. The team would very much like to see the shortcomings of the present arrangements eliminated or at least ameliorated.

During the last decade there has been a steady increase in the use of consortia of donor countries to help coordinate their assistance programs and improve their aggregate effectiveness. The team would like to see donors organize a "mini" consortium as a means of joining hands in a mutual effort to help the donee countries of West Africa expand the production and distribution of the food grains needed to feed their growing populations. And like many of the more general purpose consortia now in being, this mini consortium might also be chaired by an international organization.

## SECTION II

### BASIC AGRICULTURAL PROBLEMS OF THE REGION

#### A. CLIMATE AND SOILS

All the West African countries in the Savannah zone suffer from large annual fluctuations in rainfall. There are also erratic geographic variations in most years. As a result, crop production, except on irrigated land, varies greatly from year to year and by areas within the region. Serious shortfalls in production occur on the average of once every four years. Large harvests are equally frequent. But, unfortunately, neither the time cycle nor the geography of rainfall is regular or predictable.

The 1968 harvests of millet, sorghum, and corn in most of West Africa were 25 to 30 percent below the moderately good 1967 harvests. Emergency shipments of thousands of tons of grain from the United States and other donors were necessary to alleviate widespread hunger in the summer of 1969. Senegal, Mali, Upper Volta, and Niger were among the countries most severely afflicted. In contrast, current estimates of the 1969 harvests indicate that they are well above the 1967 production. Mali, for example, may have produced more food grain in 1969 than in any previous year in its history. Nevertheless, because of wide differences in rainfall within the region, some areas are expected to have only average, or smaller, harvests. In some cases, areas of poor and large harvests are only a few score miles apart.

Another natural limitation on West African agriculture is the paucity of highly productive land. This is a real limitation but its importance as a limit on future production expansion is easily exaggerated. West Africa's low crop yields reflect both low natural soil fertility and primitive farming methods. Crop and soils research in the region clearly shows that improved cultural practices can double current average yields in most

of the region. In some areas, yields can be tripled. The limited areas under cultivation also reflect primitive farming methods. Far more land lies fallow each year than soil and climatic conditions require. Farm production experts in the region say that this is because farmers using primitive technology are physically unable to farm all of the cultivatable land. In some countries, land in fallow is more than three times the cultivated area. Adoption of modern agricultural technology, especially animal and mechanical power, can add millions of hectares to the cultivated area in the region. Finally, improved cultural practices can restore some of the natural soil fertility lost through years of misuses. In other words, even though West Africa is not blessed with huge areas of highly productive land, primitive farming methods rather than poor soils are, and will be for some years to come, the primary technical restraint on production of the major food grains.

## B. AGRICULTURAL POLICY

Although adverse climatic conditions and poor soils have caused, and will continue to cause, wide fluctuations in West Africa's grain production, these natural forces are not the primary reason for the increasing frequency of severe food grain shortages. The more significant causes are found in national agricultural development policies and programs. For years, major emphasis in agricultural development in West Africa, under both colonial and national governments, has been on expansion of production and marketings of a few export crops, chiefly peanuts and cotton. Much emphasis also has been given to rural community development and to investments in infrastructure. In comparison, promotion of production and marketing of millet, sorghum, and corn has had a low priority. In some of the countries, problems of food production and marketing appear not to have been taken seriously until the emergence of increasingly frequent and severe food shortages made such consideration mandatory.

More specifically, one of the most serious problems has been that price incentives to farmers were not sufficient to induce increases in food grain production commensurate with population growth. This problem was magnified by the continued maintenance of relatively attractive prices, often through subsidies, for peanuts and cotton. During most of the 1960's producer prices of millet, sorghum, and corn at harvest time have been about 8 to 10 francs CFA per kilogram. Peanut prices, now close to 15 to 17 francs per kilogram, were in some years well above 20 francs. This disparity in prices is highlighted by agricultural experiment station findings on farmers' returns from peanuts and millet. When essentially equivalent farming practices are employed for both crops on essentially equal quality land -- the two crops usually are grown in rotation -- a farmer's net returns per hectare and per hour of labor are nearly equal when the prices received are about equal.

A second major difficulty, discussed in detail in part C of this section, was the lack, except in Mali, of an effective national market for the food grains. Lack of a market in which to sell grain in excess of family requirements was a major deterrent to expansion of food grain production. This difficulty also was aggravated by successful efforts to establish marketing systems for the export crops. In addition, most of the emphasis of the small national agricultural credit and extension services has been, and continues to be, on peanut and cotton production and marketing.

The response of West African farmers to the low prices and lack of markets for the major food grains and to the more attractive prices and assured markets for the export crops has been logical. Food grain production in recent years has not kept pace with population growth. In Niger, for example, the production of millet and sorghum rose roughly seven percent from 1962 to 1967 while the nation's population increased

at least 13 percent. Production per person fell nearly six percent. In this same five-year period, land used for peanuts increased steadily from 323,000 to 357,000 hectares and production rose from 205,000 to 298,000 metric tons. Cotton production rose from 5,100 to 7,700 tons and rice production nearly tripled from 11,200 to 32,500 tons.

The origin during the colonial period of these contrasting agricultural policies and developments in West African agriculture appears to be a basic misconception of the economics of agricultural production and marketing. Traditionally in West Africa, food grains have been produced almost exclusively on a subsistence basis. Only tiny fractions of the total production were marketed. Nearly all sales were direct from producers to consumers in small local markets. Many people, including former colonial officials and initially their successors in the new national governments, came to believe that the food grains always would be subsistence crops outside the market economy. Moreover, there seemed to be general acceptance of the principle that adequate production of the food grains would be assured by the producers' own demand for food. The corollary of this concept is that markets and market prices are not important in stimulating increases in food grain production.

In contrast, there was widespread recognition that substantial cash incentives and assured markets had to be offered to producers to induce expansion of the production and marketing of peanuts and cotton. Finally, there apparently was little recognition, until food shortages developed, of the possibility that an unbalanced agricultural development policy would have adverse impacts on the national food supply.

Other factors encouraging national governments to neglect food grains and encourage exports of peanuts and cotton were the needs for foreign exchange. Also, the political appeal of low food prices to urban voters cannot be ignored. But experience has shown that low

food grain prices failed to protect basic consumer interests; low prices have led to serious food shortages and slowed economic growth. In Senegal, too, a large part of the increase in foreign exchange obtained through expanding exports of peanuts has had to be used to purchase rising imports of food, especially rice.

In developing countries such as Senegal, Mali, Upper Volta, and Niger where 80 to 96 percent of the people live on farms a low rate of growth in agriculture automatically produces a low rate of growth in the total economy. More specifically, in these countries where food grain production is some 50 to 80 percent of total farm output a low rate of expansion of food grain production has a significantly adverse impact on agricultural and general economic development. In the 1960's, economic growth in the four countries was low, probably only slightly in excess of population growth. Lack of adequate production incentives to farmers, lack of markets for food grains, and low farm incomes are the primary reasons for the generally poor performance in agriculture and the total economy.

The large disparities between urban wages and salaries and farm incomes also have encouraged excessive migrations of farm people to the cities where they create other social, economic, and political problems. In Senegal, for example, a farm family of four adult workers earns less in a year, including the value of all home-produced food, than what a single domestic servant is paid in Dakar.

Ten years after independence there is much evidence that the old colonial economic concepts and policies strongly influence national agricultural programs. There is, however, a growing awareness among government officials that something is radically wrong with these policies. In Mali, Upper Volta, and Niger, high government officials seemed acutely aware of the need for raising producer prices

for food grains and for developing adequate market channels. In Mali, producer prices for the food grains, although still low, have been raised substantially in the past four years. Farmers apparently have responded by increasing the cultivated area and production.

The gap between recognition of the agricultural policy problem and development of effective policies and programs is wide. To bridge this gap requires expertise in agricultural policy formulation and administration. For example, it is not easy to determine the specific producer prices and price ratios that will induce farmers to increase food grain production by a certain desired quantity. It is even more difficult to develop and administer the national programs needed to put these policy decisions into effect.

The four countries are handicapped by an insufficiency of administrative personnel, trained and experienced in agricultural marketing economics. A small regional team of agricultural policy experts could perform a highly valuable service to these governments through expert counseling on policy formation, assisting in the direction of essential economic analyses, and advising on means of implementing policy decisions. The cost of this technical assistance would be low in relation to potential benefits. The basic human and physical resources necessary for expansion of food grain production are present in West African agriculture. The primary missing element is appropriate national agricultural policies and programs to implement them. Until farmers in the region are provided the necessary economic rewards for expanding food grain production, food grain shortages and slow economic growth will continue to plague the region.

### C. AGRICULTURAL MARKETING

Inadequate and inefficient food grain marketing systems are a serious impediment to agricultural development in West Africa. They are a major cause of the food shortage problem. Without markets farmers lack essential means of selling outputs in excess of family needs. Therefore, farmers' incentives to produce more than they can consume are sharply reduced. Without markets farmers are not able to specialize in production of those crops they can produce at least cost. Marketing is an essential element of a modern exchange economy. The development of modern markets is an integral part of the agricultural development process. Moreover, a well-developed marketing system is indispensable for implementing national agricultural price and development policies. It is the marketing system that does, or does not, translate official price objectives into real prices to which farmers and consumers will respond.

Among the four countries in this study, only Mali has made substantial progress in establishing a national food grain marketing system. Upper Volta and Niger, in contrast, lack modern food grain marketing institutions, channels, or services. Only the traditional, local markets are available to producers. The marketing situation in Senegal stands between these extremes.

In addition to their critically adverse impacts on production incentives, agricultural specialization and efficiency, and economic development, undeveloped marketing systems have other serious consequences for farmers, consumers, and the general economy. One of these is wide fluctuations in prices over time and space. These, in turn, are directly related to the system's incapacity in assembly, storage, and distribution. Among the four countries in this study, only

Mali appears to have the national marketing authority, the minimum storage facilities, and the assembly and distribution services needed for development of efficient distribution of food grains at stable prices. In the other countries, extreme seasonal and geographic price variations are normal. Prices of millet and sorghum often rise from 8 francs per kilogram at farms during the harvest period to 40 to 50 francs some six to nine months later. At any given moment, prices in nearby local markets often differ by 50 percent (or 100 percent if viewed from the opposite direction).

These price and supply variations occur because there is no national food grain marketing authority with the financial, physical, and institutional capabilities for rational seasonal and geographic allocation of available supplies. One hesitates even to hazard a guess on how much human misery stems from the inadequacies of these food grain markets. Nor can anyone know the volume of speculative gains captured by thousands of petty traders and money lenders from defenseless farmers and consumers.

The basic nature of the food grain marketing problem is painfully obvious. The solution is almost equally clear. It is the construction from essentially base zero in three of the four countries of national food grain marketing systems. The study team believes that this can best be done by establishing a national grain marketing authority in each of these countries. The function of this authority should be to:

- assure adequate price incentives to producers and reasonable prices to consumers;
- establish and manage buffer and regulatory stocks of grain;
- establish and operate efficient assembly and distribution facilities;

- transport grain from surplus to deficit areas;
- reduce seasonal and spatial variations in prices to the extent permitted by reasonably efficient handling, storage and transportation;
- handle trade in food grains with other countries; and
- supplement, but not replace, the private trade in creating a truly national food grain marketing system.

To achieve these goals, the authority may not need to handle more than 15 percent of the national food grain production, or about 100,000 tons. This volume, however, probably is too small to permit more than one firm, in addition to present petty traders, to operate profitably on a national scale. Therefore, the authority must be a public, or a mixed private-public, company. To establish the authority substantial investments in storage and other marketing facilities will be needed. Of equal importance is the need for skilled management and other technical personnel. These economic and staff requirements are beyond the present resources of the countries.

