

Report 3529-GUB

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Guinea-Bissau

An Introductory Basic Economic Report (In Three Volumes)

Volume II

May 21, 1982

West Africa II

Division A

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CURRENCY EQUIVALENTS

1. Currency Unit: Guinea-Bissau Peso (GP)
2. The Guinea-Bissau Peso is pegged to the SDR.
3. Exchange Rates with respect to the U.S. dollar:

1974:	1 dollar = 25.4 Guinea-Bissau Pesos
1975:	1 dollar = 25.5 Guinea-Bissau Pesos
1976:	1 dollar = 30.2 Guinea-Bissau Pesos
1977:	1 dollar = 33.7 Guinea-Bissau Pesos
1978:	1 dollar = 35.0 Guinea-Bissau Pesos
1979:	1 dollar = 34.0 Guinea-Bissau Pesos
1980:	1 dollar = 33.8 Guinea-Bissau Pesos
1981:	1 dollar = 36.0 Guinea-Bissau Pesos

WEIGHTS AND MEASURES

1 meter (m)	= 3.28 feet
1 kilometer (km)	= 0.62 miles
1 hectare (ha)	= 2.47 acres
1 square kilometer (km ²)	= 0.386 square miles
1 kilogram (kg)	= 2.205 pounds
1 metric ton (t)	= 2205 pounds
1 liter (l)	= 0.26 gallons

FISCAL YEAR

January 1 - December 31

GUINEA-BISSAU: AN INTRODUCTORY ECONOMIC REPORT

VOLUME II

THE SECTORS

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ABREVIATIONS AND ACRONYMS

ADF	African Development Fund
BAD	African Development Bank
BADEA	Arab Bank for Economic Development in Africa
BNG	Banco Nacional da Guine (National Bank of Guinea-Bissau)
CAIG	Complexo Agro-Industrial do Cumere (Cumere Agro-industrial complex)
CEPI	Centro de Educacao Popular Integrada (Center for Popular Integrated Education)
CICER	Companhia Industrial de Cervejas e Referigerigerantes (Industrial Company of Beer and Soft Drinks)
EDF	European Development Fund
EEC	European Economic Community
EGA	Empresa Guineense de Automoveis (Guinean Automobile Enterprise)
FAC	Fonds d'aide et Cooperation
FAO	Food and Agriculture Organization
GDP	Gross Domestic Product
GUALP	Guine-Argelia Pescas (Guinea-Bissau-Algeria Fisheries)
GWT	Gross Weight Ton
IFAD	International Fund for Agricultural Development
IMF	International Monetary Fund
JAPG	Junta Autonoma dos Portos da Guine-Bissau (Guinea-Bissau Autonomous Port Authority)
LIA	Linhas Internacionais Aereas (Guinea-Bissau International Airlines)
MPW	Ministry of Public Works
MTC	Ministry of Transport and Communications
PAIC	African Party for Independence of Cape Verde
PAIGC	African Party for Independence of Guinea-Bissau and Cape Verde
SIDA	Swedish International Development Authority
SOCOMIN	Sociedade Comercial e Industrial (Industrial and Commercial Society)
SOCOTRAM	Sociedade para a Comercializacao e Tratamento de Madeiras (Society for the Commercialization and Treatment of Wood)
SUCO	Service Universitaire Canadien d'Outre-Mer (Canadian University Service Overseas)
TAP	Portuguese Airlines (Transportes Aeos Portugueses)
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Program
UNIDO	United Nations Industrial Development Organization
UNICEF	United Nations International Children Emergency Fund
USAID	United States Agency for International Development
WHO	World Health Organization

PART A. THE PRODUCTIVE SECTORS

I. THE RURAL SECTOR

AGRICULTURE

1.01 The most recent study on the agriculture sector of Guinea-Bissau, prepared by SCET International in 1976 estimated the area under cultivation at 300,000 ha (about 9% of the territory). 1/ Of this total, about 107,000 ha are used for wetland rice, 90,000 for rainfed cereals (sorghum, millet, maize), 60,000 ha for groundnuts and 15,000 ha for upland (rainfed) rice. About 65% of the territory is occupied by forest and the remaining area is divided between mangrove, savannah and palm trees (Statistical Appendix Table 9.1).

1.02 Average yields for rainfed cereals are low, about 600 kg/ha. For upland rice the yields obtained are about 400 kg/ha; however, rice yields of 4.5 ton/ha have been obtained in a UNDP-financed project in Contuboeil through the use of new varieties 2/ and irrigation techniques. Average yields for groundnuts are about 700 kg/ha and the better yields for this crop are obtained in the regions of Bafata and Gabu. Cotton yields are estimated at 800 kg/ha. Yields of more than 1 ton/ha for cotton and groundnuts are being obtained in the Cotton Project financed by EDF and in the Groundnut Development Project financed by FAC. Both projects are located in the regions of Bafata, Gabu and Oio, and are introducing new varieties, animal traction and extension services. Average yields for wetland or irrigated rice are about 0.8 ton/ha (1.1 ton/ha for saltwater rice and 0.5 ton/ha for freshwater rice). The highest yields are obtained in the southern part of the country (Quinara and Tombali regions), also called the country's food basket, where average yields of saltwater rice reach 1.2-1.5 tons/ha. Oio and Cacheu regions are also important producers of wetland rice.

1.03 Production data are derived from the only agricultural census (1953), the 1976 SCET aerial survey, and official estimates based on weather conditions and volume of commercialized production. According to this data, agricultural production never recovered from the effects of the war, and is still below the 1953 level. Recent droughts have contributed to a deterioration in production since 1976, especially of rice 3/ and groundnuts. Rainfed cereals production, estimated to have risen steadily, has compensated for the fall in rice (paddy) production.

1/ About 0.4 ha per inhabitant as compared with 0.42 in Casamance, Senegal and 0.49 in the Gambia.

2/ Selected in the Philippines.

3/ Droughts affect irrigated rice output in two ways. First, in drought years, river flows decrease in volume, and tides from the sea and estuaries can further enter into valleys, increasing the salt content of the rice fields. Secondly, the shortage of rainfall makes salt leaching difficult, increasing the time needed to recover the land for cultivation (see para. 1.07).

Table 1: MAJOR CROPS - CULTIVATED AREA AND PRODUCTION

	<u>Hectares ('000)</u>		<u>Production ('000 metric tons)</u>		
	<u>1953</u>	<u>1976</u>	<u>1953</u>	<u>1976</u>	<u>1977-80</u> (average)
Irrigated Rice	124.8	107.0	91.5	85.0	47.5
Rainfed Rice	/a	15.0	8.5	8.0	/a
Rainfed Cereals	216.3	90.0	58.8	54.0	56.6
Groundnuts	105.0	60.0	64.0	41.0	21.9
Manoic	17.1	15.0	24.2	30.0	34.0
Total	463.2	287.0	-	-	-

/a Included in irrigated rice.

Sources: 1953 Agriculture Census; SCET (1976); official estimates.

1.04 If recent production data are reliable, total agricultural production has declined in the last 20 years by more than 30% whereas population has increased by about 90%. The direct consequence has been the increasing role of imports in satisfying the country's food needs. Average daily per capita availability of domestically produced cereals was 340 grams in 1976-79 as against 95 grams of imported rice, flour and maize. This would result in a total average daily cereal availability of 435 grams per capita in 1976-79, and an import dependence on cereals of over 20%. Table 2 provides a measure of average per capita caloric consumption by type of food, which not only implies that Guineans import 23% of their food as calculated from production data and measured in calories, but also that measurable food consumption is 82% of a minimum daily requirement of 2,440 calories. These calculations, however, do not include the amounts of fruits and vegetables that even the poorest families consume. In drought years, such as 1977, the estimated average daily caloric intake fell more than 30% below the minimum requirement. 1/ Imports of rice have averaged 18,000 tons a year, 40,000 tons less than required to achieve an annual per capita consumption of 105 kg. Under current cropping patterns and in years of normal and well distributed rainfall, the country can produce about 100,000 tons of rice (as in 1953). Estimates available for 1976 2/ indicate a total production of 85,000 tons, Tombali region leading with 27,300 tons, followed by Oio (19,500 tons), Quinara (13,500 tons) and Cacheu (10,200 tons).

1/ See Statistical Appendix, Table 8.1.

2/ See Statistical Appendix, Table 9.2.

Table 2: AVERAGE PER CAPITA CALORIE CONSUMPTION, 1976-79

	<u>Calories/Day</u> <u>Per Capita</u>
Consumption of:	
Domestically Produced Food	<u>1,572.7</u>
Rice	580.1
Rainfed Cereals	442.6
Groundnuts	130.0
Fish	43.0
Others	377.0
Imported Food	<u>373.3</u>
Rice	216.9
Flour	44.4
Sugar	29.0
Others	<u>83.0</u>
Total	1,946.0

Sources: Bank mission estimates; Statistical Appendix, Table 8.1.

1.05 Guinea-Bissau's agriculture is relatively complex. Most farmers divide their activity among 3-4 crops which, while for the most part complementary, are sometimes competitive. They are: (1) wetland (flooded) rice (bolanha); (2) itinerant and rotated rainfed crops (groundnut and rainfed cereals); (3) crops grown in fields adjacent to houses (maize, manioc, etc.); and (4) wild palm trees (oil and palm wine) and forest products (charcoal). The balance between activities varies according to ethnic grouping and regional potential. In general one distinguishes coastal rice-growing from cultivation of rainfed crops in the interior, but many intermediate states exist. Crop substitution also occurs, and in the case of Mansoa region, the development of groundnuts has led to a decrease in rice-growing. Defining regional specialization as being whenever a given production occupies more than 2/3 of the total cultivated area, one finds the following pattern of specialization in Guinea-Bissau:

Specialized regions:

Wetland Rice (bolanha) :	Tombali (86%) and Quinara (73%)
Rainfed Crops :	Gabu (82%) and Bafata (68%)
Palm Trees :	Bolama (69%)

Non-specialized Regions: Cacheu, Oio, Biombo

The Rice Cultivation System

1.06 There are two basic types of rice cultivation in Guinea-Bissau: aquatic (known as wetland or polder rice) and upland or rainfed (pam-pam) rice. Production in 1976 was estimated at 85,000 and 8,500 tons for wetland and upland rice respectively. Wetland rice has two distinct subtypes: (a) "saltwater wetland rice", which comprises the polders formed by coastal alluvial deposits that were regularly flooded by seawater until the farmers held back the sea, either temporarily or permanently, by constructing small dikes; and (b) "freshwater wetland rice" cultivated in the lowlands in the interior where the water level increases during the rainy season. Rainfed rice is grown in higher lands where water never accumulates above the surface.

1.07 Traditional rice cultivation methods have achieved a high technical standard, and in the case of saltwater wetland rice or mangrove cultivation, they are considered unique in Africa. The main feature of mangrove cultivation is the great skill with which the farmers, especially the Balantas and Felupes, reclaimed the land from the sea. Through the construction of small dams and protective dikes, saltwater vegetation is destroyed and the process of salt removal begins. Usually the land is not ready for cultivation until three years after it is reclaimed. The tillage method is the most striking and characteristic feature of this type of cultivation. All of the tribes use the blocking method for removing salt from the soil. The rectangular blocks (1 metre by 1.60 metres and 30-60 cm high) facilitate the rapid leaching of salt by rainwater; heavy rainfall in the coastal areas (2,000 mm and more) is important to the success of this system. Blocking is the most effective means of controlling weeds and reducing iron toxicity. The construction of blocks is heavy work, exclusively done by men. It usually takes 30 man-days to prepare 1 hectare. The blocks are usually built just after harvest, which allows more time for the stubble to decompose and form an extremely rich humus. The main shortcomings of the system are that it requires great physical effort and at the same time hinders the introduction of mechanization. Moreover, furrows make fertilizer application difficult so that, in the medium term, the most likely way of increasing average yield will be by developing and introducing higher yield rice varieties. The need for increasing average yield is especially important in non-specialized regions, where wetland rice competes with rainfed crops, namely sorghum, millet and groundnut in rotation. Under existing conditions, the extremely hard work associated with bolanha rice values the work day at less than half the value obtained in the millet-sorghum-groundnut rotation. It is therefore plausible that despite the attachment of some ethnic groups to wetland rice-growing, it will become a residual subsistence activity as in Casamance, unless some action is taken.

1.08 The cultivation of fresh water rice is quite simple compared to mangrove cultivation. The freshwater lowlands are filled with the rasa (leveler) although there are special cases in which land preparation is highly original, with the farmers (usually the women) making large holes around the raised edges in which they transplant the rice seedlings. Transplanting is done in a random fashion which hampers weeding and results in extremely wide

spacing between the plant clumps. These low lands are normally cultivated by farmers with little technical knowledge, and the predominant tribes (Fulas and Mandingos) are more specialized in livestock and groundnut production. Consequently, productivity can be rapidly raised through the introduction of new high-yield seeds, modern methods of cultivation and animal traction.

1.09 Upland (rainfed) rice is regarded as secondary among rainfed crops. Most rice growers plant upland rice before commencing major operations on their wetlands. The land (wooded areas) is cleared by burning and prepared very superficially. Seeding is done directly and the seedlings receive no further care from the farmers until harvesting. The local varieties have very low yields (300-600 kg/ha) and are mixed together. This type of cultivation may be abandoned if more productive varieties of aquatic rice are grown.

Marketing and Prices

1.10 The marketing of agricultural production is concentrated in two state-owned companies: Armazens do Povo (People's Stores) and Socomin. The former has the highest number of outlets although its share in total purchases is only slightly higher than that of Socomin. ^{1/} In addition, there are some private dealers operating in the wholesale rice market but there is no information on their share in total rice commercialization. Some farmers also take their produce directly to market and often cross the border into Senegal to sell it there. This illegal trade in groundnuts is quite active, having increased in the last few years, principally because of the varied consumer goods such as bicycles, radios and agricultural inputs available on the Senegalese markets and not in Bissau.

1.11 Farmers usually take their surplus production in bags and baskets to the nearby Armazens do Povo or Socomin outlet. In the case of sizeable consignments, the product is collected from the farmers by truck when road conditions permit. The two companies also handle the transport (by truck or boat) from the wholesale outlets to Bissau for processing. Farmers generally sell their products in husk; however, in the last two years the amount of husked rice sold has increased. This new trend is supported by the Ministry of Rural Development, and efforts are being made to provide the villages with simple machinery for husking the rice.

1.12 The development of the agriculture sector will depend to a great extent on the establishment of an efficient and reliable system for transportation and commercialization. Recent experience has shown that efforts to increase yields and production will be condemned to failure without adequate infrastructure to mobilize increased production. At present, the transport system is unable to meet the country's needs particularly in the south - the rice-growing area. In addition, the marketing system does not respond to the farmers' specific demand for agricultural inputs and consumer goods. An adequate supply of goods to farmers, combined with agricultural credit, is a basic condition for stimulating agricultural production.

^{1/} Statistical Appendix, Table 9.8.

1.13 Between 1975 and 1980, producer prices for groundnuts (unshelled) increased by 78%, for palm kernels by 25%, and for paddy by 67%. However, production of cash crops did not rise as expected: rice output in 1980 was 24% of the 1976 level and that of groundnuts 67%. This lack of response to prices is difficult to evaluate since other variables such as climatic conditions and deficient transport and commercialization infrastructure probably correlate to the low production levels of recent years.

1.14 Nevertheless, a consistent agricultural price policy within the country's overall development strategy has yet to be developed. An input/output price policy will play a key role in the adoption of new techniques by farmers, and in the distribution of land among crops. At present, agricultural inputs such as seeds and fertilizer are being freely distributed to farmers through agricultural pilot projects and, so far, farmers' response to new inputs has been quite positive. However, this system is not economically feasible on a nationwide basis. Some ongoing projects are already considering the possibility of selling inputs, and a national price policy is urgently needed to back up and coordinate these individual actions.

Land Tenure

1.15 Guinea-Bissau's land tenure system has never been studied in detail. The Government decided only recently to carry out socio-economic studies of the main ethnic groups but the results of these studies are not yet available. According to the Guinean authorities private ownership of land is insignificant and mainly urban; properties owned by the Portuguese were mostly abandoned at independence and later transferred to the state. While there are differences among tribes, land distribution among village members, as in other African countries, is determined by the Council of Elders, the social authority in the village. Among the Balantas, where social stratification is practically non-existent, the head of the household unit decides land allocation among the household members and newcomers (a household usually is composed of more than one extended family). The size of the given plot is not always related to family size because some of the most difficult work, such as land preparation and harvesting, is usually done with the help of young people from other villages. There are some pressures on the land close to the village; good land is, however, available, although the plot may be located at some distance from the village. It is important to note that the land belongs to the village, and what is given is the right to use the land. In general, no rental obligations are attached to land use, except in the Cacheu region, where land tenure pressures do exist and land is rented out. In this case, a few rich families descended from the old kingdom own the land. The Government has intervened occasionally in land disputes in this region. The law states that the land belongs to the person who has cultivated it, but it will take time for the traditional system to adjust to this principle. The Government has been quite careful in enforcing this new approach, with the intention of gradually adjusting (not disrupting) the traditional system to the development needs of the agricultural sector. Generally speaking, land tenure is not yet a problem in Guinea-Bissau - land is usually free and available for cultivation.

