GUINEA
AGRICULTURAL SECTOR REPORT

JUNE 1980

A. L. Nellum and Associates
Consultants Since 1964

AGRICULTURAL SECTOR REPORT

Table of Contents

ANNEXES

ANNEX I (in order of appearance)

APPENDICES

I. SUMMARY

Contrary to some reports that its potential is excellent, Guinea has what may be described as favorable agricultural possibilities that are underdeveloped: Its soils are fair-to-good, its rainfall is monsoonal, with harsh dry periods, and its outputs could become excellent. "Stagnation" best describes the agricultural sector. According to the team's findings, the major constraints to agricultural development are neglect of the small farmer/producer, lack of incentives to produce above the subsistence level, lack of extension, as a service and as a concept, inadequate research capability, and underqualified and underemployed civil service agricultural technicians, planners and administrators.

Guinea has been plagued with various "centralist" agricultural policies since independence in 1958. These collectivized plans have attempted to modernize agriculture and its technology. These plans have failed to achieve their goals for a variety of exacerbatingly synergistic reasons.

The small farmer has been denied access to the inputs necessary to improve his present extensive methods of subsistence production, neither through market mechanisms nor any incentives in compensation for free labor provided to the village farm collectives. He is expected to deliver approximately 120 kg of produce per year (production sur-tax) to the GOG at unrealistic official prices, in order to provide low-cost food for the civil service. In spite of the foregoing, the small farmer still accounts for 83% of all agricultural produce in Guinea.

The team identified this neglect of the subsistence farmer as the primary reason for the stagnant state of Guinean agriculture.

The current GOG collective approach to modernize agriculture through large scale production units, the FAPAs, will prove as unsuccessful as the BMPs, BAPs, FACs, agro-industrial enterprises, all attempts at collectivization, because of a lack of an integrated approach to agricultural development that links scientific research to the true major producers, the small farmer. Applied research must also be introduced to create self-sustaining feedback to research institutions, targeted at the village level. An effective extension service that is sensitive to the needs of the small farmer and capable of transmitting his needs to the applied and basic research institutions should be the intermediary in that feedback loop. Self-sufficiency is GOG-mandated for all schools and research stations in Guinea for all food items. This government pressure compounds the problems of the underqualified staff and faculty. The results are evidenced in poor yields, agriculturally as well as academically.

A GOG small farmer incentive plan must be developed and implemented, enabling a more equitable marketing system to be developed.

In reviewing GOG statistics, the team found that investment in the agricultural sector is totally inadequate. More capital must be made available to secure primary inputs needed before mechanized agricultural development can be realized.

II. BACKGROUND

A. GENERAL DESCRIPTION OF THE FOUR REGIONS OF GUINEA

Guinea (246,000 km^2 located between the 7th and 12th parallel of northern latitude and with a population of approximately 5 million) borders on from south to west, Sierra Leone, Liberia, Ivory Coast, Mali, Senegal and Guinea-Bissau. The mountains stretching from northwest to southeast give Guinea diversified physical conditions. The variations in altitude and the diversity of the climate and vegetation divide Guinea in four natural zones which grossly correspond to the major ethnic groups. The following pages present a brief description of the four natural regions.

1) Lower or Maritime Guinea. Lower or Maritime Guinea represents the alluvial basin of the coastal rivers and extends from the coast to the foothills of the Fouta-Djallon. The tide brings seawater inland, causing problems of salination of the soils. The climate of this zone is tropical: a 6-month dry season (mid-November to mid-May) and a 6-month rainy season with a culmination in August, when precipitation can reach 300 mm per day. The total amount of rainfall is quite high, everywhere more than 3m, 4m in Conakry and probably even more in certain areas. Temperatures range from an average of 23c (in July) to 32c (in April) in Conakry. The main crops are rice (both swamp and upland), manioc, and corn. Oil palms and coconut palms, which are mainly gathered semi-cultivated, and kola nuts constitute the main cash crops. Bananas and pineapples are also being developed. The size of land holdings is small; two-thirds of the farms are less than 2 ha (see Annex I, Table 1).

Throughout Guinea, home gardens, women's traditional task, provide a necessary nutritional complement to the normal cereal diet and to basic food crops grown in bush fields. Vegetables and condiments needed for sauces (tomatoes, okra, pimentoes), fruit trees (mangoes, citrus, bananas, etc.), and also basic food crops such as corn and tubers (manioc, sweet potatoes, cocoyams) are found in these gardens. Home gardens represent the only agricultural production to benefit from the use of manure and the household vegetable wastes to make compost.

The region is mainly inhabited by the Susu ethnic group (17% of the total population of Guinea) and related groups (Dialonki, etc.). Susu have tended to absorb minority groups that were the first inhabitants of the coast (Landouma, Baga, Nalou, etc.)

2) Middle Guinea (Fouta Djallon): Middle Guinea, made up of mountains, plateaus and valleys, can be classified basically as a mountainous region, with altitudes ranging between 750 and 1500 m. The Fouta Djallon is the watershed for important West African rivers (the Gambia, the Senegal, the Niger, and their tributaries). Deforestation, mainly due to the practice of slash and burn agriculture, combined with demographic pressure, has led to a disruption of bio-climatic equilibrium. The forest maintains humidity; once it is destroyed, it tends to be replaced by xerophilous species. Above all, deforestation leads to erosion and degradation of shallow soils which are particularly fragile on steep slopes. This problem is extremely serious since it affects not only the Fouta-Djallon but West Arica as a whole by retarding the flow of run-off water in the catchment areas of the main river systems originating in Guinea. The GOG

and donor agencies are well aware of the problem. Several reforestation and soil conservation projects have been initiated over the past few years.