In Mali, where a national food grain marketing firm, OPAM, is in operation, the basic market development need is to improve OPAM's operating efficiency. Producer prices then can be raised from their currently low levels without increasing prices to consumers. Elimination or reduction of OPAM's large annual operating deficits would release government funds for urgently needed agricultural development projects. Technical assistance in marketing and business management plus some financial aid for improving and expanding physical (mainly storage) facilities offer potential for large benefits to farmers, consumers, and the whole economy in terms of increased food production, more efficient marketing, and more rapid economic growth.

The importance of a modern food grain marketing system to agricultural development and in the elimination of food shortages places this development task at a high priority level for both economic and humanitarian considerations. Accordingly, the donors of assistance to these countries should give urgent priority consideration to financing (1) a regional team of experts in marketing and business management to assist the governments of the region in establishing and operating national food grain marketing authorities; and (2) construction of essential marketing facilities.

D. ECONOMIC ANALYSIS

The effectiveness of a regional team of experts on agricultural policy and marketing depends, in large measure, on the quality and quantity of the economic and technical information available to team members. This essential information base in West Africa is severely limited. Basic economic intelligence is developed mainly through research oriented to the economic and technical problems the team of experts will be helping the governments to solve. Many of these problems are highly complex and technical, especially problems in agricultural production, pricing, and marketing. Furthermore, counseling on these difficult economic, social, and technical problems requires thorough knowledge and understanding of the African environment in which development must take place. Therefore, a comprehensive economic analysis of agriculture and agricultural marketing in the region should be undertaken to provide the basic economic intelligence required to implement most effectively national grain marketing programs. Such economic intelligence would be useful from

the first but its availability becomes more important as administration of the marketing systems become increasingly sophisticated. An offer to undertake such a study by a donor country or an international organization would be an appropriate solution since such a study can be conducted with less local participation than the organization and operation of national grain authorities.

E.           AGRICULTURAL EXTENSION

Agricultural education and extension services have a high priority in the national agricultural development programs of the four West African countries. These education and extension services operate under severe handicaps imposed by inadequate budgets, shortages of trained personnel, and low levels of literacy of farm people. The services reach only a small fraction of the farmers, and their effectiveness in teaching and persuading farmers to adopt modern farming methods has not been established. Without question, additional financing and the provision of agricultural extension experts by donor countries or international organizations could do much to expand and to increase the effectiveness of the several national services in the region.

Nevertheless, a high priority is not given at this time to providing a separate team of agricultural extension experts. The main reason is that in most of these countries one of the most important requirements of a successful extension program has not been met. This is the availability of adequate price incentives, including access to good markets, for increasing production of the major food grains. Few farmers are likely to be easily persuaded even by skillful extension agents to adopt better farming methods unless and until they can

clearly see that this action will produce substantial increases in real income. The greater need then is action leading to significant increases in producer prices of the food grains and to establishing efficient markets in which farmers actually can receive these prices. While the study team strongly favors expansion and improvement of agricultural education and extension programs in West Africa, it ranks improvements in agricultural price and marketing programs as even more essential at this time.

F. COMPARATIVE ADVANTAGES OF FOOD AND EXPORT CROPS

Until food shortages in West Africa reached crisis levels, national agricultural policies in most West African countries emphasized expansion of production and marketing of export crops, mainly peanuts and cotton. But the food shortages demonstrate the critical importance of the classical policy question of comparative economic advantage. In this case it involves producing millet, sorghum, rice, and corn on the one hand; and peanuts, cotton, and other export crops on the other. Although thorough country-by-commodity analyses of production and marketing costs and returns are needed for a definitive determination of this issue, enough data are now available to permit crude approximations.

In West Africa, producer prices for peanuts and cotton are directly tied to world market prices. Prices at interior buying points are established by the national marketing organizations close to prices in Dakar, or Abidjan, less marketing and handling costs. Current country-point prices for peanuts are in the range of 15 to 17 francs CFA per kilogram in the four countries in this study. Given the world

market outlook for peanuts these prices are unlikely to rise appreciably in the years ahead. They may decline. In fact, the best hope for raising producer prices at interior points, or halting further declines, is to reduce the wide spreads between port and assembly-point prices through reducing the high costs of peanut marketing and transportation.

In sharp contrast with peanuts and cotton, West African producer prices of the primary food grains are not closely related to world market prices. The reason is the lack of national food grain marketing organizations and the consequent geographic and economic isolation of the local producer markets. Prices received by farmers during the harvest period generally are near 8 francs per kilo. They soar to about 40 francs, or even higher, in the annual summer season of short supplies. In contrast with these prices, the price of U. S. sorghum delivered in Dakar or Abidjan is close to 19 francs per kilo. Shipping and handling costs to such interior cities as Bamako, Mali, and Ouagadougou, Upper Volta, are about 6 francs. Thus, the equivalent of world market prices of sorghum in these cities may be about 13 francs or 25 francs -- the lower price reflecting a net export, the higher price a net import situation. On either basis, producer prices of sorghum in West Africa are extremely low during the harvest season when farmers are net sellers of grain. But prices during the summer are grossly high when farmers are net buyers of grain.

An efficient food grain marketing system could, and should, bring producer prices into a closer relation with world prices. Producer prices of millet, sorghum, and corn at interior points should not fall below 13 francs during the harvest period and should not rise above 25 francs during the pre-harvest months. In the absence of

definitive studies no one can be certain how farmers would respond to (1) increases of more than 50 percent in food grain prices at harvest time, with probably no change in peanut prices, and (2) decreases of 40 to 50 percent in prices prevailing in the summer shortage season. Economic theory, however, suggests that farmers would increase food grain production significantly and consumption also would rise somewhat.

Support for these tentative conclusions came from at least two sources. One is the responses of West African farmers, discussed earlier in this report, to the availability of markets and attractive prices for peanuts and cotton. They increased outputs significantly over an extended period of years. On the other hand, low food grain prices and lack of markets were associated with falling per capita production of food grains. West African farmers appear to respond rationally to prevailing economic indicators.

The other source of support for assuming significant farmer response to higher relative food grain prices is research conducted at several West African agricultural experiment stations. In general, these studies indicate that when farmers use essentially equivalent farming methods to grow peanuts and millet -- the two crops usually are grown in rotation -- net returns per hectare and per hour of labor are nearly equal when the prices received also are about equal.

Although few West African farmers may be aware of these research findings -- few are literate -- it would be highly unrealistic to assume that they are unable to make rough estimates of their returns from peanuts, cotton, and the major food grains. In fact, in recent years, farmers appear to have made such estimates and have acted thereon.

It seems reasonable, therefore, to assume that such rational behavior will continue and substantial increases in food grain production will occur in response to higher prices and available adequate markets.

G. LONG-TERM EXPANSION POTENTIALS

In the four West African countries studied only a small fraction of the total land area is cultivated. Much of the land is desert or semi-arid. In Upper Volta, for example, slightly over eight percent of the land is cultivated. How much additional land is suitable for cultivation is not known, and estimates vary widely. However, a reasonable minimum estimate is the existing cultivated area plus the millions of hectares under fallow. In Upper Volta, this estimate is 8.9 million hectares -- 2.3 million hectares of cultivated land and 6.6 million hectares of fallow land. Less conservative estimates run as high as 15 million hectares suitable for cultivation.

The fallow area in Upper Volta is nearly 75 percent of the minimum estimate of cultivatable land. In contrast, research results at the agricultural experiment stations in the region show that with employment of modern agricultural technology no more than three hectares in eight need to be fallowed each year. In some farming regions the recommended ratio is one in four. On the basis of the higher fallowing rate of 37.5 percent, Upper Volta's cultivated area could be nearly 5.6 million hectares, or nearly two and one-half times more than the current 2.3 million hectares devoted to all crops. In the other three countries similar increases in areas under cultivation also are possible.

The land is there ready to be cultivated. Most of it is fallowed each year because certain key factors are missing. These are the practical knowledge of modern farming techniques and capital in the form of animals and machinery. The key techniques for removing these limitations on production are agricultural education and credit. More importantly, there are the economic deterrents of low food grain prices and lack of assured markets. An integrated long-range development program involving incentive prices, good markets, agricultural education, and credit to farmers offers the potential of enormous increases in cultivated area, yields per hectare and per worker, total food production, and agricultural income.

**COUNTRY REVIEWS**

SECTION III  
COUNTRY REVIEWS

A.        MALI

Mali is a landlocked nation of West Africa bordered by Senegal, Mauritania, Algeria, Niger, Guinea, Ivory Coast, and Upper Volta. Mali has an area of about 1.24 million square kilometers (464,873 square miles) and an estimated 1969 population of 4.9 million people. The population is growing rapidly, probably 2.6 percent a year, and nearly half of the people are under 15 years of age. About seven percent of the people live in urban areas. Bamako, the capital and largest city, has an estimated population of nearly 200,000. Other large cities are Mopti, Segou and Keyes. French is the official language and Bambara is the most widely spoken African language.

Mali is one of the world's least developed nations with a per capita gross national product of only about \$50. The median monthly income of non-farm workers in 1968 was about \$22 and only 31 workers, probably government officials, had monthly salaries of about \$270. The legal minimum wage is \$.06 an hour, or \$2.64 for a 44-hour week. Since independence in 1960, per capita real income probably has not changed appreciably. Total real national economic growth has been about equal to population growth.

Agriculture

Over four million farm people live in about 9,500 villages. The average village has 42 farm families and about 420 people. The average farm is nearly five hectares, or about 0.5 hectare per person in the family. The total cultivated area, estimated at 2.1 million hectares in 1969, is under two percent of the total land area. Another 9.2 million

hectares were in fallow. Thus, the minimum estimate of the area suitable for cultivation is 11.3 million hectares. A maximum estimate approaches 60 million hectares. Over half of Mali is desert and semi-desert land and crop farming is confined mainly to the southern sections of the nation.

About two-thirds of the cultivated cropland is devoted to millet and sorghum, the most important food grains. Rice and corn occupy about 14 percent of the cultivated land. Cotton and peanuts are the principal export crops and varieties of fruits and vegetables also are grown mainly for home consumption. Livestock production in Mali is largely a nomadic activity and live cattle exports are an important source of foreign exchange.

### Agricultural Marketing

The marketing of farm products in Mali is in the hands of a host of petty traders and a few state-owned and foreign firms. The state-owned Office des Produits Agricoles du Mali (OPAM) is the primary grain marketing firm. It assembles and distributes grain, chiefly millet and sorghum, throughout the nation at uniform prices fixed by the Government. It also has the important responsibility of acquiring and maintaining adequate security and stabilization stocks. In some years OPAM arranges for exports of surplus grain to Senegal and Mauritania. From its creation in 1965 until the coup d'état in 1968, OPAM had a monopoly in grain marketing. It now has a preferred position. OPAM is the only authorized buyer of grain during the harvest period until it has purchased the minimum stocks needed for its security and stabilization operations. This quantity has been set at 40,000 metric tons for the 1969/70 crop year. However, OPAM expects to buy another 20,000 tons in competition with private traders. The firm operates a chain of assembly and distribution points and has storage facilities for nearly 50,000 tons of grain.

The Société Malienne d'Importation et d'Exportation (SOMIEX) and the Union des Coopératives (UNICOOP) are state-owned firms that dominate wholesale and retail distribution of food and many other consumer goods in Mali. SOMIEX operates Mali's only supermarket. Both firms have many smaller outlets in the major cities and towns. SOMIEX has a monopoly on imports of about a dozen key consumer products and competes with private importers on many others. The company is also active as a buyer and exporter of peanuts and cotton. In the areas in which the French agency, Bureau pour le Développement des Produits Agricoles (BDPA), does not have monopoly rights in buying peanuts, SOMIEX is the major buyer. Similarly, SOMIEX is the major buyer of cotton in all producing areas in which a private French company, Compagnie Française pour le Développement de Fibres Textiles (CFDT), does not have a monopoly. BDPA, an agency of the French Government, vigorously promotes through its "operation arachide" the production and export of peanuts. It operates an integrated program of agricultural extension and credit, sale of fertilizer and other farm supplies at reasonable prices, and purchase of peanuts at official prices. The CFDT operates a similar program to promote the production and export of cotton.