Agricultural Institutions

1.16 The Ministry of Rural Development consists of three major directorates: Agriculture; Rural Organization; and Livestock. The Directorate of Agriculture encompasses the departments of soil, plant protection, agricultural research and equipment. The Directorate of Rural Organization includes the departments of rural extension and rural radio diffusion, socio-economic studies and agricultural credit. The Directorate of Livestock consists of the departments of animal production, animal health protection, and animal research. In addition the Ministry has a planning bureau, a department of administration and finance, and a personnel and training department. The main problem faced by the Ministry of Rural Development is the lack of qualified staff at technical and administrative levels. Efforts are being made to train personnel locally and abroad, but the current professional staff is too small to define and implement plans for agricultural development. The need for professional staff is particularly noticeable in the departments of soil, plant protection, animal protection and planning. The development of activities in these departments depends on foreign aid projects currently under consideration. There are no facilities in the country for training junior or senior personnel. Technical training is only available under some foreign-financed agricultural projects.

1.17 The country also has 12 state farms, 8 experimental centers linked to agricultural projects, 2 veterinary stations (one in Bissau, the other in Bissora) and 12 veterinary posts. All the state farms are ineffective because of lack of personnel, material, operating funds and management. Of the 12 veterinary posts, only 5 are in operation - lack of personnel and equipment being the main constraint. A public enterprise for pork production, SUINAVE, is also under the control of the Ministry of Rural Development. Official agricultural credit is not available in the country. Credit in the form of agricultural inputs has been provided on an individual basis by ongoing agricultural projects and by Armazens do Povo and Socomin. A study to set up an agricultural credit system was prepared by FAO and is being evaluated by the Government. One of the main issues for project approval is the choice of the government institution to be responsible for the agricultural-credit system. The Cacheu region was selected by the Government as a pilot area for agricultural credit. Lack of inputs, extension services, and demonstration actions are, however, more important constraints than the lack of rural credit. For such a system to be effective, it will need to be followed by an adequate policy of producer incentives, inputs, and rural extension. There is little room in the country's economy to provide massive subsidies, and the costs of a rural credit system can be overwhelming.

Government Policy and Objectives

1.18 As stated at the 3rd PAIGC Congress (1976), agriculture is the basic economic activity of the Guinean population, and should, therefore, be given first priority as the cornerstone for the country's economic development. The congress specified the following objectives:

- promotion and development of rural communities;
- improvement of extension services;
- introduction of new inputs such as fertilizer, improved seeds, pesticides, animal traction;
- introduction of an agricultural credit system;
- applied agricultural research and establishment of a center for seed production, multiplication and conservation;
- improvement of the commercialization system;
- creation of a technical infrastructure; and
- gradual introduction of producers' cooperatives and state farms.

1.19 Given the importance of the agriculture sector to the country's development, the strategy appears sound, except for the support to state farms, which have proven a failure. The time frame for implementing this strategy should take into consideration the problems of absorptive capacity in the agricultural sector. To date, experience with ongoing projects shows that implementation delays are quite common and likely to occur in most of the projects in the sector. The sector's weak administrative base and the difficulties in importing and delivering equipment and material to the projects are the main obstacles to be overcome and are the most likely reasons why resource allocation to the sector has never exceeded 10% of the Government's investment program.

Ongoing Projects and Foreign Aid

1.20 There are some 20 ongoing projects in the agricultural sector, totalling about US\$18.0 million. Of this total, 80% are for rural and crop development projects and the remaining 20% are scattered over a variety of projects and activities such as soil and plant laboratories, sectoral studies, financing of technical assistants and institutional building.

1.21 From independence in 1974 until two years ago, when the 1980-81 Investment Program was prepared, investments in the sector did not follow any specific development strategy or set of priorities. During this period the Government tried to adjust the most pressing needs of the sector to the availability of external funds. As a result, there was frequent waste of resources, lack of coordination among projects and problems of implementation. These problems were analyzed during the preparation of the Investment Program, and a sound sectorial investment strategy was defined. It emphasizes the need for integrating investments in a regional development approach. For this purpose four main ecological regions were defined: Region 1 in the west, comprising Cacheu and Oio; Region 2 in the northeast: Bafata and Gabu; Region

3 in the south: Buba and Tomali; and Region 4, which includes the administrative region of Bolama and the archipelago of Bijagos. Each of these regions is the subject of a Government rural development project still in preparation, which will attempt to integrate the major ongoing projects. In the southern region, for example, the Rice Fields Recuperation project and the Rice Development Project financed by BADEA and IFAD, respectively will be an integral part of the Tombali region's development. This will be linked to other projects being implemented in the region, namely the Caboxanque Rice Research and Seed Multiplication Project, the World Council of Churches Rural Development Project, the Rice Storage and Milling Scheme sponsored by FAO, and the Rice Field Recuperation and Small Construction projects financed by USAID and The Netherlands.

1.22 Most of the active foreign aid going to the sector is in the form of grants. The principal bilateral and multilateral donors are The Netherlands, Sweden, France, the United States (AID), UNDP and EEC (FED). The European Development Fund is financing a US\$8.0 million Cotton Development Project (1976-80) in the northeast region, which involves distribution of seeds, extension services, introduction of animal traction and intensification of production of rainfed crops such as rice, cereals and groundnut. In 1979, 3,500 ha of cotton were covered, 3,800 tons of cotton were produced and a total of 40 extension agents were trained. The French aimed at covering 15,000 ha (cotton 6,000 ha; 3,000 ha with rice; and 6,000 ha with groundnuts) with the following average yields: 1.4 tons/ha in cotton, 1.8 tons/ha in rice; and 1.3 tons/ha in groundnuts. The French Government (FAC) is financing a groundnut development project in the northeast region. This project, which has the same components as the cotton project, was started in 1977 with an initial two year allocation for 1977-78 of US\$4 million, and was extended until 1979 with another US\$4 million and an additional US\$1.4 million for 1980. In 1979, 7,000 tons of seeds were distributed and yields of 1.2 tons/ha were achieved in controlled parcels. A total of 40 extension agents have been trained. This groundnut project merged in 1980 with the cotton project, but like the cotton project, has not yet reached a stage where it could readily be scaled up. Farmers' response is still uncertain and a well-proven technical package is not yet available. Besides, there is no economic evaluation of these activities, since benefits have seldom been compared to costs. In a combined operation, USAID, UNDP and FAO are financing, the Contuboel Rice Development Project in the Geba Valley area (northern region). This project started in 1977 and is expected to be implemented in five years. The total allocation of US\$2.5 million represents to two thirds of the total for financing extension. The project objective is to promote irrigated freshwater rice cultivation in the dry season. A rice multiplication and seed experimentation station was created and extension services, fertilizer and improved seeds are provided to farmers. So far all inputs except seeds are free. Yield results have been quite good (4.0 - 5.0 tons/ha in double cropping system) compared with the traditional yield of 0.6 tons/ha. The project, which started as a pilot experiment on 120 ha, is now being expanded to 750 ha of small farmers' irrigated perimeter. Upon full development, the project is expected to affect 2,000 farmers. The possibility of expanding this project will depend on the

results of studies on the irrigation potential of the Geba River. USAID is also financing a rice development project in the southeast region (Bachile) involving land reclamation, training, seed storage and a laboratory for seed testing, plant pathology and soil conservation. The total allocation for this project is US\$2.35 million over the period 1977-81. The Netherlands is financing the Cacheu Pilot Rural Development Project, which started in 1977. The initial allocation for the project was US\$1.4 million. The main project objective is to improve production, particularly of rice and groundnuts, through the introduction of improved technology such as animal traction and fertilizers. About 20 demonstration plots have been established and a small credit scheme is also in operation. This project is moving cautiously with special care to avoid disruption of the traditional social system. The Netherlands is also involved with rice development in the southeast region, in a combined operation with USAID and BADEA.

1.23 So far there is no allocation of specific project or regions to individual donors; however, some of the donors, after evaluating their past cooperation in the sector, are moving from a program- to a project-oriented allocation policy, the main reason for which appears to be better control of implementation and use of resources. The massive flow of aid to the country has generated serious problems of coordinating and efficient use of resources. Many projects are initiated without enough preparation and scrutiny, and coordination and linkages between interrelated projects are poor. The projects already underway appear to have seriously strained the implementation capacity of the Government, and delays in projects implementation schedules are quite common. Technical assistance is being provided, but the great majority of foreign technicians (cooperantes) are young and have little practical experience.

Development Constraints

1.24 Several major constraints impede the further development of agriculture. The absence of a development strategy and set of investment priorities has generated serious problems of coordination and linkage among investments in the sector. The extreme shortage of trained personnel has hampered the development of extension and research services. Only recently has some limited training been introduced through foreign-financed projects, and the large number of ongoing projects is already beginning to deplete the meagre reserve of trained personnel. Efforts being made toward research and seed multiplication need to be coordinated and the creation of a national scheme of seed multiplication and research is a pre-condition for sector development. The lack of basic data and planning is another factor which most urgently needs be addressed. A monitoring unit for evaluation and planning was recently set up in the Ministry of Rural Development, but is understaffed and thus unable to properly carry out this work. Investments in institutional building and provision of technical assistance will be required to solve the sector's organizational and administrative problems. The achievement of a decentralized development strategy based on a regional development approach as proposed in the First Development Plan (1983-86) would require a complete restructuring of the country's colonial administration system centralized in Bissau and, in particular, of the institutions dealing with agriculture.

1.25 General problems of physical infrastructure as well as marketing also have affect the agricultural sector. During the war, they destruction of small dams and the mining of agricultural fields caused the loss of thousands of productive hectares. Major work is needed to recuperate the rice fields. At present there are some ongoing and planned projects for recuperation of rice fields, which should improve this situation. Transport infrastructure also needs to be rehabilitated and further expanded to meet agricultural sector needs. In recent years difficulties have been encountered in transporting surplus rice production from the south to Bissau's market. Some of the transport problems relate to the age of the transport fleet (trucks and vessels) and to administrative inadequacies of the two major trading companies. The marketing system, as mentioned before, is disorganized and inefficient. For a variety of reasons, shops and stores are critically short of the consumer goods likely to attract the farmers. Increase in production will heavily depend on better incentives from the marketing system. Existing storage facilities are also insufficient and inadequately distributed. In 1977, the country's total storage capacity was estimated at about 5,000 tons; however, this is expected to improve with the implementation of ongoing and planned storage programs. A transit silo for 1,000 tons of rice is being constructed in Impugueda (Tombali region) with the assistance of FAO Food Security Program. Five silos for rice and groundnut storage totalling 6,000 tons will be constructed in the cities of Gabu, Xima, Buila, Caboxanque and Mansaba. There is also a program financed by West Germany to expand Armazens do Povo's storage capacity to 13,000 tons over a two-year period. In general, no adequate storage facilities exist at collection points. Some villages have their own traditional storage facilities, but losses are high in this traditional system. Smaller warehouses will be required in some villages which have a relatively high delivery potential for surplus paddy rice.

Development Prospects and Recommendations

1.26 The development potential of the sector relies mainly on the existence of good soils and abundant water. Only a small portion of arable land is under cultivation; an increase in this acreage should result from the return of farmers who left the country during the war. The expansion of irrigation methods, together with improved seeds and animal traction, could also affect agricultural production in a positive fashion. Studies are being prepared on the irrigation and energy generation potential of two main rivers, the Geba and Corubal. Irrigation can be crucial to the future development of the sector, especially if rainfall distribution continues to be heavily concentrated, as in the past three years. There is also a good potential for fruit production that would need further analysis, particularly with respect to storage and transport facilities.

1.27 Six major aspects should be emphasized in the Government's approach to agricultural development. First, greater coordination among the institutions dealing with agriculture should be pursued. Second, technical assistance should be expanded to alleviate the country's absorptive capacity, develop applied research and improve the analysis and selection of projects. Third, a national scheme for seed multiplication and distribution should be established.

Fourth, training facilities for medium-level agricultural extensionists should be created. Fifth, extension services and agricultural inputs should be made available on a national basis. Sixth, the pricing and marketing policy (commerce and distribution) should be reviewed in the light of the strategy set forth for the sector.

1.28 Sectorial development perspectives are difficult to forecast at the present stage. On the one hand, implementation of the above-mentioned policies combined with the present levels of foreign aid could, at least, put the country in a position of self-sufficiency in rice production. On the other hand, past performance indicates that delays should be expected in the implementation of investments. Moreover, the change in climatic conditions over the last few years may generate extra difficulties in increasing production. A realistic assumption would be that major changes in agricultural production will start to take place in five years as a result of a coordinated sector policy, improvements in the administrative infrastructure and the maturation of selected ongoing and planned programs. For the sake of illustration, the tables below depict the projections carried out by SCET in 1978 on the level of agricultural production to be attained by 1990 in order to make the country self-sufficient in food and increase groundnut production to 100,000 tons.

Table 3: OBJECTIVES FOR AGRICULTURAL PRODUCTION, 1990
(in '000 metric tons)

	<u>Domestic Demand</u>	<u>Exports</u>	<u>Gross Production</u>	<u>Annual Growth 1976-90(%)</u>
Rice/Paddy	105(rice)	-	175(paddy)	3.6
Millet, Sorghum and Maize	70	-	80	3.1
Groundnuts	18	82	100	7.1
Manioc	32	-	40	2.2
Cotton	-	5	15	-
Sugar	7	-	100(cane)	-
Fruits and Vegetables	22	-	25	-

Sources: SCET International (1976).

1.29 Table 4 below provides per capita annual consumption in 1953, 1976 and 1990 compared to the values for Gambia and Senegal in 1970.

Table 4: PER CAPITA CONSUMPTION OF AGRICULTURAL PRODUCTS
(in kg/person/per annum)

	<u>Guinea-Bissau</u>			<u>Gambia</u>	<u>Senegal</u>
	<u>1953</u>	<u>1976</u>	<u>1990</u>	<u>1970</u>	<u>1970</u>
Rice	102.0	86.8	105.0	74.6	55.8
Millet, Sorghum	62.0)	57.3)	65.0)	76.9	94.3
Maize	12.0)				15.8
Wheat	4.0	8.7	10.0	9.3	22.4
<u>Cereals</u>	<u>180.0</u>	<u>152.8</u>	<u>180.0</u>	<u>160.8</u>	<u>188.3</u>
Root Crops	37.0	33.3	32.0	12.5	33.6
Sugar	-	2.0	7.0	7.8	18.1
Fruits and Vegetables	-	10.0	22.0	13.3	13.2

Source: Potentialites Agricoles, Forestieres et Pastorales de Guine-Bissau, SCET International, 1978.

LIVESTOCK

1.30 According to the 1980 livestock census, Guinea-Bissau's livestock population includes 258,200 head of cattle, 291,000 sheep and goats, 122,000 pigs, and 591,000 poultry (Statistical Appendix, Table 9.9). Compared to 1972 (as estimated by the Portuguese), these values represent a substantial growth in the stock (around 7.6% per year), which probably is due to the recovery of livestock activities after the end of the war. Table 5 compares Guinea-Bissau's situation to other African countries, in terms of heads per km².

Table 5: LIVESTOCK POPULATION PER KM²

	<u>Guinea-Bissau</u>		<u>Gambia</u>	<u>Senegal</u>
	<u>1972</u>	<u>1980</u>	<u>1973</u>	<u>1973</u>
Cattle	5.1	8.6	15.5	22.7
Sheep and goats	4.4	9.7	13.2	14.5
Pigs	2.2	4.1	11.8	0.6

Source: SCET, 1978, op. cit; 1980 livestock census.

1.31 About 75% of the cattle is concentrated in Bafata and Gabu regions. Cattle raising is of the sedentary type and is done mainly by the Fulas and Balantas. In general, cattle raising is a secondary type of activity in the agricultural sector, and cattle are used mainly for milk production. The use of animal traction as a method of cultivation is quite recent in the country. The Government is making efforts to develop the animal traction system particularly in the regions of Bafata and Gabu, which are known for their cattle raising tradition. Pigs, poultry and sheep/goats are concentrated in more populated regions. It is estimated that 60% of all pigs are in the regions of Biombo, Cacheu and Oio, and are used mainly for the villagers' consumption.

1.32 To improve livestock health and productivity, actions should be taken in two major areas. First, from the institutional point of view, the department of livestock development of the Ministry of Rural Development must be adequately staffed and equipped to implement ongoing and planned livestock development projects. Animal health control and protection is the area that needs the most urgent action. At present, there is no control of the livestock population and only a few heads are vaccinated.

1.33 In order to implement an animal protection system, the country will need to create a laboratory of parasitology and to rehabilitate the defunct veterinary stations. SIDA is financing a vaccination project and technical assistance from Brazil is envisaged for an animal pathology laboratory. Second, at the village level, a major effort in the field of extension services is requested in order to teach the villages how to take better care of and adequately feed the animals. This type of activity can be made as a component of an ongoing or planned rural development project. Rural radio programs could also be used for this purpose as well as some state farms, which could be appropriate places in which to start cattle breeding.

II. FORESTRY

Potential and Production

2.01 The total forestry area is estimated at about 2.6 million ha, of 1.1 million ha are dry and semi-dry and sub-humid forestry formation, 1.2 million ha are degraded forestry and about 0.3 million ha are mangrove (Statistical Appendix, Table 9.10). The main species, usually exported, are the Khaya Senegalensis (Bissilon), the Azfelia Africana (Pau Conta) and the Chlorophara Regia (Pau Bicho Amarelo). The Khaya Senegalensis is the principal export, while other species are also commercialized, but only on the local market, such as the Erythrophleum Guineense (Mancone), the Pterocarpus Erinaceus (Pau Sangue), the Parinari excelsa (Mampato) and the Daniella Oliveri (Pau Incenso). Potential yields are estimated at 16,000 tons for exports, 32,000 tons for the local market and 80,000 tons for charcoal production (equivalent to 15,000 tons of charcoal). These levels could be increased to 30,000 tons for export, 50,000 tons for the local market and 50,000 for charcoal production provided that the increase is accompanied by better forestry management to avoid deforestation.