#### Background of the 1969 Food Crisis

The immediate cause of the 1969 food crisis in Mali was inadequate rainfall in the 1968 growing season. But the 1969 food shortage might not have been serious had it not been that from 1960 to 1968 the former Malian Government was so heavily preoccupied with political and social policy. It is now apparent that the monetary, fiscal, marketing, pricing, and agricultural development policies during that eight-year period were mainly responsible for the stagnation of the economy, for related economic and political problems, and for the coup d'état of November 19, 1968.

In the colonial period, Mali was an important surplus grain producing area for most of West Africa. In most years after independence in 1960 Mali exported grain to Senegal and Mauritania. Exports of peanuts and cotton long have been Mali's principal sources of foreign exchange. But under the former Government agricultural production, cotton excepted, stagnated. Production per capita fell and domestic marketings and exports declined. The sharp fall in marketings of food grains in the 1968/69 crop year to only 10,000 tons gave OPAM grossly inadequate reserves and forced the Government to ask the United States and other donors for emergency shipments in 1969.

In the early 1960's the Government fixed the prices of nearly all crops at low levels, generally well below world market prices. The price of cotton was an exception and farmers responded by increasing acreage, production and marketings. For example, marketings rose from 20,000 tons in 1962/63 to 47,000 tons in 1968/69 and are expected to rise to 55,000 tons in 1969/70. But for the other major crops -- sorghum, millet, peanuts, and corn -- farmers lacked adequate incentives for production with the expected results. The volume of peanuts marketed declined almost steadily from 75,000 tons in 1963/64 to only 29,000 tons in 1967/68.

In 1967 devaluation of the Malian franc by 50 percent without compensatory increases in producer prices further aggravated the production-marketing problem. Devaluation greatly increased differences between prices in Mali and nearby countries. As a result, large volumes of peanuts and grain were smuggled out of Mali. This unrecorded outflow of products was, in effect, a flight of capital and it contributed to the Government's budgetary, foreign exchange, and monetary difficulties. The decline in domestic marketings also had adverse impacts on the profits (and deficits) of the state enterprises.

In the mid-1960's the former Government initiated an extremely unpopular program aimed at collectivizing Malian agriculture. The present military Government quickly abolished this program and assured farmers of their right to retain the fruits of their labor.

Replacement by the former Government of the pre-independence marketing system of private trade with state enterprises was another blow to agricultural production and marketing. The problem was not so much in state ownership as in management. Charges are often heard that the state enterprises were staffed by people selected more for their political than for their technical skills, and that corruption and over-staffing were common. OPAM, for example, according to its director-general, has 340 employees. This seems large considering an expected volume of 60,000 tons of grain a year and may be responsible, in part, for OPAM's history of operating deficits. In 1967/68 OPAM reported a deficit of 194 million francs on a gross business of 1,422 million francs. In recent years 14 of the 27 state enterprises have operated at a loss. The result is less money for economic development. Marketing services to farmers have been impaired and producer prices remain low relative to prices to consumers.

Finally, the former Government's most serious error may have been its failure to see that Malian farmers could and would exercise their option to withdraw from commercial agriculture in response to the Government's low price and collectivization programs. This partial withdrawal from the market economy had serious consequences for the economy, including general economic stagnation and the food crisis of 1969.

## Recent Actions and Producer Responses

Prices to farmers were increased in 1966, but the increases apparently were too small to stimulate needed increases in production and marketings. Small price increases also were made in 1967 and 1968 but the 50 percent devaluation of the Malian franc in 1967 more than nullified these increases. Smuggling of peanuts, grain, and livestock to nearby countries became even more attractive. Domestic marketings of the major crops, except cotton, fell to record lows in 1968/69. The poor harvest in 1968 was only partly responsible for the decline in marketings.

In 1969, the new Government raised the producer price of peanuts to 30 francs per kilo compared with 24 francs in 1968/69 and only 16 francs in 1966/67.<sup>1</sup> With the 1969/70 price of peanuts only slightly below prices in nearby countries, smuggling should be unprofitable. Malian officials are expecting the largest peanut crop since 1964/65 and the largest domestic marketings, about 50,000 tons, since 1963/64. Exports of peanuts, peanut oil, and peanut meal also will rise and the state-owned oil mill may again achieve a profitable utilization level.

Producer prices of millet, sorghum, and corn also were raised in 1969 to 18 francs per kilo, compared with 16 francs in 1968/69 and only 11 francs in 1965/66. Production of millet and sorghum, aided by favorable weather, is expected to reach the record volume of about 900,000 tons. Domestic marketings are also expected to rise to 60,000 tons in the 1969/70 season compared with only 10,000 tons in 1968/69.

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<sup>1</sup> Two Malian francs equal one franc CFA and 556 Malian francs equal \$1.00 U. S.

If these expectations are realized, OPAM will be able to re-establish its reserves of food grains against a possible below-average harvest in 1970. Also, with the 25,000 tons of donated European grain expected to arrive in December 1969, Mali should have some grain for export.

Producer response to the higher prices has been dramatic. Since 1966 Malian farmers have increased the cultivated area about 50 percent from 1.4 million hectares to an estimated 2.1 million hectares in 1969. It is apparent that in the earlier years Malian farmers were cultivating far less land than they could have worked. They were exercising the subsistence option in the face of low prices and other unfavorable economic and political conditions of 1968 and earlier years. The new Government policy of higher prices to producers must be credited as a major cause of the sharp increases in crop production and marketings in 1969/70.

#### Some Reservations and Problems

Despite the event of the past year, the study team has some reservations about the 1969/70 prices of millet, sorghum, and corn. They are low in relation to world prices and to producer prices of peanuts and cotton. The producer price of 18 francs per kilo for millet and sorghum is less than 40 percent of the cost price of imported grain and nearly 30 percent below the estimated export price (prices in Dakar less transportation and handling costs from Bamako to Dakar). In relation to peanut and cotton prices (both set near world price equivalents) prices of the main food grains also are low. The producer price of millet and sorghum at 18 francs is only 60 percent of the producer price of peanuts. But production costs are much closer to a one to one relationship. In time, farmers are likely to recognize the cash advantages of peanut and cotton production compared with food grain production,

and the latter may not increase commensurate with population growth. In short, the present price relationship between food grains and export crops could threaten Mali's future food supply.

The primary reason for the Government's reluctance to raise producer prices of the food grains is fear that this action will raise living costs of urban workers. Higher food prices would increase pressures on the Government to raise salaries and wages of civil servants and employees of the state enterprises. Wage increases would increase the Government's deficit and also inflationary pressures. These, in turn, would have adverse effects on Mali's foreign trade and international monetary position. The alternative of forcing urban workers, who have not had a wage increase in a decade, to absorb still another cut in real incomes may be even more unattractive.

The most feasible way out of this dilemma seems to be significant improvements in the structure and performance of the state enterprises, especially OPAM, SOMIEX and the transportation companies.

### The State Enterprises

The 27 state-owned companies are almost the whole of the modern sector of the Malian economy. Their performance, therefore, has significant impacts on the economy, including producer and consumer prices and economic development. At present the 27 companies provide the Malian Government with net revenues of about a billion francs (\$1.8 million) a year. However, 14 of the firms operate at a loss, and the efficiency of the others should be raised. Of particular importance for agriculture are OPAM, SOMIEX, and the railroad and trucking firms. SOMIEX is the only firm among these four that is profitable, but its profits seem to be declining.

Higher efficiency in these enterprises can give farmers, consumers, and the whole economy significant benefits. Prices to farmers can be increased. Consumer price increases can be avoided. Reduced losses, or higher profits, of the 27 companies would have significant effects on the Government's budget and the availability of domestic funds for development projects.

Some idea of the scope for improvement in food grain marketing may be obtained from the farm-retail price spread on millet and sorghum of 13 francs per kilo, or about 42 percent of the retail price. For the non-perishable product that is sold to consumers in almost the same form that it is received from farmers, this marketing margin is exorbitant. A margin less than half as large, although still high by developed-country standards, would be more reasonable. Moreover, a reduction of the marketing margin to 6 francs per kilo would permit an increase in the producer price to about 25 francs per kilo. As noted earlier, this price is closer to the world price of these grains (less transportation costs from Dakar to Bamako). It might also put grain prices in a good relationship with producer prices of peanut and cotton, stop smuggling, and provide OPAM with surpluses for export to neighboring countries.

The importance of improving the structure and performance of the state enterprises is recognized at the highest levels of the Government. On November 3, 1969, the Chief of State directed all enterprises to produce plans for increasing efficiency and profits. But as one company executive said, this order is far easier to give than to carry out. Several executives expressed the need for expert guidance in management and for training of present management personnel in basic techniques of business administration, marketing, and pricing.

Currently, a French business consulting firm is in Mali to study the accounting practices of the state enterprises with the objective of recommending improved procedures. A team of experts from the International Labor Organization is in Mali to study management structures of the state companies. These studies are essential. But because they do not treat the total management-marketing-pricing-efficiency problem, they do not substitute or provide the basis for a critically needed, comprehensive analysis of the total modern sector of Mali's economy. Accordingly, the study team has no doubts about Mali's urgent need for expert advice in enterprise management, marketing, pricing, and efficiency, and in agricultural price and development policy. Also the Government of Mali undoubtedly will welcome this assistance, including recommendations on the enterprises that should be returned to the private sector or expanded as mixed public-private companies.

#### Final Observation

Among the four countries visited, Mali is unique in having a national marketing system for food grains. Mali's national food grain marketing corporation actually performs the vital buying, storage, transportation, pricing, and distribution functions on a national scale. Mali is the only one of the four countries able through its marketing system (1) to assure farmers of market outlets for their surplus production, (2) to buy and store enough grain for even a minimum grain stabilization and grain reserve program, (3) to move substantial volumes of grain from surplus to deficit areas within the nation, and (4) to make officially announced producer and consumer prices the effective prices in real markets. Moreover, Malian officials seem acutely aware of the need for and general direction of changes in agricultural development, and of the necessity to eliminate food shortages. Accordingly, the study

team concludes that the primary agricultural development assistance problem in Mali is the urgent need for expert guidance in two critical areas: agricultural price and development policy, and business management and marketing. In addition, assistance is required to improve and expand food grain marketing facilities, especially warehouses, and to improve and expand agricultural extension services.

## B. NIGER

Niger is a landlocked nation of West Central Africa bordered by Nigeria, Dahomey, Upper Volta, Mali, Algeria, Libya, and Chad. The nearest seaport, in Dahomey, is more than 600 miles from Niamey, the capital. Niger has an area of 1,189,000 square kilometers (about 458,950 square miles) and an estimated 1969 population of 3.5 million people.<sup>1</sup> The population growth rate is high, about 2.5 percent a year, and about half of the people are under 15 years of age. Less than four percent of the population is urban. Niamey, the largest city, has about 60,000 residents. Other towns are Zinder, Maradi, and Tahoua.

Niger is one of the world's least developed nations with a per capita gross national product of \$90 to \$100, or possibly much lower. Since independence in 1960 national economic growth, because of slow growth in agriculture, probably has only slightly exceeded population growth. Real income per person may not be appreciably above the 1960 level.

### Agriculture

Official estimates indicate that nearly 3.4 million farm people cultivate 3.5 million hectares of land. But there are reasons for believing

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<sup>1</sup> See footnote on the following page for a comment on possible underestimation of the population.

that the population has been grossly underestimated, that the cultivated area has been overestimated, or that both estimates are seriously in error.<sup>1</sup>

A cultivated area of 3.5 million hectares is about three percent of all land in Niger and about 23 percent of the 15 million hectares officially estimated as suitable for cultivation. Crop farming is largely confined to a narrow area along the southern boundary where rainfall is adequate in most years. Nearly 75 percent of Niger is desert and semi-desert land where cattle raising is the main occupation of the semi-nomadic people.

Nearly 90 percent of all cropland is devoted to the main food crops: millet, sorghum, dry beans, cassava, and rice. The major export crops, peanuts and cotton, occupy about 10 percent of the cropland. Niger also produces a variety of fruits and vegetables for local consumption. Cattle is Niger's second largest export, following peanuts and peanut products.