Table 6: PRODUCTION AND EXPORT OF WOOD PRODUCTS, 1975-79
(in metric tons)

	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>
Production	-	-	-	-	4,825
Exports	4,694	3,653	1,581	2,086	2,947
of which:					
Logs and sawn wood	4,681	3,555	1,320	1,952	2,585
Parquet flooring	13	98	261	134	362

Sources: Ministry of Planning and SOCOTRAM.

2.02 SOCOTRAM (Sociedade de Commercializacao e Tratamento de Madeira), the first public enterprise to be created after independence, began operations in late 1976. It was supposed to have control of the major part of the sector previously explored by individual entrepreneurs and a private construction company (Cabevi). The first two years of the company were far from successful. The newly created control over existing sawmills was badly received and the company was unable to control most of their activity which continued to be supervised by local managers who tried their utmost to avoid the authority of the new enterprise. Officially recorded exports declined considerably; by end-1977 they represented only one third the 1975 level. Besides lacking control over the nine sawmills in the northeast, the firm did not possess the managerial capacity to explore the (now integrated) operations as well as the new parquet flooring unit of 300,000 square meters capacity. Losses accumulated and by 1978 totalled about GP 35 million, GP 21 million of which were debts to the National Bank of Guinea-Bissau. By mid-1978 the firm had undergone a major management reorganization. With technical and financial assistance from SIDA the company is now steadily recovering from its past losses.

2.03 SOCOTRAM currently has a capacity for sawmilling 10,000 m³/year and for 300,000 m² of parquet flooring; it employs 510 persons. Its operations are quite integrated and the enterprise owns ten sawmills (seven actually in operation: Gabu, Bambadinca, Mansaina, Mansaba, Penha, Ponta Nova and Gambiel), a fleet of transportation boats and several trucks. ^{1/} The headquarters is located in Bissau, as are the plants to produce wood boards and parquet flooring, and the subsidiary firm producing furniture for domestic consumption, MACA. In 1979, timber production amounted to 4,100 tons (63% of which was for export) and 370 tons of parquet flooring, which represents on the average 45% of utilized capacity. By 1980, the firm expected to reach 80% capacity, and produce 7,625 m³ of sawnwood, of which 3,050 will be exported, 3,050 will be for the domestic market and 1,525 m³ will be to produce 83,275 m²

^{1/} SOCOTRAM's transport fleet consists of 16 5 ton trucks, 6 trucks of 10 tons, 2 trucks of 20 tons for transporting logs, 6 tractors and 2 recently purchased 150 ton vessels.

parquet. Export revenues for 1980 are estimated at GP 62.7 million, an increase of 187% over 1979. Further expansion will include the acquisition of material and equipment to be financed by SIDA (GP 25.2 million); investment in a mixed enterprise to produce plywood with the participation of three Swedish partners (Swedfund, Bohmen and Johansen), each with 16% of equity in a total GP 195 million; and another sawmill in the southern region (largely unexplored) with a total cost of GP 100 million. The 1981-83 SIDA budget earmarks about US\$3.6 million for SOCOTRAM development.

2.04 At present, exports of wood and parquet flooring are mainly to the Cape Verde Islands and Portugal for use in construction. Senegal and Gambia are insignificant in total wood exports. The sector, dependent on the Ministry for Natural Resources, is caught between the attractiveness of exporting its production and the needs of the internal market that apparently have to be covered almost entirely by SOCOTRAM production. The fact that sawnwood prices for export are more than twice the state-controlled domestic market prices makes exports quite attractive. The potential for exporting high-quality wood is also considerable, although an inventory will be needed before SOCOTRAM can make firm commitments to export this kind of valuable wood (the profit margin of which can be 50% for some types). The inventory of "pau-sangue" (financed by SIDA in connection with the plywood plant) indicates enough potential resources to supply a plant with 4,000 m³/year capacity for 100 years.

Plans

2.05 The Government has been careful not to promote an uncontrolled exploitation of the forestry sector, which could lead to a considerable depletion of its resources. However, the traditional method for clearing the soil by burning (queimada), represents a considerable threat to the dry and semi-dry tropical forest, which at the present rate of burning (approximately 30,000 ha a year) could be completely destroyed in 30 years. Great emphasis is given to the problem by the Ministry of Natural Resources. No paper or paper-paste industry has been programmed for Guinea-Bissau, although good conditions exist for its development, both for domestic consumption (which will necessarily increase with the programmed educational expansion) and for exports. Bamboo (*Oxitenanthera Abyssinica*) appears to constitute a good base for this industry, in the Oio, Bafata and Gabu areas.

2.06 Assuming a 100-year period for wood recovery, the country's wood processing potential is estimated at: 48,000 tons of sawnwood for domestic construction and export; and 80,000 tons for the production of 19,000 tons of charcoal. Actual sawnwood production is less than 15% of what it could be. There is no information on charcoal production since most of it is in the subsistence sector, but it should be substantial as most of the energy used for cooking is based on fuel-wood. The administration of the forestry sector is under the National Forestry Service of the Ministry of Natural Resources. Its staff consists of six persons in Bissau, eight forestry guards and thirty-two wage workers in a station in Embunhe (Oio). The 1980-81 development program points to the main problems of the sector, namely the lack of adequate administrative structures and personnel. The first program under

foreign technical assistance began in 1975/76 (the forestry sector was then under the Ministry of Agriculture) when a Cuban mission built the first forest station and trained people to plant up to 350,000 trees a year. This initial work was partly lost and only the inventory of the Oio region's forest potential is still available. In 1978 responsibility for the sector was passed to the Ministry for Natural Resources, but the formally trained staff remained in the Ministry of Agriculture. Only in 1979 was another project initiated, financed by SUCO, to study the organization of the sector. The first requirement for the development of the sector continues to be the study and implementation of a scheme to explore the country's forestry potential that will protect the existing patrimony (namely by controlling the practice of 'queimadas'), ensure wood supply for domestic consumption, and coordinate the development of the sector with plans for the wood products and construction industries, where great emphasis is given to the reorganization of the Forestry Services. In particular, the following actions are proposed:

- (a) Support and assistance for the National Forestry Service, providing it with the minimal equipment and personnel (total cost is estimated at US\$450,000);
- (b) Reforestation project which would create two additional stations and prepare, over a two-year period, a program to reforest the country (cost: US\$1.1 million);
- (c) Inventory of Guinea-Bissau's forests, to be performed over a two-year period (cost: US\$540,000);
- (d) Equipment and studies for aerial photography, linked to the inventory project and aimed at serving the Ministry of Natural Resources not only in forestry but also hydraulics, geology, mining, water supply, etc. Estimated cost: US\$0.5 million;
- (e) Inventory of animal resources (cost: US\$900,000) to identify endangered species and the creation of animal reserves and hunting limits; and
- (f) Control of queimadas (cost: around US\$60 million) and educating the population as to the effects of this practice so as to limit it.

Issues and Recommendations

2.07 One of the most important actions required in the sector is to build an institution capable of administrating, controlling and developing the country's forestry resources. The existing National Forestry Service unit of the Ministry of Rural Development is understaffed (see para. 2.06); there are only two professional foresters, one of whom is Canadian, forty-eight forest guards, one nurseryman, and thirty-two workers. According to the 1978 SCET report, the country's forestry potential may disappear in the next 20 years unless a forestry protection and development program is established.

The degradation of the country's forestry resources has taken place rapidly, primarily because of slash-and-burn farming practices, indiscriminate cutting of young trees for firewood, overgrazing and commercial timber harvesting not balanced by reforestation investments. With the development of agriculture and an increased pressure on the resource base, this process of forest degradation will be inevitable if protective measures are not taken now. The degradation of forests is also contributing to changes in the climatic conditions and the "Sahelization" of parts of the country. Some bilateral aid is already addressing these problems. USAID plans to finance a forestry project involving training, nursery development, reforestation, institutional building, forest management and development forestry legislation, estimated to cost US\$2.0 million, and be disbursed over three years. It will cover the regions of Cacheu, Oio and Bolama/Bijagos. EDF also has a project to finance a nationwide forestry inventory, as well as forestry development in the regions of Bafata and Gabu.

2.08 With regard to the commercial exploitation of forestry resources, some bottlenecks will need to be removed in order to increase production. First, there is great waste in the cutting process. Usually only the best quality timber is cut and after cutting, only 40% to 60% of the wood is utilized, the remainder being wasted instead of converted into charcoal or used for construction purposes. Second, the primitive loading/unloading system and the size and condition of the transport fleet are creating problems in the supply of timber to the sawmills. Investments in technical assistance, equipment and spare parts are necessary in order to overcome these problems. Technical assistance will also be needed to support SOCOTRAM's plans for processing activities. Third, investment in the rehabilitation of old sawmills (including technical assistance and equipment) is essential to increase the processing capacity. Fourth, SOCOTRAM should become more involved and develop better control of charcoal production. The potential for charcoal exports should be analyzed and a market study prepared.

2.09 Priority should be given to institutional building, reforestation and control of commercial timber exploitation. The development of SOCOTRAM activities should be supported in coordination with the overall policy of forestry development, in particular, reforestation. Because of the risks that traditional farming practices represent to forestry resources, forestry management practices should be taught at the village level, perhaps included as a component of rural development projects. Villagers should be taught ways in which to meet their farming and wood needs without destroying natural forest resources. This is probably one of the most effective ways of achieving an effective forestry control system.

III. FISHERIES

3.01 With a coastline of 220 km, an extensive continental plateau (100 km) 1/ and numerous rivers, Guinea-Bissau has potentially rich fisheries resources which, if adequately explored, will substantially contribute to its economic development. The country's catch potential, including sea waters and inland rivers, is estimated at 350,000 tons a year. Besides 250,000 tons annual catch of sardines and other pelagic species, the continental plateau allows an annual catch of 50,000 tons of bottomfish (snapper, grouper and sea perch). The waters between Guinea-Bissau and the Cape Verde Islands are rich in tuna, adding 15,000 tons a year, and several kinds of shrimp add 4,000 tons to the annual catch. Inland, the potential is estimated at 20,000 tons of fish and 7,000 tons of shrimp.

3.02 Fishing is a current activity of Guinea-Bissau's people along the coast and in the Bijagos Archipelago both for consumption and for small trade. For centuries subsistence fishing has been carried out by individual fishermen operating with rudimentary implements in small canoes. Specialization is rare since fishing is secondary to farming and the cultivation of palm trees. Industrial exploitation did not start until 1975. Lacking experience in industrial fishing and having few qualified people and little capital, the country began to develop the sector through joint venture agreements with a number of countries. Between 1975 and 1979, three mixed enterprises were constituted with 51% Guinean participation: the first in 1975 with the USSR, the second in 1976 with Algeria and the last in 1979 with France and Senegal. 2/ Moreover, bilateral agreements were made to grant fishing permits to foreign boats. In some cases, the agreements also provide for technical assistance.

Production and Marketing

3.03 Production of fish and shrimp grew from insignificant levels before independence, to 3,571 tons and 568 tons, respectively, in 1977 (Table 6). Fish production has been declining since 1978, when many trawlers were immobilized for repairs and re-equipped for shrimping. This change probably reflects the higher value and wider acceptance of shrimp in the export market. Subsistence sector (artisanal) capture was estimated at 3,700 tons in 1979, about the same as the industrial capture. The share of fisheries products in total exports has been increasing since independence, and in 1980 they accounted for 31% of total exports. Fish exports have declined but the rise in prices and volume of shrimp exported increased the total value of fishery product exports by more than five times between 1976 and 1980. Domestic sales (estimated as a residual) are around 5,500 tons a year, with almost no shrimp being sold on the domestic market (25 tons in 1978).

1/ This is a considerable area by African standards. Guinea-Bissau's continental plateau covers 38,000 km² - less than Guinea-Conakry (42,200 km²) but more than Senegal (28,700 km²).

2/ The Senegalese party withdrew soon thereafter.

3.04 Marketing to the interior of the country is done by private traders but the lack of proper storage and transport facilities is a serious constraint to the expansion of domestic fish consumption. Actual per capita consumption in Guinea-Bissau is around 7.4 kg/year, as compared to 22 kg/year in Cape Verde and 44 kg/year in Senegal. The Government believes that this level could be increased if appropriate investments were made in transportation, small storage facilities, marketing, and transport infrastructure. A cold storage plant of 6,000 tons capacity is being installed in Bissau's port area by a Spanish-Soviet consortium. Further work is being carried out in the organization of distribution networks to ensure adequate supply to the interior.

Table 7: FISH PRODUCTION AND MARKETING, 1975-79
(in metric tons)

	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u> <u>1/</u>
Production:						
Industrial	1,271 <u>2/</u>	5,591	4,139	3,818	3,652	3,503
of which:						
Fish	1,271	5,323	3,571	3,127	2,950	2,585
Shrimp	-	268	568	691	702	918
Artisanal <u>3/</u>	<u>1,784</u>	<u>2,141</u>	<u>2,570</u>	<u>3,083</u>	<u>3,772</u>	<u>5,140</u>
Total	3,055	7,732	6,709	6,901	7,352	8,642
Exports:						
Fish	433	2,013	1,928	838	739	..
Shrimp	-	<u>179</u>	<u>545</u>	<u>666</u>	<u>742</u>	..
Total	433	2,192	2,473	1,504	1,481	..
Available for Domestic Consumption	<u>2,622</u>	<u>5,540</u>	<u>4,236</u>	<u>5,397</u>	<u>5,717</u>	..
Memo item: <u>Industrial Production by Main Enterprise</u>						
Estrela do Mar	1,271	3,711	3,936	3,699	3,154	2,106
Gualp	--	400	--	--	-- <u>4/</u>	--
Semapesca	--	--	--	--	400	1,370
ERPeralta	--	1,480	203	119	98	27

1/ Provisional.

2/ Production of ERPeralta not included.

3/ Estimate; 1979 and 1980 includes 72 and 700 tons, respectively, obtained in the Bijagos Project.

4/ Five months only.

.. Not available.

Note: These values were taken from the Chapter on Fisheries of the 1980-81 Investment Program. Export values do not coincide with those published by the external trade statistics.

Source: Biennial Investment Program, Vol. 1, Ministry of Planning, 1980.

The Structure of the Sector

3.05 Three factors characterize the fishing sector in Guinea-Bissau: (a) a generous policy of fishing permits under bilateral agreements; (b) a small but growing industrial sector; and (c) a large subsistence-artisanal sector. The industrial sector includes a private enterprise that is being rehabilitated and three mixed enterprises. The sector operates with a fishing fleet of 12 medium-sized and small boats (5 of which have freezing storage) and a small fleet of canoes equipped with fishing nets which are employed by the private company.

Industrial Fisheries

3.06 The first and most important of the three mixed enterprises is Estrela do Mar (Sea Star), formed in 1975 with the participation of the USSR, and a total capital of GP 3.3 million (US\$100,000). Its activities are limited to commercializing the catch of eight leased boats: four Soviet freezers (180 tons total capacity and 5 tons/day catch potential), and four small Guinean boats (23 tons capacity and 400 kg/day catch potential) rented from the Soviet Union in 1975. Benefitting from being the only enterprise in the sector until 1979 and from the rise in fish prices, its operations increased ten times in value between 1975 and 1979. Nevertheless, the firm is in financial difficulties and unable to pay the US\$5 million due to the USSR for the four rented boats. To solve the situation, the Government of Guinea-Bissau granted five additional permits for Soviet boats to fish in Guinean waters, their catch being, in principle, allocated to the debt payment during 1981-83. Estrela do Mar employs 190 Guinean workers, with an average wage of GP 4,800 a month. Investment during 1975-79 totalled GP 15.8 million (US\$500,000) for buildings, equipment and vehicles. The agreement with the USSR includes the training of 163 people during 1980-85. Estrela do Mar does not have its own cold storage facilities on land and uses GUIALP's installations.

3.07 The second mixed enterprise, GUIALP, was formed in 1975/76 with eight boats provided by Algeria. From the very beginning the firm suffered from poor administration and disagreements between the Algerian and Guinean partners, which led to paralyzation of half the fleet and eventually of all operations in 1978. Recent negotiations were concluded with Algeria to reorganize the enterprise and resume its operations in 1982 with a capacity of 2,400 tons of fish catch. To do so, more than twice GUIALP's initial capital (GP 90 million) is needed for the recovery of four of its boats and repair of its 200-ton freezing capacity. Total investment during 1979-80 totalled GP 111.7 million (US\$3.1 million).

3.08 The third company, SEMA-PESCA, is a joint venture of the Guinean Government with France. The firm began operations in 1979 with three small boats (3-5 tons/day), one of which is a freezer-fishing boat, and a total investment of GP 115 million (US\$3.6 million). Two additional boats were acquired in 1980 and five more were expected by 1985. During five months in 1979 and operating with two boats, the company commercialized 310 tons of

fish, i.e., around 10% of Estrela do Mar's total commercialization. By 1980, when our mission visited the country, SEMA-PESCA's operations were expected to represent 34% of the industrial sector. Since then, the financial situation of the enterprise has deteriorated, leading to a complete halt of its activities in 1982. Among the different causes of these somewhat unexpected developments are: (1) management problems; (2) difficulty in obtaining permits to import fuel and raw materials; and (3) current administrative regulations, which require that 60% of the catch be sold on the domestic market. The company employs 30 foreign and 155 Guinean workers, who have an average salary of GP 8,400 per month. Besides the fishing fleet, the company owns an industrial plant in the Bissau port area, comprising cold storage facilities (1,500 tons), freezing rooms, an ice factory and installations for picking and cleaning the landed catch. A French-Guinean group is preparing a recovery plan for the enterprise.

The Private Sector

3.09 The private sector consists of one enterprise, Eugenio Rosado Peralta, dating back to colonial times. The company was closed after independence and a fleet of net-equipped canoes was offered to the employees in 1975. Between 1976 and 1980, catches declined from 1,480 to 27 tons. Following the recent return of the former owner to Bissau, the company began to recover. The enterprise possesses a small freezing unit and an old shipyard in need of urgent repairs. It employs 78 people, of which 32 are fishermen operating their own canoes and selling part of their catch to the company.

Fishing Permits

3.10 Fishing permits are granted to foreign boats against a previously accorded fee per gross weight ton (gwt). The boats are then authorized to operate in Guinean territorial waters (200 km) and catch a "theoretically" fixed amount of fish and shrimp. A limited administrative capacity to control actual catching and the absence of a national fishing code make it difficult for the Government to enforce these limits. The Government is already concerned that the volume of shrimp and tuna caught by foreign boats will soon reach the depletion ceiling of these species.

3.11 Between 1977 and 1980, 14 countries were granted fishing permits, the most important in terms of boats and total capacity being the USSR, France, Portugal, and Senegal. ^{1/} The peak of this policy occurred in 1978, when 189 boats totalling 222,000 gwt were allowed to fish in Guinea-Bissau's territorial waters. Concern over depletion of fishing resources limited the Government's granting of permits to 53 boats (124,000 gwt) in 1979. A recent agreement with the EEC, for 50 boats with 36,500 gwt, increased foreign fishing capacity to about 80,000 gwt in 1980-81.

^{1/} See Statistical Appendix, Table 9.13.

3.12 Pricing policy for the permits depends on the terms of each bilateral agreement. A fixed price per gross weight ton (gwt) is the most common practice, ranging from US\$100 for the Portuguese boats to US\$300 for the EEC boats. Total revenues from fishing permits are estimated at US\$1.2 million in 1979, and enter the government budget as non-tax revenues to finance government current expenditures. This total excluded revenues from fishing permits granted to Soviet boats (83% of the total catch), which are being invested in the construction of a cold storage plant in Bissau. Total catch under permits is unknown. The State Secretariat for Fisheries, reorganized in 1979, is considering the implementation of a system for collecting information on volume of fish caught and landed in Bissau. Using the average catch per gwt of the mixed companies currently in operation, catch under fishing permits should have totalled 89,000 tons in 1979/80. 1/

Artisanal Fishing

3.13 Artisanal fishing, mostly for subsistence, is practiced by 1,965 fishermen working in inland waters and along the seacoast. The artisanal fleet is estimated at 826 boats, 700 of which are non-motorized. Average annual catch is estimated between 15-18 tons for motorized boats and 5-7 tons for canoes. In 1979, artisanal catch was estimated at 3,700 tons, that is, 51% of the total national catch. Compared to data collected by the Portuguese before independence, this yields an average annual growth rate of almost 20%, which might be due to the increasing number of motor-equipped boats.

3.14 The development of artisanal fishing to increase subsistence production has been strongly supported by the Government. The first project with this aim started in 1979 in the Bijagos Archipelago financed by SIDA (US\$2.3 million). It provides boats, motors and nets to 124 traditional fishermen, the construction of a 50-ton storage capacity and two transportation boats. SIDA's 1981-83 budget provides for a second tranche of US\$5.2 million for the project. A second artisanal development project financed by USAID and EEC began in 1981 in the Cacheu region (US\$1.0 million). Both projects aim at increasing production and changing the subsistence nature of this type of fishing so that the surplus can be commercialized on the domestic market.

3.15 The results of the first year of the Bijagos project indicate the sort of problems that these projects encounter. The Bijagos society is heavily based on a communal form of organization where specialization is rare. People share traditional activities of farming, fishing and palm growing to satisfy their own needs and generate a small trade surplus enough to pay for their limited non-subsistence needs. After receiving the new equipment, which under "normal" entrepreneurial activity would generate a surplus of fishing products capable of supplying a large part of Bissau's market, the people did not change their usual patterns of labor division. During the farming season the new equipment was left unused, and during the fishing season people worked fewer days to catch the amount of fish usually required for food and small

1/ See Statistical Appendix, Table 9.13.

trade, since the new equipment was much more efficient than traditional method. The project had overlooked two factors: (1) that the traditional labor division among the Bijagos would make full utilization of the new fleet quite difficult; and (2) that valuation of monetary income in societies with very low needs for tradable consumer goods is quite low, so that increased productivity is likely to result in less working time rather than in increased surplus. Thus, while the project was planned to generate 150 tons of monthly catch to be beached in Bissau (providing one third of Bissau's market for fish), the actual amount was only 50 tons, for which it was necessary to hire fishermen from Senegal and Gambia. The Cacheu project is likely to face fewer of these problems given the less communal form of organization of the population in that region.

Issues and Recommendations

3.16 Like the forestry sector, the country's potential in fisheries is considerable and deserves special attention in the country's overall development strategy. To develop the sector's potential, a series of shortcomings will need to be gradually eliminated. The first major constraint is the lack of trained personnel and administrative capacity to define and implement a coordinated development strategy and investment policy. The State Secretariat Fisheries has no administrative capability to enforce international agreements and the fishing methods used by foreign boats. At present the staff consists of 13 people, including a secretary and three technicians. Efforts are being made to train Guineans abroad, and during the next five years the return of these students will certainly contribute to building up the administrative capacity of the Secretary of Fisheries and the management of the sector as a whole. There are 15 students in Brazil (expected to return in 1983 with university degrees), and 16 in the United States to be trained as mechanics, electrical engineers and captains (expected to return in 1981-82). The program of technical assistance from the USSR includes training for 163 students (of which 11 are in university) during 1980-84.

3.17 Special attention should be given to controlling industrial fishing in order to avoid over-using marine resources and problems of species depletion. Given the sector's potential to generate foreign exchange (US\$40-60 million in concessions alone, and the country's reserves shortage, the problem of increasing production versus maintaining ecological equilibrium should be brought into a coherent national development framework. Second, the development of artisanal fisheries and the better exploration of the inland rivers potential should be regarded as a long-term objective. Experience in the artisanal sector shows that a great deal of effort is needed to change people's attitude with respect to artisanal fishing. Moreover, a network of adequate cold storage, transport and marketing facilities will have to be created to support the development of small-scale fisheries. Fish processing beyond the simple freezing for export could also be promoted. Out of the annual catch potential of 300,000 tons, only 7,500 tons are actually landed in Bissau; even if an estimated 89,000 tons are caught under licensing, there is still room for substantial increase in fishing production.

IV. MANUFACTURING AND CONSTRUCTION

The Structure of the Sector

4.01 Despite expansion since independence, Guinea-Bissau's industrial sector is still small and relatively undeveloped. In 1979, manufacturing and construction activities contributed 9% of GDP and employed less than 1% of the active labor force (and 8% of wage labor). There are currently some 65 medium and small-scale establishments, which employ around 4,700 persons. Construction activities (including construction materials and furniture) and metalomechanics are the most important subsectors in terms of industrial manpower employed, accounting for 80% of employment. The metalomechanics subsector is, for the most part, made up of equipment repair shops whose growth has followed the increase in equipment associated with ongoing development projects. The consumer goods industry is limited to some food production (beverages, bread, and powdered milk), 15 distilleries, a rubber mattress factory and a shirt-making plant, which together represent 17% of industrial labor. The small agroprocessing plants (groundnut and rice), whose equipment is obsolete, absorb the remaining 3% of industrial labor. The average unit size is small, most establishments having between 20 and 60 workers. Exceptions are the construction sector, the beer and soft drinks plant, the automobile assembly plant, the Bissau shipyards, and a large garage of the Public Works Ministry, each of which employs more than 100 workers. A large unknown number of artisans adds to the formal sector, mainly in weaving activities, clothing manufacture and metal forgery.

4.02 Most of the industrial activities are geared to the domestic market. Export-oriented industries are mainly for groundnut decortication. Wood processing and beverage production are only partly directed toward external markets. With the exception of sugarcane (aguardente) manufacturing, most industrial activity consists of processing imported raw materials; intermediate materials are also imported for further processing into textiles, plastics, bread, soft drinks, beer, etc. Very little advantage has been taken of the main products for which the country has potential: agricultural processing is limited to decortication of groundnuts, rice milling, and production of peanut and palm oil. Fish processing (as noted earlier) is limited to freezing, and wood processing is limited to the manufacture of parquet flooring.

4.03 The role of public and mixed enterprises is considerable, representing 61% of the establishments and 50% of industrial labor. At independence, most of the large private companies were either nationalized or made into mixed enterprises. Small and medium private enterprises were mostly left intact and are still represented in food (bakeries and ice production), sugarcane rum and construction. The actual financial structure (rather than a political bias against private initiative) has left the private sector with a small share of total new industrial investment, and almost all of the units created after 1975 are public or mixed enterprises (para 1.23).

Table 8: INDUSTRIAL ESTABLISHMENTS AND EMPLOYMENT, 1979

<u>Subsector</u>	<u>Total</u>		<u>Public and Mixed</u>		<u>Private 2/</u>	
	<u>No.</u>	<u>Employment</u>	<u>No.</u>	<u>Employment</u>	<u>No.</u>	<u>Employment</u>
Agroprocessing	6	139	5	23	1	116
Food and Beverages	23	749	8	308	15	441
Textiles	2	90	1	40	1	50
Chemicals	2	45	2	45	-	-
Construction <u>1/</u>	12	2,490	5	807	7	1,683 <u>2/</u>
Metalomechanics	<u>19</u>	<u>1,143</u>	<u>18</u>	<u>1,136</u>	<u>1</u>	<u>7</u>
Total	64	4,656	39	2,359	25	2,237

Source: Statistical Appendix, Table 9.14.

1/ Includes construction materials and furniture.

2/ Includes 693-member construction cooperative.

General Outlook

4.04 The most salient features of Guinea-Bissau's industries are: the enormous amount of unutilized capacity (on the average, around 70%), and the apparent uncontrolled growth of disparate initiatives supported by easily available foreign aid. The lack of an overall development strategy for the country as a whole, and consequently for the industrial sector in particular, is partly responsible for this situation. Left at independence with a small and undeveloped industry, the country has been eager to build up its industrial capacity by using the substantial foreign aid that has been flowing into the country since 1975. As a result, industrial establishments increased by 60%, industrial employment by 35%, and total industrial investment should now total US\$73 million, half of the 1979 GDP. Four years, however, is too short a period in which to solve the country's deficiencies in human and physical infrastructure, and to enlarge a small internal market that is affected by the relatively large proportion of the subsistence sector in the national economy. Nor is this period long enough to enable the establishment of (a) a political consensus on the relative priorities of each sector; (b) the required knowledge of the country's economy and its inter-sectoral linkages; and (c) a minimal basis of administrative capacity to carefully select industrial projects and follow their implementation. Thus, most of the post-1975 industrial initiatives were common sense regulations more or less geared to export promotion, import substitution and very much to availability of financing.

4.05 On the whole the result has been disappointing, as amply illustrated: (a) a large project aimed at increasing export revenues through groundnut processing is faced, a posteriori, with a production capacity twice that of present levels of groundnut production; (b) import-substitution projects to produce intermediate chemical products and foodstuffs, turned out facing non-competitive costs, location deficiencies and organizational problems; moreover, their needs for imported raw materials are much higher than what is possible under present foreign exchange constraints, and less than 10% of their working capacity is utilized; and (c) projects mostly based on the availability of financing--as is the case with the Citroen automobile assembly plant and two chemical plants producing oxygen-acetylene and rubber foam mattresses--face the same problems, and impose a heavier burden than anticipated on the balance of payments. The overall impression is that the industrial sector works at very low levels of capacity, and that its growth since 1975 has occurred independently of a realistic strategy for the sector's development. The Government is aware of this situation and plans to restructure the sector, channeling industrial initiatives toward production of consumer and production goods for the rural sector and improving the actual performance of existing industrial units. A closer look at the major industrial operations follows, before discussing several issues affecting future prospects.

Major Industrial Operations

Agroprocessing

4.06 There are three rice mills in Bafata, each with a capacity of 60 tons/day, which are also used for groundnut decortication; several groundnut decortication units and oil mills--of which two are in Bissau with a 1,800 m³ capacity; and a palm oil mill. Total capacity amounts to 101,600 tons of groundnuts, 4,500 liters of groundnut oil and 33,400 tons of rice, but the equipment is obsolete. Two large commercial enterprises control more than 75% of total commercial activity in the sector and in the country: SOCOMIN, a mixed society constituted at independence with participation of the Guinean Government and the former commercial house Ultramarina (20% equity); and Armazens do Povo (Peoples' Stores), created during the war to ensure the supply of essential foodstuffs to the population in areas controlled by the nationalists. They also have the monopoly to buy, process and sell the main agricultural products both for export (groundnuts, palm kernels, cashew nuts) and for domestic consumption (mainly rice). A third enterprise, which is privately owned and dates from pre-independence times (Casa Gouveia), operates in the sector as a subcontractor to SOCOMIN and Armazens do Povo.

4.07 Processing of agricultural products for export (which account for 70% of total exports) is limited and consists primarily of groundnut decortication. Including rice decortication and production of groundnut oil, agro-processing contribution to GDP is less than 1%; its share in industrial value added is 10%. The activity of the overall sector fluctuates with agricultural production, which in turn is heavily dependent on the amount of

annual rainfall. The 1977 drought affected rice milling and groundnut decortication activities which between 1976/77 and 1977/78 declined by 50% (groundnuts) and 80% (rice). Transportation problems affect this sector as well, and frequent immobilization of the boats used to transport rice from the southern regions delays delivery to the rice mills and increases the risk of deterioration given the lack of storage capacity in the producing regions. Even so, in recent years groundnut and rice decortication has reached the maximum levels attained during the 1970s; 20,000 tons of shelled groundnuts and 4,600 tons of rice. On average, however, most of the sector's capacity has been underutilized, around 83% in 1979.

Table 9: AGROPROCESSING PRODUCTION AND CAPACITY 1/

	Production					Capacity (1979)	
	1974	1976	1977	1978	1979	Total	Utilized
<u>Groundnuts</u>							
Commercialized (tons) <u>2/</u>	-	-	29,662	18,583	20,687	-	-
Shelling (tons)	17,884	10,400	20,800	9,814	14,194	101,600	14.0%
Oil ('000 liters) <u>3/</u>	322	467	490	955	380	4,500	8.4%
<u>Rice</u>							
Commercialized (tons) <u>2/</u>	-	7,793	8,178	1,871	8,081		
Milling (tons)	881	2,957	4,664	222	3,229	33,400	9.8%

Sources: Biennial Development Program 1980/81, Ministry of Planning, Bissau 1980; Boletim Trimestral de Estatística; Information provided by Socomin and Armazens do Povo.

1/ Does not include the new agro-industrial unit at Cumere.

2/ Purchased by Socomin and Armazens do Povo.

3/ Refined oil for domestic consumption.

4.08 Encouraged by the level of groundnut exports in the early 1960s (twice the average attained during 1975-79) and in view of the obsolete (yet underutilized) equipment of existing agro-industrial units, the Government chose to invest in a large agro-industrial complex at Cumere (CAIC - Complexo Agro-Industrial do Cumere), a short distance from Bissau. The project cost about US\$20 million (with financing from the Saudi Fund, OPEC Development Fund and FAO) and includes facilities for rice milling (19,000 tons), processing of groundnut oil (20,000 tons of crude oil and 5,000 tons of refined oil), manufacturing of soap (200 tons) and cattle food (200 tons). The project's export earnings were estimated to reach US\$20 million (at 1977 prices) at

full capacity in 1989. The project was planned to come on stream in 1980. Delayed until 1981, the plant needs to start at least at 30% capacity, which would require purchase of 25,000 tons of groundnuts. This may be a reasonable expectation for a good rainfall year, which was not the case in with 1980 or 1981. Expectations that the plant will be operating at full capacity in 1989 are too optimistic considering the need for 70,000 tons of commercialized production, or 90,000 tons of total production, which implies an annual average growth of 15% in groundnut production. Under the present conditions of agrarian exploration, such a growth rate seems unlikely. A large program to get farmers to increase groundnut production has shown no measurable results and the Government is planning to begin cultivation of an extensive area between Safin and Mansoa to solve the anticipated groundnut shortage.

4.09 From the beginning, political controversy has surrounded the Cumere project. Some saw it as being contrary to the rural development strategy defined by the Third PAIGC Congress; others doubted its economic feasibility. In fact, it is unknown if there was any economic appraisal of the project or if it took into consideration: (a) the effect of the necessary increase in groundnut production on soil depletion or on the substitution of food crops for the rural population; and (b) the recovery of existing processing capacity as an alternative to the new investment. At present, CAIC's three operating units employ around 136 persons. The Government will soon begin debt service payments on the project's loan which was not on concessionary terms. Given the expectation that vegetable oil prices will rise in international markets during the 1980s, there are good opportunities for the country to take full advantage of the enterprise, provided there is an adequate supply of groundnuts. Much will depend on climatic conditions, incentives for commercialization through official channels (smuggling into Senegal is common), future price policy and farmers' response to these policies.

4.10 The Government is also considering investment in a US\$2.0 million cashew-nut shelling project which would provide employment for 70-140 people. Cashew nut production has been quite irregular and shelling is done through artisanal processes. These could be stimulated in the context of a rural development policy.