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<sup>1</sup> Farming in Niger is basically similar to farming in other West African countries where the typical farm family cultivates about 0.5 hectare per person. This is about one hectare per labor unit (adult male equivalent). Experiment station reports also indicate that one hectare per labor unit is typical of traditional West African agriculture.

If the estimate of cultivated hectares is correct, the farm population of Niger probably is much nearer seven million than 3.4 million. But if the population estimate is about right, the cultivated area probably is nearer 1.7 million hectares than 3.5 million hectares. There seems to be no way of determining which of these estimates is closer to the true figures. Independent (foreign) observers lean toward the view that the greater error is in the underestimation of the population. This is because population estimates are based on head tax receipts and many people reportedly manage to escape taxation. If the population is really close to seven million, the per capita GNP is probably close to \$50, as it is in Mali and Upper Volta. Direct observation of the Niger economy and people revealed no significant signs of greater affluence in Niger than in these other two countries.

Since independence in 1960 the main emphasis of Niger's agricultural policy has been on expansion of production and marketing of peanuts, cotton, and rice.

### Agricultural Marketing

The marketing of peanuts involves private traders and cooperatives licensed by the Government to purchase peanuts from farmers for resale to the Société Nigerienne de Commercialisation d'Arachide (SONARA). SONARA is a mixed public-private firm established in 1962 with a monopoly on peanut exports and sales to the domestic oil mills. The cooperatives are part of the Union Nigerienne de Crédit et de Coopération (UNCC). The UNCC promotes rural cooperation and the expansion of production and marketings of peanuts, rice, and cotton through an integrated program of marketing services, farm credit, agricultural education, and sale of farm supplies at reasonable prices.

Producer prices of peanuts are fixed in November, at the beginning of the harvest period, by the Ministry of Economic Affairs. They are kept stable throughout the year through the price stabilization operations of the Caisse de Stabilisation des Prix des Produits du Niger (CSPPN) and the marketing operations of SONARA and UNCC. The official and actual producer price for the 1969/70 crop year is 18 francs CFA per kilo. It is based on estimated world market prices, less marketing costs. In earlier years prices were substantially higher because of subsidies financed by France and the European Economic Community.

The marketing of cotton is similar to that of peanuts. The Government fixes the producer price in November for the crop year. The prices, no longer subsidized, are based on world market prices,

less marketing costs. The CSPPN stabilization operations assure farmers a stable price irrespective of fluctuations in world prices. Official prices become actual producer prices through the marketing operations of the UNCC and the CFDT. The Compagnie Francaise pour le Developpement de Fibres Textiles (CFDT), the private French firm operating in several West African countries, promotes cotton production through an integrated program of marketing services, agricultural credit and extension, and sales of farm supplies at reasonable prices. In Niger it has a monopoly on cotton ginning and cotton exports.

The marketing of millet, sorghum, and dry beans contrasts sharply with the organized national marketing system for the export crops. These major food crops are marketed only by producers and small traders in local, economically isolated markets. The volumes marketed are unknown but guesses by agricultural observers run as high as 15 percent of national production, or about 160,000 tons. Small traders handle only a small fraction of this trade. Most sales are direct producer-consumer transactions. The petty traders lack the physical and financial resources to handle non-local movements of grain or to store large volumes for extended periods of time. Also, most traders reportedly are more oriented to speculative gains than to income from providing marketing services.

There is no large organization comparable to SONARA and CFDT with the management, facilities, and financial resources linking the local traders and markets into a national marketing system. The services of the UNCC and the CSPNN are not available to producers of the food crops other than rice. The Government declares minimum producer prices for millet and sorghum, currently 12 francs per kilo, but it has no means of making them effective in real markets. As a result, millet and sorghum prices usually are low, about 8 francs per

kilo in the harvest period of November to January. They climb to 40 to 50 francs in the pre-harvest months of July and August. In addition, prices in nearby local markets may differ by 100 percent or more at any given time. Finally, the structure of this marketing system -- if it can be designated as a system -- affords producers little or no assurance of an outlet for excess production or for specialization in these food crops.

### Periodic Food Shortages

In common with some other West African countries, Niger suffers from wide fluctuations in crop production resulting from wide variations in annual rainfall. For example, the 1968 harvest of millet and sorghum was about 25 percent below the 1967 harvest of 1.3 million tons. Emergency shipments of grain from foreign sources were needed in 1969 to prevent famine. In contrast, preliminary estimates of the 1969 food grain harvest indicate that production may exceed the 1967 output. But because of an erratic geographic pattern of rainfall in 1969, some areas in Niger are expected to have average to poor harvests this year. In some cases the areas of good and poor harvests are within the same canton.

Adverse climatic conditions are not the primary cause of periodic food shortages in Niger. A fundamental cause is the lack of a national food grain marketing system able to cope with the food production, storage, transportation, and distribution problems created by erratic weather. The second fundamental cause of problems stems from deficiencies in the agricultural policy carried over from the colonial period. Especially serious was the failure to provide adequate price incentives and marketing, credit, and extension services

to farmers to produce millet and sorghum; all these inducements to production expansion were provided to producers of peanuts and cotton. The responses of Niger farmers to these contrasts in agricultural policies and programs were fully logical.

From 1962 to 1967 production of millet and sorghum rose roughly seven percent while the national population increased 13 percent or more. In contrast, in these same years cotton production rose from 5,100 to 7,700 tons as the cultivated area increased from 8,200 to 14,000 hectares. Peanut production increased steadily from 205,000 to 298,000 tons while land used for peanuts increased from 323,000 to 357,000 hectares. Rice production in the 1962-1967 period nearly tripled, from 11,200 to 32,500 tons, and rose again in 1968 to 36,000 tons. Clearly, Niger farmers responded to the contrasts in price incentives and marketing conditions confronting them in the manner that should have been expected.

### Recent Actions

The Government of Niger is acutely aware of the periodic food crises, of the need for corrective action, and of the general direction of essential changes in policy. But there seems to be some uncertainty about how to implement essential new policies and programs. In this connection, the study team was favorably impressed by the initiatives taken in 1969 by the Banque de Développement de la République du Niger (BDRN). The Bank employed a Tunisian marketing expert, with intimate knowledge of the Tunisian grain marketing system, to study Niger's grain marketing problems and to recommend a program of action. This expert has proposed that the Government of Niger create a national office of cereals to (1) establish and manage buffer and regulatory stocks of grain, (2) move grain from surplus

to deficit areas, (3) reduce seasonal and spatial variations in prices, (4) find outlets in nearby countries for surpluses, particularly for dry beans, (5) assure producers of available efficient markets, (6) assure adequate price incentives to producers and reasonable prices to consumers, and (7) supplement, but not replace the private trade in creating a national marketing system for food grains.

In July 1969, the President of Niger approved, in principle, the creation of a national grain marketing authority. The necessary enabling legislation is now under review. In the meantime, the Bank is not waiting for approval of proposed legislation. It has retained the services of the Tunisian marketing expert to initiate buying and storage of millet, sorghum, and dry beans from producers in cooperation with the UNCC and its associated rural cooperatives. The Bank will finance the purchases by providing short-term credits. Anticipated buying prices of 10 francs per kilo, about 25 percent above prevailing market prices, have been tentatively set. Only 2,000 tons of millet and sorghum will be purchased during the current harvest because of storage limitations. This grain is scheduled to be sold in about six months at 16 francs, compared with an anticipated market price of 40 francs for the same period. The new margin is expected to cover all operating costs and provide some profits to be used in expanding operations next year. Plans are being made to buy at least 1,000 tons of dry beans. If this quantity can be moved readily into distribution channels and export outlets, a larger volume will be bought.

The Bank has no illusions about the impact of the 1969/70 operation on market supplies and prices, but it hopes to gain valuable experience in managing a national cereal marketing authority and to demonstrate this value. Looking into the future, the Bank would like to construct a chain of warehouses, as recommended for Niger in the

recent Entente Council Fund Grain Stabilization Study. Such a chain would provide needed storage capacity strategically located to minimize transportation costs and to facilitate movements of grain into and out of Niger in trade with nearby countries.

### Needed Assistance

The Bank and the Government of Niger need outside assistance in this essential development project. A regional team of experts in business management, marketing, pricing, and storage operations can provide the technical assistance. Funds for the construction of storage and other marketing facilities also are needed since the present storage capacity of only 3,000 tons is grossly inadequate to permit the new marketing authority to accomplish its objectives. The Bank estimates that five silos of 3,000 tons initial capacity each should be constructed in 1970.<sup>1</sup> More silos and warehouses will be needed in future years. Research and experience will be needed to determine the volume of grain the authority must handle to perform the essential buffer stock and marketing services. Some financial aid will be needed because some of the materials and equipment the authority will need will have to be imported.

Working capital and local costs of constructing storage facilities could be financed by sales of donated grain. One thousand tons of grain probably would net the authority \$60,000 or more, after covering selling costs. In most years, donated grain can be sold in Niger with great benefits to farmers and consumers provided that shipments and sales

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<sup>1</sup> The European Development Fund in July 1969 approved a grant of \$397,000 to Niger to construct silos for storing millet in Zinder. This may be sufficient for constructing silos of 6,000-ton capacity.

occur in the April-August period of short supplies. Additional marketable supplies in this period would hold prices to reasonable levels and would not injure farmers. In these months few farmers have grain to sell and most of the buyers are farm families.

Although a national food grain marketing authority has the potential for contributing significantly to agricultural development and to the elimination of periodic food shortages in Niger, this potential must be expanded; the need for a more balanced agricultural price-production-marketing-development policy is urgent. Such a policy must recognize that the food grains as well as the export crops must be brought into the market economy. This means, in addition to adequate price incentives and good markets, agricultural credit and extension services, now limited to producers of peanuts, cotton, and rice, must be extended to all farmers.

Niger now has three agricultural extension services with a total of 450 extension workers. This number is pitifully small for a country with 400,000 to 800,000 farm families. Moreover, the tripartite division of the program lessens its effectiveness and contributes to imbalanced results. About 200 workers are in a general extension service under the Director of Agriculture. Many of the other 250 are in the rural animation program which is more concerned with general education and social welfare goals than with expanding food production. The third group is employed by the UNCC to promote production and marketings of peanuts, cotton, and rice. The Director of Agriculture wants very much to combine the three services, to increase the total effort, and to shift its emphasis toward expanding production and marketing of the major food crops that utilize about 90 percent of Niger's cultivated land. Donor nations could contribute significantly to improving agricultural extension and credit services in Niger by supplying expertise in these areas.

The study team is impressed that Niger has more than enough land and farm workers to produce at least its own food requirements without decreasing the production of peanuts, cotton, and cattle for export. The basic problem is not lack of resources, but of the necessary agricultural policies and programs, including marketing, credit, and extension services, that will encourage farmers to produce greater outputs more efficiently. The potential benefits of developing such policies and programs are enormous. The cost to the donors would be modest.

### C. SENEGAL

Senegal is a small coastal country situated in the great western bulge of the African continent. It is bordered by Mauritania, Mali, Guinea, and Portugese Guinea; it surrounds Gambia. Senegal has an area of only 197,000 square kilometers (about 76,000 square miles) and an estimated 1969 population of 3.9 million. The population growth rate is high, probably 2.5 percent a year. Dakar, the capital and largest city, has a population of approximately 500,000 to 600,000. The port of Dakar is one of Africa's best and busiest ports and serves Senegal and several inland countries. Other large cities are Thiès, Kaolock, and St. Louis. The urban population has been officially estimated at 16 to 32 percent of total population. The lower figure probably is the more accurate one.

Senegal's gross national product was estimated at \$185 per capita in 1967. However, the true figure may be considerably lower because of the apparent underestimation of the population. Since independence in 1960 Senegal has experienced generally slow economic growth, probably no higher than the rate of population growth. Real income per capita, therefore, has changed little in the last decade.

## Agriculture

In 1969, an estimated 3.2 million, or possibly 4.8 million, farm people cultivated 2.45 million hectares, or 12.5 percent of Senegal's land area.<sup>1</sup> Large areas in Senegal, especially in the north, are unsuitable for cultivation because of inadequate rainfall. Senegal's main crop and foremost export is peanuts (and processed peanut products). Peanuts were grown in 1969 on about 1.13 million hectares. Cotton, Senegal's second export crop, was produced on slightly less than 12,000

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<sup>1</sup> The lower estimate is based on a total population of 3.9 million. The official population estimate of 3.9 million is suspect. Senegalese agricultural experts stated in interviews with the study team that the typical farm family cultivates four hectares, or 0.5 hectare per person, not including a tiny family vegetable garden. Extremely few farmers have either the animal or the mechanical power necessary to cultivate larger farms. At 0.5 hectare per person, the number of farm people would be close to 4.8 million, rather than 3.2 million people. The area and production of peanuts probably can be estimated with considerable accuracy from the data on marketings through the cooperatives and government agencies. Agricultural experts also say that direct observation of typical farms confirms the official estimates that the areas devoted to peanuts and to millet and sorghum are about equal. The crops are usually grown in rotation on the same farms; a typical farmer devotes about half of his land to peanuts and the remainder to millet or sorghum. The official food grain production estimates for 1967/68 show that Senegal produced a surplus of about 70,000 tons of cereals based on the estimated 3.9 million people and a per capita consumption of 220 kilograms. Total estimated production of millet, sorghum, corn, and rice was 877,000 tons; estimated consumption was 810,000 tons. The per capita consumption estimate is the average reported in other West African countries. But Senegal regularly imports 150,000 to 200,000 tons of rice annually, plus substantial quantities of wheat. Furthermore, even these imports have not been sufficient to prevent hunger in most years. In short, the evidence seems to point to a population significantly above the official estimates.

hectares. Thus, the main export crops required 46 percent of the cultivated area. Millet and sorghum, the nation's principal food grains, were grown on 1.05 million hectares. Dry beans and rice used about 100,000 hectares each; corn was planted on about 50,000 hectares. Most of the remaining area produced a variety of fruits and vegetables for local consumption.

During the years since independence, Senegal's agricultural policy has emphasized expansion of production and marketing of the export crops. That is, the colonial period policies have been continued. Secondary emphasis seems to have been placed on socio-economic rural community development programs. Moreover, the study team is not prepared to conclude that the increasingly frequent and severe food shortages have, as yet, significantly changed this historical policy emphasis.

#### Agricultural Marketing

The marketing of Senegal's large peanut crop is the monopoly of a public agency, the Office National de Coopération et d'Assistance pour le Développement (ONCAD). The agency buys peanuts from farmers through some 1,700 rural cooperatives, the development of which ONCAD is responsible. Producer prices are fixed by the Government at the beginning of the annual harvest period. ONCAD delivers its purchases to another public agency, the Office de Commercialisation Agricole du Senegal (OCAS), which sells to the peanut oil mills and to foreign buyers. OCAS also has a monopoly on imports of rice and wheat. In addition to its purchasing and cooperative development activities, ONCAD markets improved seeds and farm supplies through the cooperatives.

The marketing and ginning of cotton is a monopoly of the private French firm, Compagnie Française pour le Développement de Fibres Textiles (CFDT). Prices are fixed by the Government. The CFDT carries out in Senegal, as in several other West African countries, an integrated program of agricultural education, credit, and marketing to expand cotton production and marketing.

In contrast with the highly structured marketing systems for peanuts and cotton, the markets for other crops appear undeveloped. Officially ONCAD has both the right and the duty to play the same role in organizing and regulating the marketing of the major food grains that it has for peanuts. But in practice its food grain marketing operations are too small and too lacking in essential services to achieve these goals. ONCAD apparently views its main function to be the marketing of peanuts. It refers to its other marketing operations as "commercialisations secondaires." Moreover, it lacks the storage facilities, the financial resources, and the authority to be ready to buy and sell sorghum and millet at all times during the year. The result is fully predictable. During the period when ONCAD is active in the markets for these grains, mainly in the harvest period, prices to farmers and wholesalers are close to official prices. These are 17 francs per kilo (less one franc withheld by the cooperatives) to producers and 23.75 to 23.25 francs to wholesalers. But when ONCAD is not active in grain marketing, prices paid by private traders to farmers (in a business that is not strictly legal) often fall to 10 francs per kilo; and prices in urban markets go well above ONCAD's selling prices.

One of the unfortunate aspects of this situation is that ONCAD does not make a market for sorghum and millet when harvesting begins. Another mistake is that prices are not announced until a few weeks after

the harvest begins. A third weakness is ONCAD's practice of delayed payments to producers of as much as several weeks. Many farmers, desperately in need of cash, sell millet and sorghum to private traders. Prices are low but payment by private traders is prompt. Some traders conduct a highly profitable business of buying and paying for farmers' crops at extremely low prices before the harvest and then accepting delivery after the harvest.

Another striking aspect of the sorghum-millet production-marketing situation in Senegal is the extremely high costs of marketing as indicated by ONCAD's buying and selling prices. Margins obtained by private traders are even larger. The effective producer price paid by the cooperatives is 16 francs per kilo. The same grain is re-sold to farmers at 24.25 francs per kilo. This margin of more than 50 percent of the purchase price covers only storage and handling costs of grain that is not in any way processed. It is interesting, too, that in rural areas wholesalers may buy the grain for less than what farmers must pay. In Dakar, the selling price to wholesalers is 28.25 francs per kilo; the official retail price is 31.5 francs. Thus, the retail price is nearly double the effective producer price.

Causes of these high marketing margins cannot be determined without further study, but some clues are readily apparent. Inadequate storage facilities are related to high rates of loss of grain in storage, perhaps as high as 10 percent. Poor roads, especially in rural areas, contribute to high transportation costs. The small volumes handled are another factor contributing to high marketing costs. Still another reason is an apparently excessive number of employees. In 1969 ONCAD had 1,720 full-time employees and 500 temporary-hire workers to handle only about 650,000 tons of peanuts and grain.

## Periodic Food Shortages

Because of wide fluctuations in annual rainfall crop outputs in Senegal, and other West African countries, fluctuate widely. In 1965, estimated production of millet and sorghum was 554,000 metric tons. It fell to 423,000 tons in 1966, rose to 610,000 tons in 1967, and fell again to 500,000 tons in 1968. The 1969 harvest is likely to be larger than the 1967 output. On average, food crop production in Senegal during the past decade probably has increased less rapidly than the population. Imports of rice and wheat have been rising. Furthermore, in most years, Senegalese farmers experience seasonal food shortages in the weeks before the annual harvest which is the heavy work period of crop cultivation. This hunger period, known as the soudure, approaches famine proportions in years following a poor harvest. No one knows how much misery it causes or how adversely productivity is affected because hungry people are not able to work long hours in their fields.

Although adverse climatic conditions are a partial cause of Senegal's increasingly frequent and serious food shortages, the more fundamental causes are in national agricultural production and marketing policies and programs. During the colonial period, successful efforts were made to transform subsistence farmers into producers of peanuts as a cash crop with, apparently, no consideration of possible adverse effects of this program on food production. While attractive prices for peanuts were established and adequate markets were developed to make these prices fully effective, there was no comparable effort to bring food grains into the market economy. Farmers were encouraged to take high risks with their family food supply by increasing production of peanuts as a cash crop. In sum, the heart of the food shortage problem is the gross imbalance in basic production-pricing-marketing conditions resulting from policies and programs,

that favor expansion of production of peanuts and cotton and fail to stimulate needed increases in the production of food grains.

### Needed Policy Adjustments

Leaders of Senegalese agriculture interviewed for this study, repeatedly declared that Senegalese farmers are not subsistence farmers. They are at least partially in the market economy; they are responsive to prices and other market factors; they do make rough judgments of relative returns from producing peanuts and food crops. Much evidence is available to support these conclusions.

First, there is the historical record of increases in the area devoted to peanut production, from zero to 1.13 million hectares, in response to favorable prices and assured markets. Peanut production now requires more land than the primary food crops, millet and sorghum. Second, the quantity of fertilizer used for peanut production was nearly four times the quantity used for sorghum and millet, 48,241 tons and 12,870 tons, respectively in 1967. This relationship directly reflects farmers' judgment on the comparative returns from these crops. Third, in recent years, the volumes of sorghum and millet marketed have fallen as a percentage of the crop and have varied inversely with prices. In the eight years, 1960/61 through 1967/68 the percentage of the sorghum-millet crop marketed by farmers varied between 4.8 percent in 1965/66 to 0.3 percent in 1967/68. In 1960/61 farmers sold 4.3 percent of their sorghum-millet harvest when the average farm price was 19 francs per kilo. In the next four years, the average price was 14 francs and the percentage marketed steadily declined to 1.6 percent in 1964/65. In 1965/66 with a farm price of 20 francs the marketed percentage rose to 4.8 percent

but in 1967/68 with a lower farm price of 16 francs only 0.3 percent of the largest crop produced in those eight years was sold by farmers.<sup>1</sup>

Thus, it is clear to the study team that Senegalese farmers will respond to favorable prices and marketing conditions by increasing food grain production and marketings. The implication of this conclusion for solution of Senegal's food production-marketing problem seems equally clear. This solution, although simple to conceive, is far less easily implemented. In Senegal, at least two obstacles must be overcome.

One of these problems appears to be a lingering belief on the part of some Government officials that the historical (colonial) policy of treating the food grains as subsistence crops is still valid in Senegal. This basic misconception of the economics of agricultural production and marketing seems to explain the lack of adequate price incentives and marketing services for the food grains. It may also explain, in part, the continuing tolerance of gross disparities in rural and urban incomes which can hardly be credited with having favorable impacts on agricultural production and development.<sup>2</sup>

Another major problem is the lack of adequate markets for the food grains. ONCAD appears to have neither the incentive nor the physical, financial, and management resources to expand and operate

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<sup>1</sup> These are official average prices. They probably do not reflect the lower prices usually paid by private traders.

<sup>2</sup> The average civil service salary in Senegal of 450,000 francs is nearly ten times the average farm family income, including the value of home-produced food, of 48,000 francs. Since the typical farm family has three or four adult workers, the average civil service worker received 30 to 40 times as much income as the average farm worker.

the buying, assembly, storage, and distribution facilities and services needed to supplement existing private traders and to create an effective national food grain marketing system. The expansion of ONCAD's food grain marketing operations needed to achieve these objectives may be three to four times what they now are. The largest annual volume handled by ONCAD was about 26,000 tons and the average is near 15,000 tons. But 60,000 to 100,000 tons of millet and sorghum may be needed to provide an effective market for producers, to stabilize prices, and to make official prices fully effective in retail markets.

Recently the Government of Senegal appears to have moved slightly in the direction the study team feels is essential if the food production-marketing problem is to be solved. The recently published third four-year plan appears to accord greater emphasis than the two previous plans to agricultural development and to expansion of food grain production. Also, in 1969, the Government contracted with the private consulting firm Italconsult to study ONCAD, to recommend changes in its organizations and operations to increase its efficiency, and to train its staff in modern management and marketing techniques. Nevertheless, the study team remains convinced that these steps, although definitely in the right direction, are only a beginning and that Senegal urgently needs to take further vigorous action in the matter.