Consumer Goods Industry

4.11 The weight of consumer goods in total imports (averaging 45% during 1975-78) shows the extent to which the domestic market is dependent on imports for essential foodstuffs (rice, sugar, salt, vegetables, dairy etc). A common warning to travelers to Guinea-Bissau is that almost everything has to be imported; the warning applies particularly to essential materials such as paper pads, pencils, erasers and sharpeners. In fact, the domestic consumer goods industry supplies a mere 18% of total private consumption, 40% of which is imported commodities.

4.12 Manufacturing of consumer goods contributes 5.2% of GDP and employs about 850 persons. The 26 units in the sector are small and, employment varying between 10 to 40 workers, with the exception of the large mixed beverages company CICER (Companhia Industrial de Cerveja e Referigerantes).

Five of these units were created after 1975 and include an industrial bakery, a fruit juice plant and three other units which produce ice, powdered milk and foam rubber mattresses. The problems of this sector are those affecting all industries in Guinea-Bissau. Establishments work below capacity with a rate of utilization that varies between 66% in the case of the sugar-rum distilleries and 16% in the case of the powdered milk factory. The control of imports has affected both CICER and the bakery mainly through irregularity of supply and shortage of raw materials; discontinuous supply of electric energy has affected the ice plants, which by the end of 1979 were showing losses. Problems of location, transportation and storage have in turn affected the small fruit juice and jam unit (orange, mango and cashew) as well as the milk plant, which has suffered from underqualified labor and deterioration of equipment, as well as from a lack of hygienic conditions. The cost to repair it is estimated at the same level as the initial investment (US\$10.0 million).

4.13 The sector is small enough to allow a brief listing of the principal units in operation as well as their problems. The food and beverages subsector in Guinea-Bissau is comprised of the following units:

- (a) CICER, a mixed enterprise with Portuguese participation (34% equity) that produces beer and soft drinks. Constructed during the pre-independence period (1974 - to provide beer for the Portuguese soldiers), it has a total capacity of 21 million liters (15 of beer, 5 of soft drinks and 1 of mineral water) and employs 144 persons. During 1974-77 its container process was based on tin cans, which was quite costly, and beer production averaged only 15% of capacity. Before the end of 1977, a new management introduced a container process based on returnable bottles. The results have been quite favorable and capacity utilized rose to 26.7% in 1978 and 43% in 1979. Production of soft drinks, which averaged only 10% capacity during 1974-77, increased substantially in recent years and the firm expected to reach 50% in 1980. The company faces problems of access to raw materials (mainly malt and sugar) and replacement of equipment.
- (b) Titina Sila, a public-owned enterprise established in 1976 in Bolama, to produce fruit juices and jam. The project, financed with the assistance of The Netherlands and Great Britain (GP 52 million), aims to exploit the abundance of fruit in the country. Production capacity is 40,000 liters of juice and 125 tons of jam, but actual production is less than 30% of total capacity. The problem is mainly one of product management; lack of storage capacity often leads to product deterioration. The existing container process based on tin cans makes the price of the product non-competitive for export. The Netherlands is providing four years of additional technical assistance and GP 4.6 million for investment. Total employment is 28 people.

- (c) Milk Blufo is a public enterprise in Bolola (Bissau) created in 1979 to operate a GP 10 million creamery financed by Denmark, which operates with imported raw material, has a capacity of 4.5 million liters of powdered milk a year and employs 38 persons. Only 16% of capacity is utilized, due to problems of conservation of the final product and water supply. Losses in 1979 reached GP 915 million.
- (d) The Ice Factory of the Comissariat for Bissau was created with the 1978 nationalization of the former Imperio ice factory, and has an annual capacity of 1.5 tons. Its problems are familiar: paralyzation of the equipment and irregular energy supply which results in its performance at 14% capacity. The two other ice factories in Bissau are privately owned and date back to the colonial period. Facing the same problems their actual employed capacity is around 16-20%.
- (e) Bakeries. Due to recent rice shortages in Bissau, there is high demand for its bakery production since bread is the immediate substitute for rice among the population. There are three bakeries in Bissau, one of which is state-owned. Due to the irregular pattern of wheat flour imports (mostly donated), actual production is still below the maximum capacity only 60% on average.
- (f) The remaining food processing units are: 15 distilleries employing 450 people; a new sausage plant owned by SOCOMIN with 150 employees; and the recently established "Tropical Frutas", voted mainly to the commercialization and collection of fruits for export and sale in Bissau (mangoes, lemons and pineapples from April to July, oranges from November on, and mandarins and bananas throughout the year). Fruit has been exported to Portugal and there are good prospects for export to Senegal and Cape Verde. It seems that part of the Bissau market for fruit is already supplied by this firm.

4.14 The non-food consumer goods industry is incipient: (a) a shirt factory, Bambi (50 workers), with a capacity of 650 units a day, functioning at 50% capacity; (b) a factory to produce foam rubber foam products (20 workers) working at 8% capacity due to the restrictions on imported raw material (valued at US\$1.2 million for full work capacity); and (c) Maca (40 workers), the furniture plant owned by SOCOTRAM, which opened in 1978 and is currently operating at a loss.

4.15 Government plans for the sector are several, of which the most important are two projects for production of sugar-cane rum. The first has an estimated total cost of US\$50.7 million and includes an irrigated sugar-cane plantation (2,000 ha) and the necessary dam. Total production is estimated at 10,000-25,000 tons a year with 1,200 to 3,000 jobs being created. The project was initiated without a feasibility study or an evaluation of the domestic demand for sugar. Naturally, the final product price will exceed that of other countries producing non-irrigated sugar. Although still in an early stage, the project already faces management and organizational problems.

The second project, a large sugar-cane rum distillery, will cost around US\$2.9 million to produce 7.2 million liters of sugar-cane rum each year. The impact of the project on the existing 15 distilleries is unknown.

4.16 As for non-food consumer goods, the Government plans to invest in a shoe factory in Bolama which will start production soon, employ 100 persons, and have a daily operating capacity of 1,000 shoes; and a cotton production project in Bafata with EDF financing (US\$3.7 million), offering employment for 35-40 persons and a total capacity of 25,000 tons of cotton. This project started in 1979 and was expected to run at 25% capacity in 1981. Other projects under study include the production of traditional clothing ('bandas') and tobacco (with Portuguese participation).

Construction

4.17 The sector of construction and construction materials sector absorbs more than half the labor employed in industry. There are three enterprises which produce construction materials: two produce clay bricks and tiles while the third produces pre-fabricated houses. Construction and public works incorporates: one public enterprise (integrated in Socotram), one cooperative, and five private enterprises. Working levels average 50% capacity. Some enterprises worth mentioning are:

- (a) The clay factory at Bandin, which employs 42 people and is equipped to produce 1.2 million bricks per year. With organizational and equipment problems the plant is working at 65% capacity with losses of GP 6 million at 1979. In order to reconvert its production units, the enterprise will need an investment of GP 8 million;
- (b) The clay factory at Bafata is a GP 66 million project to produce 260,000 tiles and 2 million bricks a year, employing 60 persons. Production was expected to start in 1981;
- (c) The Pluba ceramic plant which started in 1978 to manufacture houseware and artistic goods. Project cost was about GP 5.2 million. There is no information on its performance.
- (d) Sandino is a state enterprise established in 1977 under the name Cuba-Guinea-Bissau Friendship. A gift from Cuba, the factory has the capacity to produce 300 rapid assembly pre-fabricated houses and employ 240 persons. Lately renamed Sandino, the enterprise is almost paralyzed because of the high technology of its equipment, the need for imported parts and the already familiar organizational problems; and
- (e) The Unity Progress Cooperative (CUP), a construction cooperative that came into existence after a local developer left the country and the PAIGC took over the company, encouraging the workers (mainly brick masons and carpenters) to stay and form the country's first cooperative. After an initial period of organizational problems, the firm is doing quite well; its level of production reached GP 48 million in 1979.

4.18 The public works subsector has definitely benefitted from governmental development projects, although some enterprises complain of competition from the Ministry for Public Works, which tends to develop its own construction units instead of using the services of existing firms.

Metalomechanics

4.19 After construction, metalomechanics is the subsector with the largest share of industrial employment (approximately 23%). It consists of 19 units, a large part of which perform repair jobs. Production in the sector includes the EGA car factory (Empresa Guineense de Automoveis), and three other small units which produce nails (Cabevi), coconut crushers (Socomin), and tin barrels. EGA is a public enterprise which assembles imported vehicles (Citroen) for domestic consumption and is one of the most important projects of the recent industrial thrust. The plant, built by France, has a capacity to produce 500 vehicles a year (passenger cars, military vehicles and trucks) and employs 104 persons. The passenger vehicle is considered economical and well suited to the country's rough roads and is easy to repair and maintain. It was expected that at fully operation part of the output would be available for export to neighbouring countries. Initial investment amounted to US\$1 million and an additional US\$0.2 million is being added. It has a promising potential to produce refrigerators, air conditioners, bicycles, and motorcycles, using the same semi-finished products that at present are only processed in the final stage by the enterprise. Imports represent 75% of the value of the finished product.

4.20 The number of repair and maintenance units has grown quickly following the increased flow of transportation equipment into the country associated with development projects and external assistance. Besides the repair units that most medium-scale enterprises have for their own needs, several ministries have their own workshops. The workshop of the Ministry of Public Works employs 324 persons; the Ministry for Rural Development has five units and plans to extend its network throughout the country; and the Ministry of Natural Resources, which has a shop in Bissau, plans to create ten others to repair regional water pumps. Future plans include a US\$4 million plant for maintenance and repair of Volvo, Austin and Landrover vehicles (with a capacity of 500 cars); four repair units for the bus company Silo-Diata; and another unit for the EGA automobile plant. Total investment in these new units should amount to more than US\$1.8 million.

4.21 As for naval repairs, the country owns three shipyards equipped to repair small and medium vessels. The largest, in Bissau, works at 15% capacity and incurs annual losses of over US\$0.3 million. The remaining shipyards belong to Socomin and People's Stores, but both have been partially idle for a long time.

4.22 The Government plans to increase the metalomechanic subsector. This includes a US\$0.44 million metal forge to produce farm implements, planned for 1982; a metalomechanic plant in Bra financed by SIDA with US\$1.2 million; and a US\$41,000 project to promote artisanal blacksmith activities.

A large program to stock spare parts is estimated at US\$10.6 million. The need for spare parts is extremely crucial in Guinea-Bissau. It is estimated that 40% of all vehicles are immobilized due to the lack of spare parts. The dependence on foreign aid for this type of equipment is enormous, and the country has less difficulty in obtaining new vehicles which are donated, than in getting the spare parts, which have to be imported.

Other

4.23 Remaining units include a 10,000 m³ oxygen and acetylene plant (financed by France in 1979), which works at 8% capacity. Operations often stop due to lack of adequately trained labor, problems in importing raw materials, and electric power shortages. Lastly, there is a US\$3.3 million plastics factory in Bra, with 90 workers, which was financed by East Germany. Its problems are similar to those of the above plant, and work levels are estimated at 18%.

Issues and Prospects

4.24 An analysis of the past performance of the industrial sector in Guinea-Bissau suggests that sectoral expansion has been unplanned, based largely on imports of basic and intermediate products. The sector contributes little to the desired savings in foreign exchange and the promotion of the rural sector. Major shortcomings are the level of technology employed (which requires qualified labor, at present non-existent in the country, increases the need for imported spare parts, and reduces the working levels of each plant); the scant use of domestic resources, and the almost total neglect of the country's relative advantages. The need to explore the national potential is evident. Traditional artisanal textile and forge activities could be developed. The livestock wealth of the country could be used to promote production of milk and dairy products (now imported) based on small-scale firms, as well as to benefit potential shoe and leather industries. Wood industry products could be used to make crude packing paper, boxes for packing farm products, as well as simple furniture and houseware products. Moreover, the tradition of wicker products could also be encouraged.

4.25 The prospects for the existing industrial units vary among sub-sectors. Thus, the export-oriented sector faces good prospects as far as international prices are concerned. Bank staff price projections for the period 1979-90 indicate a favorable trend for principal exports: groundnut price in 1990 is projected to be 4.4% (at constant prices) and 135% (at current prices) higher than in 1979; palm kernels 67% higher (at current prices); sawnwood, 2.5% (at constant prices) and 117% (at current prices). Export prospects for beer and soft drinks to Cape Verde, Senegal and Gambia also appear promising. To take advantage of this favorable trend, the sector will have to overcome its problems, namely, the difficult access to raw and intermediate materials, the shortage of groundnut production of the past 2-3 years, and organizational problems, which will likely decrease in importance with experience and time. An inventory policy is urgently needed, in order to

avoid continuous shortages of material, which interrupt production from 2-4 months at a time (especially in the beverage sector). The mission did not obtain cost elements for this sector. The recent increase in minimum wages, from US\$3.70 to US\$4.40 a day, may have to be taken into consideration when evaluating the competitive advantage of Guinean manufacturing exports, as compared with Senegal and the Ivory Coast (US\$3.50-US\$3.80 a day), although these countries have a better local infrastructure.

4.26 As for the small consumer goods industry, there is enough of a market to absorb its production. The distilleries are likely to continue doing well, provided alcohol consumption does not decline due to increasing religious awareness (Islam). The bakeries, textile plant and brewery will continue to depend on the availability of raw materials and power. The small unit which produces foam rubber mattresses will probably continue to work at its present 8% capacity and profit from import restrictions that allow it to sell its products on the domestic market at high prices. The plastic and oxygen plants may have to be re-evaluated with respect to their economic contribution to the industrial sector. As mentioned, they have neither an adequate market nor people trained to operate their equipment. The construction and metalomechanics subsectors face good prospects in terms of the internal market and can be developed based on local materials and traditional skills. Poor infrastructure and organization seem to be the most obvious problems.

4.27 The solution of specific problems affecting the entire industrial sector will require time. These include, for example, the widespread lack of adequate accounting procedures, which will require the training of accounting and bookkeeping personnel; the lack of expertise for the formulation and appraisal of new industrial projects, including selection of alternative technologies and locations; the organization of project financing, and the follow-up of implementation. Much work is also needed to improve basic statistical and other data relevant to industrial development, such as natural resources, markets, costs and prices. Finally, physical infrastructure in support of industrial development - electric power supply, transport facilities and urban water supply - is quite deficient.

PART B. ECONOMIC INFRASTRUCTURE AND SOCIAL SERVICES

V. ECONOMIC INFRASTRUCTURE

TRANSPORTATION

Roads

5.01 Guinea-Bissau's road network is adequate in extension, but poor in quality. It comprises 3,065 km of roads, of which 520 km or 17% are paved. The network density (0.084 km/km²) is similar to that of other countries in

Western Africa. Most paving was done in 1970-72 by the Portuguese provincial administration and the army as a deterrent against land mines. Parts of the east-west and north-south corridors remain earth roads; less important sections in the center and south are paved. Some cities like Mandinga de Boe in the east and Cacine and Bedanda in the south are isolated because of poor road conditions. Traffic volumes are low and available estimates date back to 1978. ^{1/} The most heavily-trafficked roads (between Nhacra and Safim) carry 250 vehicles per day (vpd). Regional roads in the north and south are estimated to carry about 20-40 vpd. The present fleet is estimated to be 4,500 vehicles including cars, trucks and buses. Better data on the traffic fleet should result from the introduction of compulsory vehicle registration in August 1980.

5.02 The Ministry of Public Works, Construction and Urban Affairs (MPW) is responsible for road design, maintenance and construction. The administration is centered in Bissau. Mobile work brigades are directed and administered from headquarters with small and poorly-equipped sub-depots at Buba, Gabu, Sao Domingo and Farim. There are no domestic contractors able to carry out road works. Therefore, road construction, rehabilitation and maintenance has been by force account. The MPW has done minor reconstruction and upgrading work in key sectors of the network. The major foreign-financed projects underway are: (a) a 12 km, 2-lane highway from Bissau to the airport (in Bissalanca), financed by The Netherlands; (b) an IDA/EEC road resurfacing and rehabilitation project also involving technical assistance and training; and (c) construction of the Jugudul-Bambadinca road, financed by BAD. A project is being prepared for the construction of the Bambadinca-Xitole-Quebo road (74 km) and the Jugundul bridge, financed by the European Development Fund. Project cost is estimated at \$24 million.

5.03 MPW's maintenance work is concentrated on the paved network. Some 220 km of paved roads are being resealed under the IDA project. Meanwhile, patching on roads not yet resealed is a "losing battle" and needs to be frequently repeated. Maintenance of the gravel and earth road network is sporadic. As a result, important links are in poor condition and many feeder roads cannot be used in the rainy season. Organized routine maintenance by MPW is being introduced under the IDA-financed project.

Issues and Recommendations

5.04 Almost all projects selected to date have been chosen to fill gaps in the transport network. The lack of economic feasibility studies for investment projects has led to projects that, in some cases, have no major priority for the country's development. This situation is likely to improve following implementation of the General Transport Study and the Master Plan prepared by Lavalin-Delcanda (Canada), which provides the Government the information needed to establish a sectoral investment program.

^{1/} See General Transport Study, Lavalin/Delcandia (BAD).

5.05 In the five years since independence, the Government has given high priority to the expansion and rehabilitation of the transport infrastructure. During 1978-79, transport development projects absorbed, on the average, 30% of total public development expenditures, or US\$29 million, of which 50% was spent on the road subsector. Ongoing road projects, however, are already stretching MPW's limited absorptive capacity. The major problem is the shortage of technical and medium-level staff capable of carrying out the maintenance work required after projects are implemented. The second major area of concern is the financing of recurrent costs, which MPW's budget is unable to provide. The expansion of activities in the sector will magnify the problem.