### Further Considerations

The study team was favorably impressed by a production expansion program offered by the directors of SODEVA and IRAT and supported by representatives of SATEC and ITA.<sup>1</sup> In this proposed

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<sup>1</sup> These abbreviations stand for: Société pour le Développement et Vulgarisation Agricole, Institut de Recherches d'Agronomie Tropicale, Société d'Aide Technique et de Coopération, and Institute de Technologie Alimentaire.

production incentive program, selected farmers would be given grain, or its cash equivalent, as an incentive to adopt recommended farming practices. These practices would involve fallowing about a fourth of the farmer's land, using better seeds, applying adequate fertilizer, and generally employing good cultivation methods. Few farmers are now willing to adopt these recommendations, despite long-term benefits, because of the fallowing requirement and the loss of income in the first years of the recommended four-year program. Poor farmers lack the cash (and food) reserves to absorb initial loss of income. However, IRAT and SODEVA claim that a cooperating farmer under this program can increase, by the fifth year, or beginning of the second four-year cycle, his sorghum and millet production by 100 to 200 percent and his peanut production by as much as 50 to 70 percent. His net farm income would rise roughly one-third compared with his present income. Accordingly, the original grain (or cash) assistance, which can be reduced gradually over the four-year cycle, might be made as a loan on which repayments could begin in the fifth year. The assistance to farmers could be financed entirely through sales or direct grants of donated grain since SODEVA has the necessary staff of extension agents to provide essential extension inputs.

The study team believes that the SODEVA-IRAT proposal merits support by donors on a limited, experimental basis for several years, at least during the four-year production (rotation) cycle the farmer must adopt under the IRAT recommendations. A program involving 5,000 tons of grain a year would reach farmers cultivating about 60,000 hectares of land. However, the study team attaches several requirements to this recommendation: (1) development of an acceptable program of action, in detail, by SODEVA and IRAT; (2) assurance that economic objectives have priority at all times over social

and political goals; (3) provision of means of measuring success or failure of the program, and the probable causes thereof; and (4) continuing close cooperation between Senegalese research and extension leaders and workers. In addition, to avoid disincentives to farmers including those not in the program, shipments of grain under the program should reach Senegal in April of each year when market supplies usually are lowest. Finally, while the study team considers this SODEVA-IRAT proposal highly meritorious especially on an experimental basis, it concludes that primary emphasis must be given in Senegal, as in the other West African countries, to the development of an efficient food grain marketing system.

#### D. UPPER VOLTA

Upper Volta is a small, landlocked West African country with an area of 274,000 square kilometers (106,000 square miles). It is bordered by Ivory Coast, Ghana, Togo, Dahomey, Mali, and Niger. Its nearest outlet to the sea is Abidjan, Ivory Coast, which is some 500 miles from Ouagadougou, the capital. The population of about five million people is increasing about 2.0 to 2.5 percent a year. Only six percent of the population is urban. It is concentrated in Ouagadougou (100,000), Bobo-Dioulasso (50,000), and six smaller cities.

Upper Volta is one of the world's least developed nations. The gross national product in 1964 was about \$50 per capita. Average annual earnings of factory workers in 1965 were below \$500 and civil service salaries averaged about \$1,200. Farm family incomes, including the value of home-produced foods, probably averaged less than \$400. Since independence in 1960 the overall rate of economic growth has been modest. It probably has not greatly exceeded the rate of population growth. Agriculture, the occupation of over 90 percent of the people,

has made little progress. Real per capita income may well have not increased in the past decade.

### Agriculture

Roughly 4.5 million farm people live in more than 7,000 villages. They cultivate about 2.3 million hectares of land. Since there are nearly 500,000 farm families, a typical family consists of nine persons and cultivates slightly over four hectares. The cultivated area is slightly over eight percent of all land and only 18 percent of the land judged suitable for cultivation. Nearly 60 percent of the country is semi-desert. Crop production is confined to the southern districts; the southwestern region is by far the best agricultural section.

Over three-fourths of the cultivated land is used to produce the principal food crops: sorghum, millet, and corn. Other important crops are peanuts, rice, cotton, sesame, and sheanuts. A variety of fruits and vegetables are grown for domestic consumption. Upper Volta's principal crop exports are peanuts, cotton, sesame, and sheanuts (harvested from wild trees). But live cattle, raised mainly by semi-nomadic people in the more arid northern parts of the country, is by far the largest agricultural export. Agricultural production techniques are, generally speaking, primitive. Few Voltan farmers have advanced from hand tools to donkey or oxen power. In this respect, agriculture in Upper Volta is essentially like agriculture in the other three West African countries covered by this study.

### Agricultural Marketing

Apart from small quantities of food crops handled by petty traders and the Société Voltaïque de Commercialisation (SOVOLCOM), the only crops marketed to any significant extent are peanuts, cotton,

sesame, and sheanuts. With some exceptions, these export crops are purchased by private traders licensed by the Department of Commerce. In certain cotton producing areas the private French company, Compagnie Française pour le Développement de Fibres Textiles (CFDT), has a monopoly on cotton marketing. In some other areas SOVOLCOM is the sole buyer of peanuts. This public agency also competes with private traders elsewhere in buying peanuts, sesame, and sheanuts and in the retailing of food crops and other consumer goods through a chain of 21 stores.

Producer prices of the export crops are fixed by the Government at the beginning of the annual harvest, usually in November. Prices are based on the export price, f. o. b. Abidjan, Ivory Coast, less costs of transportation, marketing, and profit margins for the trading firms. The official producer prices are maintained by the Caisse de Stabilisation des Prix de la Haute Volta (CSPHV). If actual export prices, as shown by the exporter's invoices, are below the statistical export price used to establish the producer price, the CSPHV pays the trader the difference. In the reverse case, the trader must pay the CSPHV the excess of actual receipts over the official export price. In some years, the subsidies have been substantial, going as high as 36 percent of the producer price of sheanuts in 1965/66. On balance, the CSPHV appears to have paid out to traders more than it has received. The subsidy is financed by a levy of 1.5 percent on all imports.

In sharp contrast with the organized and subsidized markets for the export crops, the marketing of food grains is so lacking in organization as to have almost no system at all. The marketing of food grains is almost wholly the province of thousands of petty assemblers and vendors. These small merchants lack the financial, physical, and managerial resources needed to handle large volumes of grain, to move it from one market area to another, and to store enough to prevent large

fluctuations in prices over time and space. Also, most of these small traders are essentially petty speculators rather than providers of marketing services. As a result of these factors, food grain prices in nearby, but economically isolated, markets often differ as much as 50 percent. They often rise 500 percent, from about 8 francs per kilo during a harvest period to 40 francs during the weeks just before the next harvest. Although the Government fixes minimum producer prices for the food grains at the beginning of harvest, it has no means of making these prices effective in real markets.

There is no large private or public food grain marketing authority with the financial, physical, and managerial resources necessary to operate on a national scale, to connect the local merchants into a national marketing system, to stabilize prices and supplies, and to eliminate many of the deficiencies of the present situation. SOVOLCOM handles small volumes of rice and operates a rice mill. The company also is responsible for a grain stabilization fund of about 25 million francs originated earlier through sales of commodities under a now terminated World Food Program "buffer stock" project. This fund, however, is pitifully small for a nation that produces about 1.2 million tons of food grains in an average year. Naturally SOVOLCOM's grain operations have no visible effect on market supplies or prices since a volume of 60,000 to 100,000 tons, in addition to the volumes marketed by local traders, is needed for effective stabilization operations. Furthermore, SOVOLCOM appears to have little interest in this operation. It views its primary mission as the marketing of the export crops and the distribution of a narrow range of consumer goods through its chain of 21 small stores.

## The Periodic Food Shortages

In common with other West African countries, Upper Volta suffers from wide fluctuations in annual rainfall. As a result, crop production is subject to large year-to-year changes. Serious shortfalls in output occur about once every four years and large crops are about equally frequent. The 1968 harvest of the major food crops was approximately one-third below the 1967 output. Near famine conditions developed in some parts of the country in the summer of 1969. Emergency imports were required to prevent widespread famine. In contrast, early estimates of 1969 food production indicate that output may substantially exceed the 1967 harvest.

Differences in rainfall within the country also produce sharp regional differences in food grain production per capita and in the frequency of food shortages. In the productive southeastern area the production of sorghum, millet, and corn usually exceeds local needs. But a short distance eastward, the capital city region often produces less than the national average of nearly 200 kilos per capita. In the regions still further east, deficit conditions are more frequent and more severe.

Adverse climatic conditions are not the sole cause of the frequent and severe food shortages in Upper Volta. The basic cause of the problem is the lack of a national system of food grain marketing able to cope with the food production, storage, and distribution problems created by erratic weather conditions. In addition, the lack of price incentives to producers and the absence of satisfactory markets are major deterrents to urgently needed expansion of food grain production. While the production of cotton, sesame, and rice have increased significantly since 1963, the outputs of peanuts, sorghum, and millet have remained essentially unchanged. Per capita production of food, mainly

millet and sorghum, probably has declined in recent years. It appears, too, that the cultivated area has not kept pace with the growth of the national population. Finally, large and increasing numbers of Voltan farm workers reportedly have emigrated to the Ivory Coast and Ghana where rapid economic growth offers expanding employment opportunities at attractive wages.

Not enough data are now available to establish the basic causes of the apparent agricultural stagnation in Upper Volta with acceptable certainty. But logic suggests that low and declining prices and farm incomes have been a major force. Producer prices of peanuts have declined in recent years as the result of declining world prices and the elimination of subsidies formerly provided by France. The prices of the food grains, although fixed by the Government near the world price level of about 12 francs per kilo generally have been 25 to 33 percent lower during the important harvest season. Then later when farmers generally are net buyers, rather than sellers, prices rise to exorbitant levels. As noted earlier, these price-income deficiencies reflect the lack of a national marketing organization. Finally, farmers confronted with inadequate price incentives and markets for food grains have responded with expected logic. Some choose to increase income by getting jobs in the Ivory Coast. Others may have chosen the subsistence option rather than to work for the low and uncertain returns from producing food grains. It is apparent that food production has failed in recent years to keep pace with the population growth, and food shortages have become increasingly frequent and severe.

#### Recent Actions

Government officials in Upper Volta seem to be acutely aware of the need for action of some kind to expand food production, especially

of millet, sorghum, rice, and corn. One approach that is being tried, with as yet uncertain results, is the creation of Offices Régionaux de Développement (ORD). Basically these organizations are the Upper Voltan agricultural extension service. Another proposal now under serious consideration is establishment of a national food grain marketing authority similar to OPAM in Mali and the proposed National Cereals Office in Niger. However, the magnitude and complexity of this undertaking apparently are major deterrents to action. Upper Volta appears to have neither the investment capital nor the skilled management and marketing personnel to operate such an authority profitably and efficiently.

Marketing experts provided by donor countries would have a unique opportunity to guide Upper Volta in the development, from essentially base zero, of a whole new food grain marketing system. The potential benefits of this operation are enormous in terms of rising food production, increases in farm incomes, stabilization of prices, elimination of serious food shortages, and general agricultural development.

#### Other Considerations

The Government of Upper Volta is in the process of expanding its national agricultural extension service. The primary instruments of action are the ORD's. Six offices are now in operation and four more are planned. They are staffed mainly by Voltans but because of the limited number of trained Voltans, French experts serve as senior advisors in all six operating offices. In fact, several of the six offices are, in effect, administered by personnel supplied by three French organizations, SATEC, BDPA, and CFDT, which are active in most of the African Francophone countries. Both SATEC and BDPA are agencies

of the French Government and CFDT is a private French company engaged in producing and marketing cotton. The orientation of these organizations, especially CFDT, is toward the production and marketing of the major export crops. Their interest in increasing the productivity of food grain cultivation seems to be mainly as a means of making more land available for the production of export crops. In other words, the effectiveness of the ORD's in promoting expansion of food grain may continue to be limited until the organizations not only are better funded and staffed but also are directed by Voltans implementing a balanced agricultural policy. Accordingly, there is much merit in making available to Upper Volta the assistance of agricultural extension experts.

APPENDIX A

**FOOD GRAIN PRODUCTION AND STABILIZATION  
IN THE SAVANNAH REGION OF WEST AFRICA**

## APPENDIX A

### FOOD GRAIN PRODUCTION AND STABILIZATION IN THE SAVANNAH REGION OF WEST AFRICA

by

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The subject of this study--to find a long-term answer to severe fluctuations of food supplies in West African countries which necessitate the frequent provision of emergency food--needs to be seen against the background of past socio-economic development as well as the likely demographic and social trends (hence, future demand for food) during approximately the next two decades.