Water Transport

5.06 Port infrastructure in Guinea-Bissau consists of a deepwater port at Bissau and a series of small river ports. The port of Bissau handles virtually all of the country's foreign trade. The latest traffic figures show a total cargo of 103,000 tons for 1979 plus 22,000 tons of coastal traffic (Statistical Appendix, Tables 10.1 and 10.2.). Located on the estuary of the River Geba about 80 km from the ocean, the port (which is subject to siltation) is reached by a channel passing through numerous shoals. Port installations are: (a) a T-shaped commercial wharf providing a single berth for ocean-going vessels of 5-10,000 DWT; (b) a second T-shaped pier (of lesser depth) known as the Navy jetty, which is used mainly by the fishing fleet and small passenger vessels; (c) a coastal shipping quay, which is unusable at low tide; and (d) a petroleum products terminal (Dicol), which recently collapsed, located about 1.5 miles west of the commercial wharf. Products are discharged through a temporary buoy berth. All the port facilities are in urgent need of rehabilitation, extension or replacement. There are adequate open storage areas; covered sheds and mechanical cargo handling equipment was recently provided by a FAC-financed program. ^{1/} This new equipment combined with better port management, should improve productivity, so that ship waiting time is reduced. A project to rehabilitate and extend the port of Bissau is being prepared under Kuwait Fund financing and IDA co-financing.

5.07 The port facilities on the inland waterway system are unsatisfactory. Many of the river ports, which generally consist of a small wooden pier, were damaged during the war and are in very poor condition. Traffic information on these ports is practically non-existent; the only ports that have some sort of traffic register are Farim, Binta, Bigene, Xime, and Bambadinca. Traffic figures for four of these ports, Bambadinca excluded, are around 8,000 tons in 1979. Transport of rice from the surplus areas in the south to Bissau has encountered serious difficulties partially because of the poor conditions

^{1/} The port equipment provided by FAC consists of: 1 25 ton mobile crane, 2 10 ton cranes, 2 5 ton cranes, 3 tractors, 16 5 ton trailers, 1 20 ton trailer, 1 40 ton trailer, 2 2 ton forklifts, 2 4 ton forklifts, 2 8 ton forklifts, 2 40 meter conveyor belts, 2 discharge units, 1 1600 HP tugboat.

of the river ports in the southern region. Three river ports in the south (Inpungueda, Cadique and Cacine) and also the port of Binta will be rebuilt under the Kuwait Fund/IDA project. However, the improvement of the river transport system will depend greatly on better management of the transport fleet operated by the two trading companies, Armazens do Povo and SOCOMIN as a basic condition to reduce ships' waiting time in the river ports. The loading/unloading operation of a 350-ton vessel could be done in five hours, but under present conditions it can take as long as one week.

5.08 The Junta Autonoma dos Portos de Guineia-Bissau (JAPG), under the Ministry of Transport, is responsible for port administration and control. In practice, JAPG is mainly involved with the management of the port of Bissau, but financial records of the port's operation are inadequate. Like many other institutions in Guineia-Bissau, JAPG is understaffed to properly perform its work; technical assistance and training are urgently needed in order to establish adequate tariffs and detailed financial records and statistics. This will be provided under the proposed Kuwait Fund/IDA project.

Transport Services

5.09 Buineia-Bissau's coastal shipping fleet consists of 37 motorized vessels (totalling 2,967 tons capacity), 30 barges (1,135 tons) and 6 passenger vessels. There are mostly aged and dilapidated with the exception of four new ferry boats, four new motorized barges and one coastal vessel recently provided by foreign donors. The coastal fleet transports 75% of the country's total passenger and cargo traffic. However, the administration of cargo transport is dominated by Armazens do Povo and Socomin. Because of inadequate fleet management and lack of repair and maintenance (40% of the fleet is paralyzed), only 18% of the cargo shipping fleet (about 481 tons) is utilized. The inefficiency of the cargo transport system has severely affected internal trade, particularly in the southern region where shipment by water is virtually the only means of transporting surplus rice production to Bissau. The situation is also difficult for passenger transport. Guinemar, a public enterprise under the responsibility of the Ministry of Transport, operates six passenger vessels, one that can carry 192 passengers and five small new Finnish-built vessels that are currently idle for want of spare parts and mechanics to repair them. The larger vessels operate twice a month from Bissau to Bubaque, Bissau-Bolama, Bissau-Catio, and Bissau-Cacine. In 1979 Guinemar transported 18,800 passengers. The company also operates as a freight agency for ocean-going and fishing vessels calling at Bissau port.

5.10 Urban and interstate public transportation is the responsibility of Silodiata, the state road transport company, under the authority of the Ministry of Transport. Only 40% of the company's 77 buses (35 Volvos, 30 Leylands and 6 Toyotas) are operative. Weak management, lack of spare parts and fuel supply are the main difficulties faced by Silodiata. Efforts are being made to standardize the fleet, thereby reducing repair and maintenance problems. There are also a few privately operated taxis and mini-buses (Candongas). Armazens do Povo and SOCOMIN operate a cargo fleet of 54 and 37 trucks, respectively, about 70% of which is in operating condition, but only, used at 17% capacity. The problems are the same as mentioned above.

5.11 Air transportation is the responsibility of LIA (Guinea-Bissau airlines), which is also under the authority of the Ministry of Transport. The country has 29 small airstrips (constructed during colonial times) which are unusable, and an international airport in Bissalanca, 13 km from Bissau. There is regular service (1-2 times a week) to Lisbon, Moscow, Algeria, Cape Verde and Guinea-Conakry offered by LIA, TAP (Portugal), Aeroflot (USSR), Air Algerie, Air Senegal, and Air Guinea. Traffic figures for 1979 show a total of 23,000 passengers and 466 tons of cargo. A project to extend the runway from 2.4 to 3.2 km and to improve navigation aids is being implemented with the assistance of the Kuwait Fund. A school for pilots opened in Bissau in 1980 under the French technical assistance program. Students are enrolled for one year in Bissau, after which they are sent to France for two years to receive training in electronics, mechanics and metallurgy. The Ministry of Transport is looking for financial assistance to expand this school in order to meet all training needs of the transportation sector. LIA's fleet consists of two Cessnas, two Dorniers, one DC-3 and one HS-748. At present, only two aircraft are in operating condition: a Cessna for domestic flights (5-person capacity) and the HS-748 (44-person capacity) for international flights. The Ministry of Transport plans to sell the old DC-3 and to buy two Brazilian aircraft. A program for reorganizing of LIA's administration is underway with technical assistance from TAP (Portugal).

Issues and Development Plans

5.12 The share of the transport sector in the public investment budget has been quite high compared to other sectors. In the three-year period, 1978-80, an annual average of US\$30.0 million (28% of the total budget) was allocated to the sector. For 1981 an allocation of US\$23.4 million was earmarked. These figures reflect the high priority that the Government gave in the post-independence years to the rehabilitation and expansion of the country's transport infrastructure. About 90% of total resources is provided by foreign aid. Of total investment, 50% has been spent on road development; 33% on sea and river transport; and 15% on air transport.

5.13 The Government's strategy for the sector is based on a bi-modal transport system. In the southern region (Quinara and Tombali) priority is given to development of the river transport system. In the northern and eastern parts of the country, priority is given to the road system. The overall objective is to establish an efficient and reliable transport network that will (a) ensure the transport of export crops and forestry products to the port of Bissau; (b) channel the rice surplus to the main markets; and (c) adequately serve the population's transport needs. So far, there is no transport development plan and the coordination of sectoral activities and institutions is limited. The Government is planning to create an inter-ministerial committee, composed of the Ministers of Transport, Public Works, Trade and Planning, which will be responsible for the selection of all investments directly or indirectly related to the transport sector. The transport study being prepared by Lavalin will help the Government to define a global development plan for the sector.

5.14 In recent years priority has been given to reconstruction and rehabilitation-type projects involving infrastructure works. Major attention should now be given to improving the operation of the country's cargo and passenger fleet (by river and road). As mentioned before, the transport service system is very poorly operated because of inadequate management, lack of trained personnel and difficulties in obtaining fuel and spare parts. The performance of the sector will depend on the solution of these problems. The Bank's economist mission endorses the Government's opinion that cargo transport not be the responsibility of the two state-owned trade companies (Socomin and People's Stores). The Ministry of Transport is aware of the problems and a feasibility study on the creation of a National Cargo Transport Company is planned. Another area that needs special efforts by the Government is training. Training programs usually take time to produce results; the mission sees this factor to be a major constraint to the sector's development in the short run. Summing up, although much has been done in terms of investment in transport, much more is still to be done in order to establish an efficient system that is suited to the growing needs in passenger and cargo traffic. This effort must include not only investment in infrastructures and construction but also a general re-organization of existing services in order to make them fully operational. Dependence on foreign aid will have to continue in terms of both financial and technical assistance.

TELECOMMUNICATIONS AND POSTAL SERVICE

5.15 Telecommunications, like transport, provide a vital to Guinea-Bissau. Unfortunately, existing facilities are inadequate. The national telecommunications network consists of 11 telephone exchanges located in the main regional centers with a total of 2,380 lines. Three telex exchanges are also available in Bissau. The international telecommunications service consists of an HF radio link to Lisbon and Dakar. At present, the postal service is limited to 23 post offices. The government is planning major developments in four areas: (a) the national telecommunications network; (b) links with the international network; (c) the domestic postal service; and (d) the national radio network.

National Telecommunications

5.16 A general development plan (1977-96) for the national telecommunications network was prepared in 1977 with the assistance of the International Telecommunications Union. The plan consists of three phases, the first of which seeks to establish a main telecommunications axis enabling automatic telephone exchanges in all regional centers, and to increase the present capacity of the Bissau station from 2,000 to 3,000 lines. This first phase, financed by SIDA and NORAD, was programmed for 1979-81 at an estimated cost of US\$8 million, and is close to completion. The second phase consists of extending the main axis to 60 secondary stations which would in turn connect with rural villages. The estimated cost of the second phase is US\$12.6, and a third phase is estimated to cost US\$5.4 million.

International Network

5.17 The Government plans to implement automatic telephone exchanges with the international network, taking advantage of Dakar's large infrastructure that is linked to Europe (via Casablanca) and to Abidjan and Lagos by submarine cables. There is also the possibility of a link by submarine cable with Cape Verde, which is connected to Europe and Africa. The link with Dakar would be made from Cacheu, with an investment of US\$0.8 million. This same link would allow a connection between Guinea-Bissau and the earth station for satellite communications already installed in Dakar. The project would have a total cost of US\$4.0 million, for which the Government is seeking financing. The Government is also planning to install an efficient telex network. The Portuguese company CTT offered a central telex with a capacity for 120 subscribers. The Ministry of Transport and Communications is planning the implementation of 80 telex stations for which underground cables are already in place. The installation of 80 teleprinters would cost US\$0.6 million, including complementary equipment and technical assistance. The full implementation of this program is expected by end-1982.

Postal Service

5.18 The country has at present 10 first-class post offices and 13 second-class post offices, served by a total of 55 postmen. The Government planned to create 17 more stations in 1980 and increase the number of postmen to 75. The development of the postal service is heavily dependent on the overall transport situation and the Government is aware that it will take a long time to provide the country with an adequate postal service. At present, the postal service employs the services of Silodiata. This company's problems, of course, affect the quality of the postal service.

Radio

5.19 The Government feels that the radio can play a fundamental role in development, and plans to use regional telecommunications stations to retransmit programs prepared in and emitted from Bissau. The MTC had planned to provide integral radio coverage of the country by the end of 1980. However, there are no definite plans for the organization and management of radio services to reach the more remote villages and provide the people with political and cultural information.

Issues

5.20 During the period 1980-85, the Government plans to invest US\$30 million to establish an adequate network of national and international communications. For 1980/81, US\$10 million were programmed, or 11% of total programmed investment for this period. As for recurrent costs, the Ministry of Transport and Communications (MTC) estimates that international calls represent US\$0.5 million per annum, and that an additional US\$1.5 million are spent annually for spare parts, fuel, professional training, and transport of equipment currently being installed. Since international calls are to be paid

50% in foreign currency, the MTC plans to propose to the BNG that the foreign currency needed for the international embassy and Government calls be paid in advance. The Government is the principal user of Guinea-Bissau's international telephone network (80%).

THE ENERGY SECTOR

Electrical Power

5.21 Electric power generation in Guinea-Bissau is produced exclusively by small diesel generating plants using imported diesel oil. The most important power load centers are Bissau and Bafata. The remaining towns and about 100 villages in the country have their own electricity supply service. Information on existing generating facilities outside Bissau is incomplete and outdated. Bissau's thermal plant has a generating capacity of about 5,000 kVA, which will be expanded with the installation of a 2,750 kVA diesel generating unit (Mirless-Brush) provided by the British Government. The Bissau plant seems fairly well maintained and future operations should improve when staff currently being trained abroad returns to Bissau. However, difficulties in fuel supplies and frequent breakdowns in power distribution render the service unreliable. Power distribution at Bissau is made up of mid-voltage lines (6 kV), mostly underground, and stepdown transformers to the low-voltage system (380/22 V).

5.22 Total electricity consumption in 1979 in Guinea-Bissau was estimated at about 30 Gwh, or an annual per capita consumption of 37.5 kWh (among lowest in the world). Bissau accounts for 60% of total electricity consumption: 18 GWh consumed in 1979, which is equivalent to 17.6 kWh of annual per capita consumption. Power demand in Bissau is increasing very rapidly. From a peak demand of 3,300 kW in 1979, it is expected to reach 7,000 kW in mid-1982. The installation of new industries currently under construction Bra will require 3,000 kW and the increase in power demand in Bissau itself is expected to increase by 1,000 kW.

5.23 The recently created National Energy Institute (the Instituto nacional de Energia) is the government agency in charge of the sector, responsible for the planning, construction and operation of the power systems throughout the country. However, the Instituto currently has direct control only over the power plants in Bissau and Bafata; the supply of electricity elsewhere remains under local authorities. Besides its customary functions as a power utility, the Instituto provides services such as engine repair, fuel supply, etc., to distant areas in the country. UNDP is providing technical assistance to the Instituto by financing a team of six consultants (expatriates) for a three-year period, including a general manager, a legal adviser, an organization consultant, a financial advisor, a tariff advisor and a mechanical advisor. This team is expected to prepare the Instituto's organizational scheme and job descriptions and set up the basis for an energy sector planning unit.

5.24 Ongoing and Planned Investments. The country's power generation and distribution system will be developed through three major projects: (a) the Elefante Project; (b) the Bafata Electrical Island; and (c) the Gazela Project. The Elefante Project includes the expansion of Bissau's thermal plant with the installation of four new diesel units totalling 7,000 kVA, and the replacement and extension of the present 6-kV system by a 10-kV distribution system consisting of 40 km of underground lines and 9 km of overhead lines, including extensions to the industrial centers of Cumere, Bra and Bolola and a line to Bissalanca airport. The cost of the project is estimated at US\$12.0 million and will be financed by commercial credits from Switzerland (EEAG) and the Nigerian Development Fund (NDF). The Bafata Electrical Island is already under implementation. It includes construction of a 30-kV transmission line from Xime to Bafata with extensions to Gabu and Contuboel, and the expansion of the diesel plant in Bafata. The total project cost is estimated at US\$9.0 million. The Gazela Project, also under implementation, consists of the electrification of seven villages at a total estimated cost of US\$11.0 million. Under a line of credit, the Soviet Union is supplying generating equipment (diesel units) to the towns of Cacheu (300 kVA), Farim (450 kVA), Bissorã (300 kVA), and Catio (450 kVA). The Soviet Union will also supply seven 675 kVA diesel generating units for the Bafata generating station. The African Development Fund will finance the distribution system to the villages, and SIDA is providing grant financial and technical assistance for the construction of the 10-kV lines - Farim-Binta (15 km) and Catio-Cufar (16 km) - as well as substations to supply five villages. SIDA is also providing full financing for the construction of low voltage distribution for 14 villages, which will be connected to the 10-kV lines fed from the Bissau and Bafata systems.

Hydroelectric Potential

5.25 The hydroelectric resources of Guinea-Bissau have been under study for many years. Preliminary surveys made before independence show two main basins with potential for economic hydroelectric development: the Geba River and the Corubal River (Saltinho Falls). The latter is the most promising since it covers an area of some 22,000 km², of which about 4,600 km are in Guinea-Bissau and the rest in Guinea. Within Guinea-Bissau a 40 m head could be utilized for power generation along the Corubal River without inundating Guinean territory. According to a 1975 Swedish consultant group (SWECO) study, building a dam at Saltinho Falls could create a reservoir and a 35 m head could be utilized. A capacity on the order of 35 MW could be installed at Saltinho at a cost of about US\$60 million (1975 prices). A feasibility study of the Saltinho project, financed by UNDP, this was to have been completed in 1981 and includes a complete hydrological and geological survey of the prospective dam sites.

Renewable Energy Resources

5.26 In the medium and long terms, thermal generation based on diesel or fuel oil could be replaced not only by hydro power but also by indigenous renewable sources such as vegetable residues, the use of which was investigated some years ago. The use of rice husks, which are abundant in the

country, has been discarded for the time being because of their high ash content. The most attractive of the available organic wastes seem to be groundnut shells and the residues from wood industries. The utilization of groundnut shells has been under consideration for some time, especially as a source of energy for the combined production of industrial heat and power generation in order to optimize thermal efficiency. Such utilization could achieve high economy in the groundnut oil processing plants, which require steam produced at high pressure. The power could be generated via steam turbines delivering high pressure steam to the plants. According to a 1976 SWECO report, the processing of 75,000 tons of groundnuts a year would produce about 18,750 tons of groundnut shells and would generate about 20 GWh, of which a portion could be used for groundnut processing and the balance would be available for feeding the power system of Guinea-Bissau, thus reducing the amount of energy otherwise required from the system. If high-pressure steam is produced and the boiler capacity can be increased to burn wood or other organic wastes in addition to groundnut shells, the savings in diesel generated energy could be significant.

Petroleum

5.27 In the absence of indigenous production and refining, all petroleum products have to be imported. In 1979 the country imported 22,000 tons of petroleum products (30 kg per capita) totalling about US\$4.0 million or 6% of the total import bill. Storage capacity is ample (close to ten months) but is concentrated in the capital city. Inadequacies in the distribution system, compounded by occasional import restrictions due to foreign exchange shortages have led to supply difficulties in Bissau and in the interior. Despite their relatively small size, petroleum imports are of strategic importance for meeting the energy requirements of the economy's modern segment. In turn, they pose a growing burden on the already weakened balance of payments. Power generation accounts for the largest share (45%) of petroleum product consumption, followed by transport (32%) and Government administration (10%). Commercial and residential sectors probably do not account for more than 13% of petroleum consumption. While petroleum products were originally obtained from Portugal and the USSR, purchases since early 1979 had to be made on the more expensive spot market. Due to an increasingly difficult balance of payments situation and recent petroleum price increases the Government has curtailed import volumes and is negotiating with the Islamic Development Bank for a loan to finance petroleum imports.

5.28 At the same time the Government is making efforts to assess the country's offshore oil potential. An ongoing project financed by IDA would assist the Government in resuming offshore exploration. The project will help to determine the existence of economically exploitable oil deposits and is expected to attract foreign capital for intensive exploration work. Based on geological conditions and results from previous exploration, the petroleum potential, particularly offshore, is rated as fair to good.

5.29 Petromines, a state enterprise which reports to the Ministry of Natural Resources, is responsible for petroleum and mineral exploration and exploitation. Created in 1977, it currently has a skeleton staff of two

professionals and is headed by a hydrological engineer with little experience in petroleum. Its staff will be progressively strengthened as Guineans in universities abroad complete their studies and return home; however, given the lack of experienced personnel, Petrominas will require the support of specialized consultants over the next few years.

Issues and Recommendations

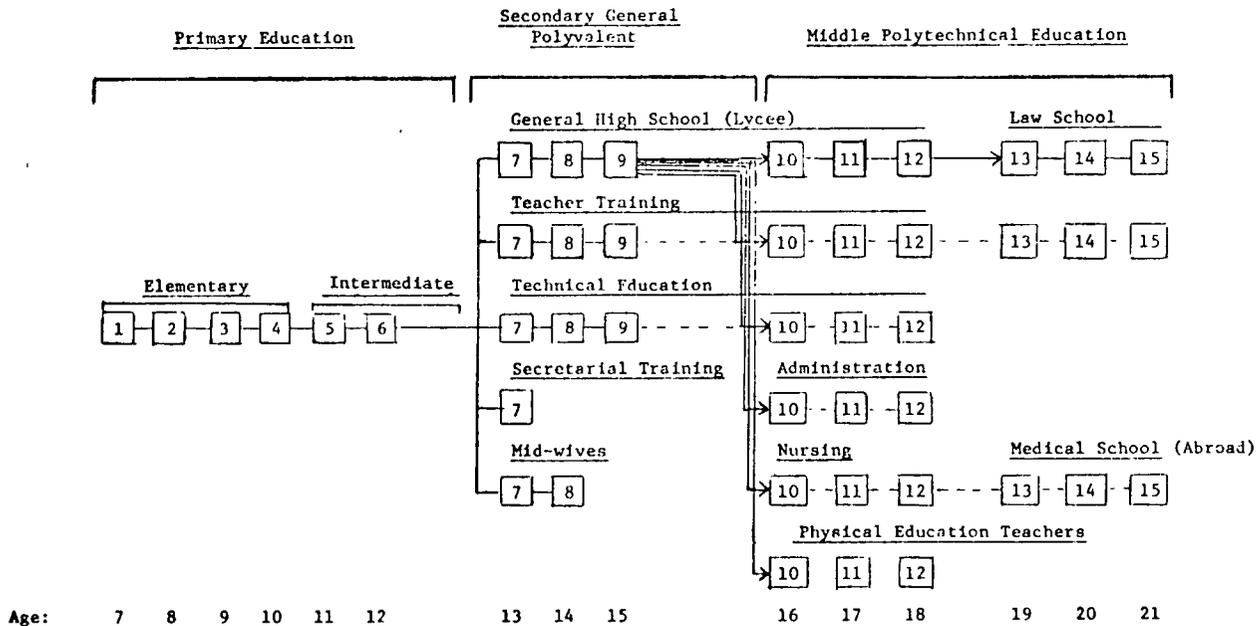
5.30 The main issues in the energy sector refer firstly to resource utilization and substitution of imported energy and secondly to energy pricing. The government's electrification program needs to take into account cheaper alternatives for imported diesel such as fuel oil and/or more efficient use of domestic fuels such as wood and vegetable residues. More attention should be given to evaluating the use of non-conventional energy to meet small local requirements. Plans for rural electrification should carefully consider its effects on diesel imports and the balance of payments situation. A sound energy price policy is needed to ensure not only efficient energy use but also the viability of sectoral organizations. The increase in domestic prices of petroleum products in the period 1974-80 lagged behind import cost increases. As a result of haphazard increases and widespread preferential prices, price differentials have emerged which do not bear any relationship to international prices. Tariffs remained unchanged from 1974 to early 1980 despite substantial fuel cost increases, and a recent 12.5% increase (the new tariff is US\$13.3/kWh) has been completely inadequate in ensuring the power utility's financial viability. Wood and charcoal prices, which are not controlled, have tended to rise more rapidly than those of petroleum products and electricity, a factor which might have contributed to the increased use of commercial energy. Kerosene, meanwhile, has become the cheapest residential fuel. Despite a recent 20% increase in butane prices, the Government is not yet prepared to pass on to the consumer the full impact of higher costs for imported energy. The Government should undertake a comprehensive energy plan in order to ensure rational energy developments and more efficient use of available foreign resources. An investment program for the energy sector covering hydrocarbons, electricity and alternate fuels should be prepared while realistically assessing future energy requirements and the comparative costs and benefits involved in developing and utilizing different forms of energy. The coordination of actions among the institutions dealing with the sector and the shortage of professionals and technical personnel are issues of particular importance in the preparation of the development plan. Finally, the financial implications of sectoral development should be carefully analysed. According to government estimates, investments in the power system will cost the country about US\$10.0 million a year--US\$2.0 million for debt payment and US\$8.0 million for operation and maintenance of installed equipment.

VI. SOCIAL SERVICES

EDUCATION AND MANPOWER

6.01 The education system in Guinea-Bissau consists of a primary level with two cycles (4-years of elementary school and 2-years of intermediate school); a 3-year secondary school that includes general education and professional and teacher training; and a middle polytechnic level that includes general higher level secondary education (10th and 11th grades) and professional institutes (2-3 years). There are no university facilities as such, and Guineans go abroad on scholarships to pursue university education and other specialized training. Ministry of Education statistics show 1979 enrollments in the overall system at about 44% in the 6-18 year age group. The Government controls all formal education institutions. The system is highly centralized in terms of programs, curricula and financing. Instruction is provided in Portuguese only. The Muslim population has its own education system but Muslim students tend to enroll in both systems. Official statistics do not include values for this type of education.

CHART: THE EDUCATIONAL SYSTEM IN GUINEA-BISSAU



Source: Ministry of Education, Direcçao Geral da Coordenacao e do Plano, Bissau, December 1980.

Education Prior to Independence

6.02 The present system is the result of profound changes introduced in the formal system prior to independence. Under the Portuguese colonial administration, education was divided into two sub-systems. The first was the official education offered to Europeans and to those Guineans who could speak Portuguese and had been integrated into the colonial system (assimilados); its structure and programs were the same as those offered in Portugal and teachers had the same level of qualification (about 12 years of schooling). The second sub-system, rudimentary education, which followed the official system, was provided to non-Portuguese speakers by Catholic missions. By 1950, there were 1,300 students in official schools and 11,100 in mission schools. Although the number of mission schools dropped from 200 to 80 between 1951 and 1970, the important role played by the missionaries is acknowledged by Guinean authorities. Parallel to this system, the Muslim population kept a structured educational system where instruction was given by teachers (Arafas) who enjoyed considerable social prestige. It consisted of memorization and recitation of the Koran, complemented at a later stage with the study of Arabic. Moreover, education provided in the Islamic Culture Centers (50 in 1950) was devoted to the study of classical works of medieval Islam, which favored the development of cultural elites. Although of little application to African languages, the Arabic alphabet became an important means by which to develop the literature of some of Guinea-Bissau's people and promote its conservation (mainly folk stories).

6.03 The importance of education in the country's development was a major point in the PAIGC policy. In the 1963 General Program, education is explicitly mentioned as a priority sector, and its extension to the entire population was seen as a means to eliminate the "complexes" of the colonial situation, promote national cultural values and train workers. Active literacy programs were begun, employing people who could read and write, and in 1965 the first formal teacher training establishment was created in Conakry. It also carried out pedagogical experiments and coordinated the foreign travel of Guinean students.

6.04 By 1973, on the eve of independence, the PAIGC controlled over 90% of the existing schools and more than half of the students and teachers. Medium and higher education had been provided to 500 people and another 430 students were still studying abroad. In 1974, the "Instituto de Amizade" (Friendship Institute) was created to provide formal education (political and civic) to the children of people killed during the war. Enrolled in boarding school, they were expected to be the future educated leaders. In the existing schools, text books were replaced, school names changed (from the former Portuguese names to those of the new heroes: N'Kruma, Hoji Ya Henda, Ho Chi Minh, etc.), and the contents gradually adapted to the new ideals of the country.

6.05 Due to the lack of resources and trained people, success was only partial. In Bissau, for example, the system produced many students who were neither politicized nor willing to accept the new ideals. During the first

two years changes were slow and, with the exception of some courses (namely History, Geography and Languages), the physical and exact sciences were left unchanged. More profound changes occurred in rural areas, where there was an exodus of newly educated children to continue their studies or find employment. The basic principles underlying these changes were established in the 1976 educational reform: (a) guaranteeing universal education; (b) eliminating differences in the access to education between rural and urban areas; (c) promoting national values and local culture; and (e) increasing public awareness of belonging to a new country.

Objectives and Challenges

6.06 Since independence, the Government has come to recognize that developing the educational sector is an unquestionable priority for Guinea-Bissau. A mere 10% of the population over 21 can read and write, and only 1% has completed secondary education, including the foreign-trained graduates. The implications for the country of the generalized lack of instruction have already been mentioned. It affects the implementation of development projects as well as development-oriented attitudes, particularly with respect to innovation, changes in traditional methods and social practices. The Government is aware of the extraordinary challenge that the development of education represents in a country where more than 20 dialects are still spoken. As a consequence, education has received the second largest share of governmental recurrent expenditures since 1975 (after defense and public safety) on the average, 14%. These have been supplemented by fairly sizable bilateral and multilateral aid programs that approximately match the Government's own level of expenditures on education (US\$7.8 million in 1979). The tendency is, however, for dependence on foreign assistance to increase. The large current deficits of recent years have led the Government to limit its recurrent expenditures, so that most of the current expenditures in education are actually to pay teachers and administrative personnel (90%). Much of the financing for schooling materials has been supported by external aid (mainly SIDA). In the investment budget (almost totally financed by foreign aid), education rose between 1978 and 1981 from 5% to 15%.

6.07 These outlays have been directed at five objectives: (a) achieving universal primary education; (b) increasing the output of secondary and vocational programs to meet the country's need for trained manpower; (c) upgrading teacher training, curriculum development, and educational materials; (d) promoting curricula specifically adapted to rural students in order to discourage rural migration after primary education; and (e) building a minimal infrastructure to support the rapid enlargement of the system. Five years is too short a period in which to analyse the results of the Government's active role. However, efforts made during the first development phase are already being felt, mainly in the increased demand for secondary education. The major challenge for the Government is to provide the educational services it considers necessary despite the budgetary constraints on the educational system, as discussed below.

Primary Education

6.08 Primary education is provided free. Initially, the 4-year elementary cycle was to have been compulsory, but the limited number of schools, trained teachers and transportation prevented the implementation and enforcement of this policy. Parents are encouraged to send their children to school by means of campaigns developed by the village party committee the success of which depends on the parents' need for child labor combined with the value given to schooling. In 1979/80, primary enrollments represented 93% of total school enrollments, and of those, more than half were older than the normal schooling age; 13% were adults. Age-specific enrollment rates are still quite low: 55% and 8% in elementary and intermediate schools 1/, respectively. Female enrollment below is: the average 40% and 4.3%, compared with the male group rates of 72% and 12% for elementary and intermediate education. The trend in primary enrollments is somewhat confusing, since enrollments appear to have declined between 1977 and 1979 from 95,000 to 75,000 students. This is explained by the fact that in the early years of active educational campaigns, students of several age groups enrolled in school, but thereafter only those 6-7 years old tended to enroll. That is, the actual decrease in total primary enrollments does not represent a lack of or a decreasing interest in education (which can have some influence but is not the main reason). The extension of schools to more remote areas and the expected growth in the number of children of school age due to a decline in child mortality rates will lead to a recovery in primary enrollments to the 1977 levels in the near future, and eventually to higher levels.

6.09 Primary schools vary between the formal type of school (one grade/one teacher/one classroom) and the village school where the same teacher has students of different grades in the same classroom. In many cases, the Ministry of Education does not provide the building for a village school (or housing for the teacher) so that many rural schools are built or lent by the villagers. The country plans to continue using this valuable public contribution, and a program has been prepared for 1981-82 under which 40 schools per year will be built with public collaboration. In urban areas, schools are for the most part crowded and operate on a three-shift basis, which reduces the school day to three hours. Teacher qualifications are poor; the Government considers that 60% lack adequate training. In fact, many teachers are former monitors who helped in the literacy programs before independence and are to be upgraded. That the teacher problem is of qualification rather than of quantity is evidenced by the student/teacher ratios for 1979/80: 31/1 in elementary and 19/1 in intermediate schools.

6.10 The professional component of the intermediate cycle was individualized in 1977 when two Centers for Popular Integrated Education (CEPI - Centros de Educacao Popular Integrada) were created in Cacheu and Tombali. The aim

1/ Schooling age groups are: 6-10 primary/elementary education and 11-12 in intermediate.

of these centers is to train their own teachers, help with community programs, and teach students in the 5th and 6th grades. By 1979 there were four CEPIs, teaching 400 students. The Government is planning to expand them as soon as the first experiments give positive results. The main goal of the CEPI is to provide the student with an analytical capacity, enable him/her to contribute to the rural environment and thus remain in the village (instead of moving to the nearest town) becoming a useful agent in the region's development.

Secondary Education

6.11 Secondary education is provided at two levels: the lycee, of a general nature, and post-primary professional education. Plans exist to merge these two levels into a single general polyvalent secondary school. In 1979, Guinea-Bissau had eight lycees (liceus), of which only the one in Bissau had five grades (i.e., 7th to 11th grade). Total enrollment was 6,220 students, of which 40% were adults and 18% were females. Compared with the 1,700 students enrolled in 1975, this represents a fourfold increase between 1975 and 1979. In spite of the Government's active campaign to attract students to professional education, they continue to prefer the lycee since it increases their possibility of obtaining scholarships to study abroad, jobs in public administration or, in general, white-collar jobs (which still carry greater social prestige than blue-collar work). Existing structures are already insufficient to absorb lycee students and the Government is planning to restrict access to general secondary education. At present, lycee students work one day a week in productive work and community activities. In selecting a field of specialization (in the 10th and 11th grades), students agree to work for the Government immediately after graduation. The policy has already channeled many youngsters into the Ministry of Planning.

6.12 Enrollments in secondary professional education totalled 260 in 1979/80, that is, 4% of secondary enrollments and fewer than the 340 students enrolled in the technical schools inherited from the Portuguese administration. These technical schools were closed in 1977, since this type of education was considered to be too theoretical, having little relation to the needs of the country. Their buildings are used for the Technical Institute for Professional Training (ITFP, Instituto Tecnico de Formacao Profissional), which offers courses in mechanics, metallurgy, electricity, construction and commerce. In 1979/80, the ITFP had 162 students (83 in sawmilling and 79 in construction). The other professional school is the Boe agricultural school (96 students).

Middle Polytechnic

6.13 Polytechnic education in Guinea-Bissau is a combination of middle technical (after the 9th grade) and higher education (after the 11th grade). At present, two schools operate at this level: the Law School (64 students) offering three-year courses in administration, commerce, economics and law, after the 11th grade of general secondary; and the School of Physical Education (36 students) which prepares physical education teachers. Five other schools are planned: (a) a primary education teacher training school in

Cacheu; (b) a secondary teacher training institute (IFAPE, Instituto Formacao e Aperfeicoamento de Professores); (c) the National School of Administration, planned for 200 students and offering courses in secretarial administration and management (financed by SIDA); (d) the civil aviation school under the Transport Ministry with financing from UNDP; and (e) the Ministry of Health's nursing school in Bissau.

Teacher Training

6.14 In 1979, enrollment in teacher training courses totalled 300 students, of which 220 were under intensive upgrading training. There were five schools, three of which provided upgrading programs. These are intended for former school teachers who were used during the war in literacy activities. Their level of qualification is very low (2nd grade of primary education). The intensive upgrading program consists of four years: the first is taught in Jabala covering the 3rd and 4th grades of primary education; the second in Bula covering the 5th and 6th grades; and the two last years at the Center for Training and Improvement of Teachers in Co. upon completion the students receive the diploma of elementary primary teachers. The other two schools (Bolama and Bissau) provide 3-year primary teacher training for students with a 6th grade primary education. Complementing formal training, seminars during school vacations are regularly offered to teachers. Since 1975/76, some 4,000 teachers and school administrators have attended at least one of these seminars. The Government plans to create two other teacher training schools: one in Cacheu for primary teachers (400 students capacity) and another in Bissau for secondary education teachers (270 students). Financing is expected from ADB and USAID.