In a short paper of this nature, generalization is unavoidable. Conditions in Africa south of the Sahara vary greatly from one country and/or region to another. Therefore, concrete measures to improve the food situation need to vary according to local circumstances.

#### Demographic Projections for 1985

According to the FAO-Indicative World Plan (IWP), which in a provisional form was submitted at the November 1969 Biennial FAO Conference in Rome, the total population in Africa south of the Sahara (excluding Guinea, Sierra Leone, Liberia, Sudan, Somalia, Angola, and Mozambique) will increase between 1961/1963 (IWP base years) and 1985 by about 80 percent; most of West Africa will increase by 90 percent, and the Savannah countries, i. e., Senegal, Mauritania, Gambia, Mali, Upper Volta, and Niger, by 70 percent. These are based on medium growth assumptions; the actual growth may be even larger.

In the context of this study, another projection is still more important; it is the anticipated increase of urban population during

the same time period:

Africa south of the Sahara	-	193 percent increase
West Africa	-	197 percent increase
Savannah countries	-	150 percent increase

The above estimates show an almost threefold increase in tropical Africa's urban population as a whole (37 million in 1962; 107 million in 1985), and a somewhat lower increase in the Savannah countries.

The resulting increase in the population engaged in agriculture, according to IWP projections, is still very substantial:

Africa south of the Sahara	-	52 percent increase
West Africa	-	56 percent increase
Savannah countries	-	64 percent increase

or, in absolute terms for the whole of tropical Africa, from 164 million in 1962 to 250 million in 1985.

These IWP projections can be considered as reasonably reliable because they are based on present trends and because no drastic alteration in these trends is anticipated over the demographically short period of two decades. However, the projected rate of shift from agricultural to non-agricultural occupation ("urbanization") is more judgmental and, therefore, debatable. It can be assumed, however, that the projected overall order of magnitude is within reason.

#### Future Demand for Food: Implications

If IWP demographic predictions prove to be accurate, then in 1985 about three times as many people as there were in the early

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<sup>1</sup> The percentage the agricultural population represents of total population will accordingly drop during the same period as follows:

from 82 percent to 70 percent for Africa south of the Sahara;  
from 81 percent to 70 percent for West Africa; and  
from 88 percent to 81 percent for Savannah countries.

sixties must be supplied with food through marketing channels. In addition, a more than 50 percent increase in subsistence food production will be needed during the same period of time to meet the demand of the expanded agricultural population. The somewhat lower rates of increase of total, as well as urbanized, population in Savannah countries do not diminish the overall order of magnitude of the future food problem in these countries. These rates are of similarly alarming proportions as are those for the rest of Africa and in the developing world at large.

It is generally hoped that with the gradual improvement in the overall economic situation of developing countries (and hence per capita income) food consumption will steadily improve in terms of quantity as well as quality. Consequently, the increase in the total demand for food may even exceed the percentage increase in population. The IWP projections include a per capita increase of total calories as well as an increase of proteins and fats.

It must be hoped for and assumed that with present agro-technological knowledge, a more than 50 percent increase in subsistence food production will be feasible for meeting the increased requirements of the rural population during the next 20-year period. The big question is, however, whether African farmers can produce enough food both to feed the rapidly growing urban population and to meet the ever increasing subsistence requirements.

Therefore, the challenge of the future, in regard to food production and marketing in tropical Africa (as well as in other developing regions), appears to be (1) stimulating farmers to produce the required market surpluses, and (2) improving internal marketing systems, which hitherto have been mainly traditional in most countries, so that such quantities can be handled efficiently. Both issues are closely linked and, in fact, interdependent.

#### Propensity toward Food Imports

Currently for the region as a whole, the urbanization rate is markedly higher than the increase in food produced for internal consumption. Consequently, imports of food are needed on a constantly increasing scale (naturally, with considerable difference between countries).

According to IWP, roughly one-third of the food sold to urban consumers in West and Central Africa is imported. The share ranges from about one-fifth in Congo K. to as high as two-thirds in Senegal and Gabon. There is general agreement that the present rate at which food is imported from abroad is far too high in most African countries to be maintained. It was unduly high from the outset as a result of prolonged European presence and the European influence on African taste.

Apart from the loss of foreign exchange, which increasingly will adversely affect importing capital goods for development, and the inherent danger of irreversibility of imports (particularly if imports are clearly of a "non-African" type -- for instance, wheat), another important argument for increasing food production in Africa appears to be that the increase in the world's population during the next few decades may not permit substantial food imports into Africa. Africa may be expected to contribute food to the rest of the world.

The present unresponsiveness of market food production in tropical Africa (including the Savannah countries) seems to be rooted in the past 50 to 100 years of socio-economic development. Among the more important factors of the past which contribute to today's problems are:

- initially (and in some countries even today), the lack of a real local market for food;
- "easy" food imports; and
- "dualism" of agricultural production.

All three factors are of course closely linked and interdependent.

The lack of markets simply stems from the fact that at the beginning of systematic attempts by the colonial powers to introduce an agricultural market economy in Africa, 90 to 95 percent of the population was engaged in self-sufficient, subsistence agriculture. There were no noteworthy markets. Consequently, the production of crops for the export market was the only way to develop a cash economy for African farmers. In some countries (e. g. Niger) a similar situation exists today although urban markets have started to develop.

Food imports, initially meant to be primarily for non-African consumers, were desired by the urbanized African. In addition to the unavoidable effects of urbanization on consumption habits,

a liking for new tastes developed. Furthermore, a "status complex" was stimulated. Local food production for sale consequently was discouraged. It was accorded low priority on the gradually developing urban markets and faced increasingly difficult competition from the rising tide of imports.

In a continent so largely devoted to agriculture, it is ironic that so much of today's increasing demand for food in African cities is met by imports from non-African sources. The combination of food imports, change of taste and status symbol complex is, therefore, now a very serious stumbling block for local market food production. It tends to isolate African urban demand from African agriculture.

Dualism of production -- cash crops mainly for export and food crops mainly for rural subsistence -- has, therefore, become a special feature of agriculture in tropical Africa (with some notable exceptions). Due to the agro-economic policies of the colonial powers, market production concentrated on cash crops for overseas markets. This situation continued until present times although the socio-economic situation has long since called for a modification of such policies.

In the past, measures to improve agriculture, therefore, meant primarily concentrating efforts on export crops. Marketing channels were developed over time, and sales were guaranteed at sufficiently stabilized and, so far, attractive prices. Under such encouraging conditions, African farmers, particularly during the last decades, have increased and improved export crop production remarkably.

The dangers involved in such specialization are manifold. Apart from dependence on imported food and the uncertain outlook for traditional exports, the technological gap between food production and export crop production may widen to such an extent that it will be increasingly difficult to bridge it. Research and innovations, particularly those requiring capital inputs, may continue to be neglected for food crops in favor of export crops.

In addition to the agro-technological gap, which needs to be closed in the near future, there exists a psychological gap that is probably even more important. The general attitude that food and export crops rank differently is not restricted to agriculture. Trade and administration, too, for decades became accustomed to the dualistic approach. Only export crops were sufficiently profitable for business. Through export taxation, governments so far have obtained the major part of their revenues.

It appears, therefore, that the "food import - cash crop export" syndrome which started on almost purely economic grounds, has considerably widened to involve social, technical, fiscal, and psychological motives and factors as well. A reversal of present trends may require a change of attitude not only of the farmers, but also of other groups, particularly governments.

It may be added that in some countries the share represented by imported food of total food consumption is considerably higher than the ratio of urbanized people to the total population. This indicates that the agricultural population itself is participating in the consumption of imported food. For instance, it is claimed to be "a logical economic choice" for Senegalese farmers to reduce the area devoted to food crops in favor of cultivating peanuts and to buy imported cereals and meat. While for the country as a whole it may be more economically advantageous today to export peanuts and oil to buy food, no one can say for sure what the situation will be in 10 or 20 years from now. Everything seems to indicate that the "happy" fifties and even sixties, when such a policy could still be recommended for African countries, will soon be gone.

It seems to be obvious, therefore, that present trends cannot be allowed to continue unchanged. In fact, in most countries they have already continued for a dangerously long period of time. There is a threat of irreversibility. A break with the ingrained way of performance is urgently needed in most African countries. Although even with present knowledge it is not possible to predict what the desirable relationship between imports and local food market production should be in the future (neither for the region as a whole, nor for individual countries), there nevertheless seems to be a limit beyond which dependence on outside supplies should preferably not exceed. Such a limit applies particularly to those countries which depend mainly on agricultural exports for foreign exchange and whose major economic activities are in the primary industries, i. e., agriculture, fishing, forestry, but excluding mining. At present, many countries in tropical Africa appear to have already stepped over this threshold.

## The Key to Increasing Food Market Production

We do not know how strong the desire of African farmers is to advance materially and whether, therefore, a significantly greater change in the farmers' attitude toward progress can realistically be expected between now and 1985 than what has occurred from 1950 to date.

The discouraging results of the past two decades' development efforts require that at this crucial stage the hard and disagreeable facts be brought forward and no longer concealed, for instance by palliative but inconclusive "empirical evidence" or by bland optimism.<sup>1</sup> The disillusionment over lack of achievement resulted in part from entirely unrealistic expectations which did not fully take into account the formidable problems that beset development. Partly it resulted from short-sighted and politically motivated aid activities. Further more, the "crisis of rising expectations" in African countries has no doubt led to unrealistic priorities and attitudes.

Nevertheless, it is probably justifiable to maintain that the removal of various disincentives as well as the provision of direct incentives supplemented by agro-technological innovations, may lead to the required increase in food production. Some even believe that most farmers in Africa, particularly if they are already in contact with the market, are almost as sensitive to economic stimuli as farmers in the advanced countries. It is held that it is mainly the difference in conditions under which farmers live and work that inhibits their responses.

Be that as it may, what we definitely do know is that millions of African farmers in recent decades responded very favorably to the removal of disincentives and provision of incentives, as far as producing cash crops for export is concerned. The principle incentives to increasing export crops quite obviously have been and still are (a) an adequately assured outlet and (b) fairly stable prices at levels which are considered sufficiently remunerative. With some minor exceptions, these incentives seem to constitute a major feature of African export

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<sup>1</sup> It seems to be a fact that most of the published data on long-term favorable response and behavior relate to single crops. It is always possible that increases in production of one crop may have occurred at the expense of another crop for which prices were less favorable.

production and marketing regardless of the organizational setting under which it has developed over the years in the different parts of the continent. The unparalleled growth of agricultural exports appears to be proof, therefore, that selective use of incentives such as stabilizing prices at attractive levels and guaranteeing outlets, has every chance of being successful. However, as has been indicated above, the remarkable increase in the production of export crops may have taken place at the expense of production of food for the African markets, which otherwise might have developed in a more satisfactory way.

It seems justifiable to assume, therefore, that the key (apart from any incentives that may, and no doubt will, be derived from general improvement of political and economic stability as well as of tenural rights, taxation, credit, etc.) for the necessary, rapid, and substantial increase in food market production is raising the rank of food crops at least to that of export crops. In other words, each measure which may be taken to increase food grain production ought to culminate in a substantial upgrading of the rank of these crops. This inevitably would imply that a relative shift of emphasis in commercial policies from export to food production must occur.

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<sup>1</sup> The ideal would be, of course, to keep exports at high levels or even further increased. But the response of farmers is not known yet. A shift of emphasis in policies may lead, in the short-term, to a reduction in the production of export crops. However, a relative shift of emphasis (which in fact might be termed food import substitution policy) also seems to be justified for the following reasons: (a) In tropical Africa it is, with some notable exceptions, mainly agricultural exports which pay for food imports; empirical evidence supports the view that long-term prospects for many of the traditional exports are poor; and mainly for various reasons, world supply tends to exceed demand (slow population growth in the industrial countries, which constitute the main market, as well as low income elasticity of demand in these countries and the increasing production of substitutes for many traditional exports); and (b) Closely linked with the generally poor prospects, as far as the supply/demand relationship is concerned, is the prospect of a long-term decline in terms-of-trade for almost all of the traditional exports. This, too, must be considered as a normal economic phenomenon. At least in the short-term there is little chance of the terms-of-trade being reversed, one important reason being the well-known fact that with rising income demand for primary goods, particularly food, does not rise at the same rate as for secondary and tertiary goods and services. The "buying power" of traditional exports, therefore, seems certain to decline over the longer term. In other words, the amount of imports including food imports that can be bought on the world market per unit of African agricultural exports is decreasing.