Other

6.15 Many people are trained under investment projects being implemented in Guinea-Bissau, namely those related to metalmechanics and road infrastructure. There is, however, no information on how many people are presently under such training. The number of students who were studying abroad reached 1,041 in 1980. Major fields are social sciences (32%), industrial technology (28%), medical and para-medical sciences (12%) and natural sciences (10%). These training programs are offered to the country under bilateral technical assistance. Major contributions come from Portugal (24%), Cuba (21%) and the USSR (19%), the remaining from 20 other countries (Statistical Appendix, Table 11.5).

Expenditures and Financing

6.16 Recurrent expenditures make up about 14% of the Government's current budget. Primary education accounts for 66% of education expenditures, followed by secondary education (13%). Costs per student (1979 data) range from about GP 750 (US\$22) in primary school to GP 13,100 (US\$380) in teacher training. Average teachers' salaries vary between US\$100 a month for "monitors" to US\$260 a month for secondary school teachers. Primary school is free but there is no information on the cost of secondary and polytechnic education to

parents. The share of education in the development budget increased between 1978 and 1981 from 5% to 15%; as for the current budget, the education share has declined from 16% to 12%. Substantial amounts of foreign aid have been allocated to the sector, providing both direct teaching (expatriates represent half of secondary education teachers and all of the polytechnic teachers) and financial assistance--namely, SIDA, EDF, UNIDO and ADB.

Issues and Plans

6.17 The main problems in the education sector in Guinea-Bissau are: (a) lack of qualified and motivated teachers; (b) lack of financing capacity to support school activities, teacher salaries and school construction; and (c) lack of rural education structures to carry out the desired adaptation of school programs to the rural world. The second problem is undoubtedly the most important as it affects the solution of the other two.

Teachers' Qualifications: In 1979, only 2% of primary teachers had a diploma in primary teacher training; 55% had studied only up to 4th grade and had some teaching experience; and the rest were either students in the 9th to 11th grades of general secondary (8%) or teachers who had completed at least the 7th grade of secondary school. In secondary school, 50% of the teachers were expatriates and the rest had finished grades from 7th to 11th grade. As for teacher training, the situation was similar: teachers' education varied between 4th grade with some experience to 11th grade of secondary school. The Government considers that the inadequate qualifications of teachers is the main obstacle to providing adequate instruction in schools as well as to introducing necessary reforms in curricula, so that out of the US\$22 million allocated to education in the 1980-81 plan, 18% was for teacher training (excluding expenditures for the construction of the two new teaching training schools mentioned before). This includes US\$0.8 million financed by SIDA for teachers' upgrading, and several programs for primary and secondary teachers, financed by SIDA, The Netherlands, UNDP and UNICEF.

Motivation: The Government feels that lack of motivation affects both parents and teachers, especially in rural areas. Constraints on the educational current budget prevent teachers from being paid during upgrading seminars, reducing their attendance; monthly salaries are paid after long delays, forcing the teachers to be supported and fed by the villagers whose enthusiasm for doing so fades with time; moreover, to encourage the use of Portuguese, professors have been allocated to regions where the predominant ethnic group is not their own. This prevents communication between teachers and students (as well as between teachers and the local population) and in a short time schooling becomes a burden for both students and teachers, reinforcing the already existing lack of motivation among parents.

Low enrollment rates: As seen above, barely more than half the school-aged children are enrolled in primary education. The Government sees this situation as the result of the scarcity of schools in rural areas, combined with parents' attitudes with respect to (a) the little value given to education and literacy; (b) the cultural bias against education of females; (c) the incompatibility between the school year and the agricultural calendar; (d) the conflict between the school year and the traditional puberty ceremonies (fanado); and (e) the preference for Muslim schools.

Lack of infrastructures: The lack of transportation makes it difficult for students to attend nearby schools, for teachers to live in a nearby town rather than in the village where they teach, and for regional delegates to control in any way what is happening in the village schools. The lack of minimal equipment is dramatic; students and professors often lack blackboards, chalk, pencils, pads, and the most basic material. Furthermore, the lack of security (door locks, for example) means that the existing material is often stolen. All school material is imported and pedagogic support is less than sufficient. There is no press for the education sector, and all books and written materials are printed in Portugal. This produces enormous delays, so that teacher guides and textbooks become available only after the middle of the school year.

Education Efficiency: The array of problems mentioned above has led to a very low level of school efficiency. On the average, around 30% of 1st grade students leave the system. Repetition rates are quite high: for the 1st grade they reach 36% and, while improving for the following grades (Statistical Appendix, Table 11.3), they are seldom below 25%. Dropout rates never fall below 10%. As a result, only 21% of those who enter primary school reach the 5th grade, and only 9% finish intermediate school. The result is a cost per graduate in primary education that is four times what it would be in an ideal situation of no dropouts or repeaters.

Plans: The official 1980-81 plan primarily concentrates on increasing the educational infrastructure. Out of the US\$22 million investment planned for the sector, 68% is for school construction and 18% for teacher training. Construction plans include: (a) a regional program with popular collaboration to build and maintain primary elementary schools (40 schools a year); (b) 10 schools for the intermediate cycle (financed by EEC and SIDA); (c) a new high school in Bissau (with a capacity for 1,000 students); (d) a teacher training school for primary teachers in Cacheu (400 students) financed by USAID (US\$2.6 million); (e) a secondary teacher training school in Bissau (270 students) with financing from ADB (US\$2.0 million); and (f) rehabilitation and maintenance of 40% of primary schools in need of repairs. Training plans under the Institute for Professional Training include 55 courses for 870 people in these two years.

Need for Planning

6.18 The above picture displays both the problems of the education system in Guinea-Bissau and the efforts Government has been developing to address them. The challenge is enormous and the Guinean authorities are aware of it. As a consequence of public health policies and general economic development, infant and child mortality rates are likely to decrease substantially in the near future, leading to considerable growth of schooling age population. This growth will be reflected at all levels of the system, although primary education will be the first to feel it. With the ongoing upgrading programs and the teacher training schools under implementation, the problem of teacher qualifications may be greatly alleviated in 7 or 8 years, and the Government estimates that in 15 years the education system will be able to provide an adequate supply of trained teachers to accompany its expected growth. Below

Table 10: ENROLLMENTS, TEACHERS AND RECURRENT EXPENDITURES, 1979 AND 1984.

	Actual 1979/80			Project 1984/85		
	<u>Pupils</u>	<u>Teachers</u>	<u>Recurrent Expendit. (MGP)</u>	<u>Pupils</u>	<u>Teachers</u>	<u>Recurrent 1/ Expendit.</u>
Primary:						
Elementary	74,941	2,457	99.6	75,211	2,507	167.1
Complementary	12,894	683	36.7	14,434	722	59.1
Secondary	6,785	344	33.6	10,017	527	76.7
Others <u>2/</u>	-	-	<u>37.6</u>	-	-	<u>67.1</u>
Total	94,620	3,484	207.5	99,662	3,756	370.0

Sources: Ministry of Education; mission estimates.

1/ Includes 25% raise in average wage, following raise in minimum wage of November 1980.

2/ Includes administrative services, Friendship Institute and pre-primary school.

are projections made by the Ministry of Education of enrollments and teacher needs in 1984/85. The economic mission estimated the corresponding recurrent costs taking into consideration the upgrading of teachers and the need for better support in schooling material.

6.19 Table 10 indicates that upgrading the existing teachers in primary education and increasing the share of material expenditures in total budget results in an increase in recurrent educational expenditures equal to 78% between 1980 and 1984, or an annual growth of 15%. This growth is unlikely to occur, given the size of the deficit in the central government budget and the difficulty in raising tax revenues. Aside from the problems of increasing the school network, promoting teacher training and upgrading reform programs and professional training, which can be solved with external assistance (provided the Government continues its commitment to the development of education) the problem of financing recurrent costs will be the major obstacle to the sector's development. Careful planning is therefore necessary in designing a 5-10 year strategy which takes into account this important constraint. As for the other constraints, such as parental motivation and low enrollments, the present development programs will probably help to smooth the initial resistance and increase the adherence of the population to the goals of literacy and knowledge of arithmetic; the rural exodus to the urban centers may be reduced by the success of the CEPI in motivating students in intermediate education to stay as development agents, although only an integrated rural development policy can ultimately resolve the problem. Other actions can, however, be implemented

in the short-run. The school calendar could be made flexible to allow for traditional practices and cultivation patterns. Teachers of the same social ethnic group as the students could be used to ease their adaptation to the environment. Moreover, ingenuity may be required to devise a program of transportation for both teachers and students, as well as to support popular collaboration in construction of new schools. Given the heavy burden in adequate funds, it may be useful to consider financing schemes whereby more affluent families would contribute forwards local school expenditures. Lastly, the formal education system could use the existing Muslim infrastructure to study possibilities for adapting or including programs for the teaching of Portuguese in these schools. Since many of the Muslim children attend both their system and the state schools, this collaboration could be advantageous. Also, the importance of technical assistance in providing professional training in the context of projects should be seen as a powerful contribution towards upgrading the active population. The coordination of all these efforts requires a minimum of planning in which goals and constraints can be balanced to form a realistic strategy for the sector.

PUBLIC HEALTH

6.20 Incidence of Disease. The indicators in Table 14 confirm the extremely poor health conditions prevailing in Guinea-Bissau. The widespread prevalence of water-borne and tropical diseases is a primary factor in the low life expectancy and the high infant and child mortality. Ecological factors, lack of adequate nutrition, improper sanitation and environmental hygiene, and contaminated water are the main causes of widespread diseases such as malaria, gastro-intestinal disease, tuberculosis, filariasis and leprosy. It appears, however, that there is only one focus of onchocerciasis, and bilharziasis is not widespread, although with the development of irrigation it can be expected to increase. There is little evidence on how the incidence of these diseases affects mortality rates. About 30% of the population has access to health services.

6.21 Government Program. The Government's objective in the sector is to improve basic health conditions, with an emphasis on preventive medicine, integrated programs (nutrition, sanitation and water supply) and regional decentralization. 12% of current Government expenditures are allocated for health, about US\$7.0 per capita. Only 3% of total investment programmed for 1980/81 was allocated to the sector. A program for health service development, drawn up with the assistance of the World Health Organization, provides for a comprehensive approach to health, from the provision of specialized services and the control of pharmaceuticals to community services concerned with diet and hygiene. The development of health services is to be based on a normal pyramidal structure. The eventual aim is to have 240 health posts (one per 5,000 inhabitants), 15-18 rural hospitals (one per two areas, with 10-20 beds), 8 regional hospitals and, in Bissau, a variety of facilities besides the national hospital.

6.22 More than half this structure already exists, although in many cases important repairs are needed. This includes the main hospital in Bissau, four regional hospitals (in Bafata, Bolama, Cacheu and Gabu), eight rural hospitals (of which four are without a medical doctor) and 130 health posts. The Government is planning to use 50% of the external assistance to the sector in 1980/81 (about US\$9.0 million) to increase physical structures. This entails the renewal and enlargement of the hospital in Bissau (to become a national hospital) financed by The Netherlands in two phases, repairs to the regional hospitals, and construction of three rural hospitals (financed by EEC, Gulbenkian Foundation, WHO and The Netherlands) at a total cost of about US\$3.0 million. A center for mental patients and the construction of a national laboratory are also programmed for this two-year period with financing from SIDA and EEC. Several health assistance and disease eradication programs are being financed by various agencies, namely to combat leprosy and bilharziasis (WHO).

6.23 A program of integrated community development financed by UNICEF, DANIDA and SUCO began in 1978 in Tombali and Cacheu. Teams of nurses and health workers move into the villages to live there for 4 to 6 months. They dispense medicine, provide first aid and assist with disease prevention programs, trying to mobilize the people's participation in preventive measures against illness such as improved nutrition and environmental hygiene. Also included in this program is the construction of small drugstores ("tabanca") for emergency purposes or to treat symptoms such as headaches. The program covers 12 villages and faces many problems ranging from the lack of coordination between the intervening ministries (education, health, rural development and natural resources) to the lack of medicinal supplies for the local pharmacies.

6.24 A large program to increase the supply of potable water is being launched by the Ministry of Rural Development. From 1975 to 1979, this ministry installed 250 public standposts. This effort was to be continued during 1980-81, through the supply of 850 additional standposts in rural areas and an improved piped water system (total investment is estimated at US\$23.0 million). The objective is to provide a water standpost for every 75-100 people, for a total of 9,000 standposts (which includes rehabilitation of existing standposts). In coastal areas, there are problems related to the infiltration of salt water and in the interior with the irregularity of the water table which tends to vary with the amount of the rainfall. An extensive study of the country's water resources is being carried out by the USSR. The ongoing water supply program includes three rural and five urban projects. The rural projects include: (a) a program for 450 standposts in the regions of Gabu, Bafata, Oio and Cacheu financed by the UNDP and UNICEF (cost: US\$2.0 million; estimated completion end-1981); (b) 450 wells in the regions of Quinara and Tombali, financed by the Dutch Government (US\$4.0 million) which includes programs for hygiene education and horticultural development; (c) a USSR-financed project of deep-well drilling aimed at construction of 40 wells of 50-250 meters depth (US\$2.5 million). In urban areas, four high-water reservoirs are being built--three in Bissau and one in Farim--with Dutch financing (US\$800,000). The Dutch are also financing a project to improve the

urban water networks in Bolama, Bafata and Catio (US\$1.5 million) and the Soviets are financing the construction of four underground water caches in Bissau: Simao Mendes Hospital, Alto Crim, Hospital 3 August and the Bra Industrial Region. Water supply services are the responsibility of the Ministry of Natural Resources.

6.25 The Government faces several obstacles in the implementation of its public health program. The first is a financial problem. The Ministry is constantly pressed for current funds to pay for health service personnel, and many of the current expenditures (such as those involving medication) are financed under external assistance programs. In fact, the value of total medication and in 1979 exceeded the total current budget of the Ministry of Health. The second problem concerns the organization of the Ministry. At present, the overlapping of functions and programs of different divisions leads to inefficiency. With limited human resources and implementation capacity, the number of programs in which different divisions have been engaged in the past has been prejudicial to the incompleteness. The last group of problems belongs to the vast list common to most sectors. Transport restrictions raise problems for imports of medication, equipment and spare parts and cause delays in the implementation of new health units. The program to expand the number of health centers and sector hospitals is blocked by the lack of capacity of the construction sector, and more than two programs to construct sector hospitals have been dropped by the financing agencies. Moreover, the absence of a cold storage network prevents the transportation of vaccines into the interior of the country; since there are few experts in medical equipment, 50% of hospital equipment is in need of repair; without communications, emergency cases fail to be detected and patients cannot be transported to nearby hospitals. For example, the idea of equipping the CESAS with small airplanes lost operational relevance because of the lack of a telephone or radio network to detect emergency cases in need of rapid transportation.

6.26 But the major obstacle facing the Ministry is the lack of skilled health personnel. There are 88 doctors in Guinea-Bissau of whom only 11 are nationals (another 50 are studying abroad with scholarships from donor countries). Of the total 870 nurses, only 70 have qualifications the Government considers adequate. Among the rest, 500 are former "socorristas" (nurses aides - people with little training who performed health services during the war). To cover the needs of the country, the Government thinks that 600 nurses would have to be trained in a single year, after which an average of 25 a year would be required. At present, there are three nursing schools, two for the training of former "nursing aids" (in Nhala and Bolama)--all of whom are expected to have received two years of health education by 1984--and the General Nursing School (Bissau) providing 3-year courses for students 18 to 25 years of age having at least nine years of formal schooling. The capacity of this school is 20-30 students. Graduates will have the opportunity to pursue medical studies abroad under scholarships from international donors; however, creation of this school will not solve the problem of providing rural areas with qualified people. Rural students cannot afford to come and live in the capital during the three years necessary to obtain the diploma. Those who

live in Bissau and enroll in the nursing school do not want to live in rural areas after graduation. The Government is contemplating an extensive program of scholarships for rural students, who would be receiving the minimum salary (US\$100 a month) while in school. This program, financed by the WHO (around US\$1.0 million) was to be started in 1980/81.

6.27 Appraisal. Given the scarcity of resources, the shortage of trained manpower and the inadequacy of transportation, the Government's decision to decentralize primary health care services will be an important step in strengthening the currently inadequate health care facilities in Guinea-Bissau. A major point must be emphasized: the Government is especially concerned over the adequate coverage of the entire country with physical infrastructures and adequate personnel. Current budget allocations to the health sector, however, do not reflect this concern. Given the budgetary constraints likely to prevail over the next five years, it would be advisable for the responsible entities to prepare a medium-term plan for the sector in which the capacity of the central budget to finance current costs and the availability of foreign exchange to the sector are taken into consideration. In this context, priority actions should be defined realistically in order to avoid setting up an infrastructure that cannot be properly maintained.

6.28 Lastly, two major components of a sound health strategy should be emphasized: maternity and childcare, and family planning. The population growth rate and the very high infant and child mortality rates demand that greater attention be paid to these areas. Close spacing of children and their large number are important factors contributing to poor nutrition and susceptibility to disease. As an initial step, the training of community health workers should be geared to the special health needs of women and children, and family planning services should be provided to those who want them.