In conclusion, it appears that the stabilization of prices and outlets, meaning the development of confidence in the dependability of the market, has been the primary influence on increased export crop production. The feeling of distrust of the market and its vicissitudes, which is one of the main obstacles in the early stages of the transition from predominantly subsistence to market agriculture, has been largely eliminated. There are other factors as has been indicated already, which played their part, particularly the public and private efforts and investments, which thus far have gone almost entirely into the production and marketing of export crops. But the provision of sufficiently stable conditions at the producer level, regardless of the fluctuations in the world commodity markets, clearly appears to have been, and to be, the crucial issue. Therefore, the decisive stimulus to deliberately and substantially produce food for local markets beyond subsistence requirements can only come through the prospect of selling the surplus on guaranteed markets at attractive and fairly stable prices.

### Requirements for Increased Food Production

When considering the application to food production of the basic incentives which affect production of export crops, two reservations must first be made.

1. Only the most important food crops, particularly staples (such as grains and pulses), can realistically be included in any stabilization program, at least in the initial stages and until sufficient experience with the operation and producers' response has been gained.

2. Monopoly marketing, which for obvious reasons is a special feature of exports for most of the important products in most tropical African countries, can hardly be envisaged for the internal marketing of food.

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<sup>1</sup> International competition in African export marketing is highly effective. In order to improve their competitive position on the world market, it is essential for African countries to concentrate efforts on improving and standardizing the quality and increasing the quantity of their agricultural exports. Monopoly export arrangements, therefore, appear essential. On the other hand, in the marketing of local products for local consumption, competition needs to become effective on the internal market. This competition, which so far is wholly inadequate, is needed in order to bring about the improvements in internal marketing and hence production. Therefore, the private trade should not be eliminated. Its initiative, drive, flexibility and ingenuity are required as a stimulus to the efficiency of alternative marketing channels. This private trade, in turn, needs to be forced to discard its shortcomings which are embedded in the traditional "laissez-faire" type system. This can best be achieved by the introduction of competitive new marketing channels as well as by the establishment of certain rules which help to guarantee "fair play" in trade and commerce.

It appears, therefore, that under African conditions and given the present stages of development (as well as the need to force rapid development in the desired direction), the governments' intervention in one way or another in the area of food grain marketing is inevitable. Apart from legal measures establishing rules and regulations for weights and measures as well as simple standards and grades including their enforcement through regular policing, and apart from specific services and facilities that need to be provided by governments, such as crop reporting, market information, marketing extension, training and research, the main form of direct intervention appears to be the establishment in each country of statutory national stabilization boards for cereals.

Such statutory stabilization schemes would not only appear to be a long-term prerequisite for the needed rapid increase in food market production and for the acceleration of social and economic development, but would also be a very suitable form of organization for the purpose in question. In the FAO publication "Development through Food" (1961), such stabilization schemes were cited as "one of the cornerstones of development policy." If efficiently operated and effectively backed by government policy, they would:

- provide incentives to producers to increase production of cereals;
- protect urban and rural consumers against unreasonable rises of basic food prices during times of seasonal and annual shortages;
- enable countries to deal with most food emergencies internally and promptly;
- involve maximum national effort and responsibility; and
- contribute effectively toward the creation of a stable and hence favorable internal economic and social climate.

Such stabilization schemes may be needed on a long-term basis in almost every country in the region. Particular need for as rapid an establishment as possible, however, exists in all those countries

- which suffer from wide fluctuations of annual grain output (due mainly to irregular rainfall and to diseases);

- which are net grain importers and/or have clearly marked deficit and surplus areas which are insufficiently balanced under the existing marketing system, leading to unnecessary shortages and high prices;
- which suffer from wide seasonal and annual fluctuation of prices due mainly to traditional marketing methods which allow private trade to play a dominant role in the market, leading not only to exploitation of producers but also to undue high prices in towns; and
- where the traditional marketing system has led to permanent indebtedness of small farmers to private traders and money-lenders with all the depressing effects of such almost incapable dependency on food production beyond subsistence requirements.

Most West African countries, particularly in the Savannah zone exhibit at least one or two of the above factors. There seems to be no doubt that there is urgent need to stimulate the establishment of such schemes in this area and to assist in their implementation and operation where and whenever necessary. Otherwise, the needed break with the ingrained traditional system will not occur.

Such stabilization schemes would be multi-purpose in character. They would operate alongside private trade, having buying points (initially only in predetermined priority areas) which would be directly operated either by the board or by licensed agents such as private traders or producers' cooperatives societies. They would fix minimum producer prices according to government price and production policies, initially and preferably before the harvest according to the size of the crop, and after gaining experience, possibly before planting time. They need to be prepared to buy, particularly in good crop years a substantial portion of the total marketable surpluses, but should normally aim at a 15 - 25 percent share, which is considered sufficient for effective control of prices and supplies.<sup>1</sup> Further, they would

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<sup>1</sup> It has not been possible in practice to set up any clearly defined criteria of "adequacy of size" for stabilization operations. Decisions on size need to proceed largely on the basis of rough approximations, supported by such empirical knowledge as has been gathered the hard way in periods of crisis or strain. They will vary according to local circumstances; funds or stocks should be sufficiently large so that speculators cannot out wait them. It has been estimated that a statutory stabilization agency might need to aim at not more than a 20 percent share in genuine marketable surpluses of normal crop years to be able to stabilize supplies and prices effectively.

need to be the executive organ for government import policies and would need to have full control over cereal imports and other internal prices (although not necessarily as monopoly importers).

Though the particular form of such agencies may vary from country to country, depending on existing infrastructural arrangements, the essence of the production, stimulation and stabilization of such schemes would nevertheless be the same: the purchase of cereals at harvest time at fixed prices and the safe storage of these (and any imported) quantities until the rise of market prices (seasonal and annual) necessitates the release of stocks into the market in order to keep prices at economically as well as at socially desirable levels. From this it is obvious that at times the stabilization agency's stocks may nearly all be sold in order to maintain normal flow of supplies to consumers in urban centers or to rural deficit areas; at other times, after a good crop, grain stocks will be large, and possibly loans to the Board may be needed to supplement the Board-owned resources.

Such stabilization boards should at all times try to operate long-term on a self-supporting basis. In other words, the operating expenses should be kept at minimum levels and should, as far as possible, be covered by a trading margin. The boards would trade on semi-commercial, i. e., restricted profit-making lines. It seems to be unlikely, however, that directly or indirectly, the main positive incentives to producers can operate long-term entirely on a self-supporting basis. The quantities of grains which would have to be purchased will fluctuate considerably from one year to another as, hence, would stocks and operations (thus leading to high overhead).

The removal of disincentives and provision of incentives to farmers as well as the stabilization of supplies and prices for the sake of consumers and the economy as a whole might be considered as an indispensable and extremely useful public service, all of the cost of which the Board may not normally be in the position to meet out of revenue earned. Governments need to be aware of this and specific provisions must be made to cover additional expenses which, under efficient management, should not be considered as losses but as costs.

Further, stabilization boards should maintain an iron ration reserve in order to be able to meet sudden and unexpected emergencies. This is particularly important in countries subject to wide variations in growing conditions as for instance in the Savannah zone. Though it cannot be indicated how big such a reserve needs to be, it is nevertheless obvious that such a service would considerably add to the costs, which may not be covered by normal (restricted) trading margins.

In conclusion, it may be stated, therefore, that adequate and well operated schemes are likely to be costly. But approaching future requirements are of such an order that radical and probably expensive action must be taken.

For successful and efficient operation of such schemes the basic requirements would be:

- a long-range grain policy which would discourage food imports and encourage food imports substitution;
- a competent executing agency operating on solid legal grounds as far as organizational set-up, aims, personnel, and finance and budget are concerned;
- adequate administrative and technical ability of staff; and
- adequate facilities for storage, handling, transport, intake, and sale.

Most countries in the region are not in a position to organize such schemes in a satisfactory way as quickly as they are required, or to provide the finance for needed facilities and current expenses, or to have adequately trained personnel for efficient management and operations. Aid in various forms and possibly from various sources will, no doubt, be required.

It is not intended here to go into further details. It merely needs to be stressed that in order to be successful and to avoid severe, and possibly unrecoverable, setbacks which would imperil achievement and future requirements, a very close cooperation between aid providing countries and international organizations appears to be a must.

### World Food Program Experience

The World Food Program (which can provide grain as initial stock to be sold for the creation of operating capital or used for the establishment of an iron ration reserve) has had some valuable experience with the few, rather small-scale, stabilization schemes which it has helped to establish.

One lesson learned is that requirements for establishment and successful operation are more complex than normally is believed and that, therefore, preparations for the implementation of such schemes need to be

thorough and comprehensive. These preparations should start with an adequate fact finding study and analysis in order to be able to assess the role, importance and defects of the existing marketing system as well as to determine the grain policies that need to be established; the legal measures that need to be taken; the structure of the statutory organization that needs to be set up; the location and capacity of storage that needs to be constructed; the operational capital that needs to be available; the size of the iron ration emergency reserve that should be established, etc.

Another conclusion from WFP experience is that competent management is of crucial importance. A high caliber staff is needed because efficient operation of such schemes is essential for success. Expatriate management (at least expert management advice preferably with some power) will in most cases be needed for some time. The success of WFP supported stabilization operations in Ethiopia is largely the result of expatriate management though it consists of one person only, the general manager. On the other hand, the setbacks in other WFP supported schemes in West Africa have been greatly due to the inexperience of the indigenous management and the lack of expert advice.

A further experience is that the right timing of the arrival of initial grain supplies is of an overriding importance. Though, theoretically, the provision of such stocks is not an essential requirement for the establishment of such schemes, governments will always request them in view of their own limited resources. Under no account should such supplies be provided in a good crop year immediately after a normal harvest. This means that after the conclusion of an agreement between the grain supplying country or organization and the recipient country, shipments may have to be delayed until the most suitable time, i. e., preferably in an under-average crop year or during a period of seasonal shortages.

Still another conclusion is that undue and arbitrary government intervention needs to be avoided. The legal provisions for the establishment of the stabilization Boards, therefore, should contain regulations which would safeguard the autonomy and authority of such Boards.

Finally, it should be mentioned that eye-catching successes can hardly be expected right from the beginning, even if most requirements have been met satisfactorily. It may be several years before measurable results can be achieved. These new schemes have to break through long established traditional systems and, therefore, may meet strong resistance from the private trade. Moreover, producers may be reluctant to sell to stabilization boards, either from lack of confidence or because of heavy indebtedness to

private trade from which they cannot easily escape. Governments as well as aid-giving countries and organizations should be clearly aware of this and, therefore, continue efforts unperturbed though initial progress may not appear to be promising.

In conclusion, it may be said that national stabilization schemes, through concentration of efforts to channel to producers incentives required to increase food production, will have a central role to play in almost every country in the region either by direct intervention through their own operations, or even indirectly through their mere existence.

There can be no question, however, that success is likely to come only after careful selection of policy aims which ought to be fitted into overall economic and social policies and painstakingly examined for possible intra- and inter-sectorial implications. When adopted, they should be considered as long-range goals and should not lightly be changed. Austerity, honesty, and endeavor on the part of the supervising public organs are needed in the same way as managerial and intreprenurial abilities and integrity on the part of the executing agencies, the national stabilization boards.

The successful establishment of such schemes at present stage will only be possible with substantial outside aid. A meaningful coordination of such aid, if provided from different sources, is of the greatest importance.

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APPENDIX B  
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