The rainy season lasts a little under 6 months, from mid-May to the end of October, although there are only 3 months (December, January and February) absolutely dry. The total amount of rainfall is still high, ranging between 1.8 m and 2.3 m.

The main crops are upland rice in the valley bottoms, millet, fonio*/ and corn (see Table 3 in Annex I). Climatic conditions enable the cultivation of various types of vegetables and fruit trees nearly all year round, except during the heavy rains. Here also women are in charge of the house gardens, although men also participate, mainly through fence building, used to protect gardens from animals. Since the Peul penetration, the Fouta-Djallon has become the region for livestock raising. The race is the N'Dama. It has the advantage of being trypanosomiasis (sleeping sickness) resistant.

Land holdings are even smaller in size than in Lower Guinea. More than half of the farms are less than one ha, and 85% of the farms less than 2 ha, except in the Kaundara region where land holdings are larger (see Table 1 in Annex).

The largest ethnic group of the Fouta-Djallon is the Foula who comprise a majority of the population. They make up 29% of the entire popu-

---

* digitaria vulgaris. Fonio is a grass; its yields are very low (rarely more than 6 times the quantities of seeds, more often about twice the quantities seeds) but it can grow on poor soils and is drought resistent.

lation of Guinea. The Foula were originally pastoral nomads who migrated to the Fouta-Djallon from the Sahel. They displaced the earlier inhabitants of the area, the Dialonke. During the 18th century an Islamic holy war started in the Fouta Toro of Senegal. This war spread to the Fouta-Djallon with the ultimate result that the Dialonke unbelievers were brought under Foula control. The Dialonke who remained in the area became serfs to the Foula masters. Masters and serfs lived in separate, interdependent villages. Since independence, the socialist state has emphasized equality between ethnic groups but the earlier social relationships have not completely faded.

The Fouta-Djallon is one of the most densely populated regions of all Guinea (40 inhabitants per square km). This quite exceptional density for Africa has led to a disequilibrium between the populations and the available resources under traditional agricultural and animal husbandry practices. During the colonial period, this region was the only one not self-sufficient. Seasonal migration, mainly towards Senegal, was part of the economic life of these populations, constantly threatened by food shortages.

3) Upper Guinea and the Foothills of the Fouta-Djallon: Upper Guinea is savannah country of terraced plateaus, which lie between 200 and 400 meters in altitude. The Niger and its tributaries have created inundated plains which are adjacent to kops, which could be utilized for irrigated rice fields. Rainfall averages 1.5 meters a year, mainly between June and the middle of September.

Lowland rice is cultivated near the river. On the terraces, the

main crops are rainfed rice, manioc, fonio and millet. Gardening is also a woman's activity. Gardens, the only fields to be manured, are located around the compounds and also in the lowlands. Garden crops are similar to those in Lower Guinea, with an emphasis on onion cultivation, which has become a commercial crop. Revenues from onions play an important role in women's budgets, enabling them to invest in small cattle herds. Land holdings are somewhat larger than in the rest of Guinea. Only half of the farms are less than 2 ha, and 15% to 47% (depending on the zone) are between 2 and 5 ha (see Table 1 in Annex).

Land and water management, introduced during the colonial period, increased the production of flooded rice and above all diminished the risks resulting from irregular flooding. However, infrastructure remains insufficiently developed and substantial increases in production could be obtained through its further development. As opposed to positions in the Fouta Djallon, where the settlement pattern involves numerous hamlets (mainly a result of herding practices), the populations of upper Guinea are grouped in large villages of oftentimes more than 1,000 people. Forty-six percent of the population lives in villages of more than 1,000 people, against 20% in Lower Guinea. In the Fouta-Djallon, the villages comprise on an average only a couple hundred people. The basic ethnic group is Malinke (34% of the total population).

4) Forest Guinea: The three regions described previously are geographically contiguous. Such is not the case with Forest Guinea, a marginal zone because of its location away from the main country axis: Conakry-Niger River. Forest Guinea represents the hinterlands of Sierra

Leone and Liberia, as witnessed by the same ethnic groups found on both sides of the border. There are a number of minor ethnic groups none of which is dominant, the main ones being the Kissi, the Toma, the Guerte, and the Manon. These populations, referred to as the "forest people," represent 18% of the total population of Guinea. They have never established political status as is the case with the Malinke, the Foula, and even the Susu. They have remained basically animist, their recent Islamization being sporadic and superficial.

Tropical forest covers mountains (up to 1700m) and valleys. Luxuriant vegetation provides for a constant humidity. The dry season lasts 2 to 3 months but the total amount of rainfall is less than in Maritime Guinea (less than 3 m of rainfall yearly). In the lowlands, the constant humidity permits two crops of rice per year. Some manioc and peanuts are grown during the dry season. On the hills, slash-and-burn agriculture is practiced and rainfed rice is grown. Oil palms, mainly a gathered/ semi-cultivated crop, is a cash crop, but coffee has become the main cash crop, bringing considerable revenues to the region. Land holdings are small, 2/3 of the farms are less than 2 ha, except in the region of Kissidougou where 53% of the farms are between 2 and 5 ha (see Table 1 in Annex).

B. EVALUATION OF PERFORMANCE OF AGRICULTURE

Guinea's agricultural base and favorable natural conditions should enable it to be more self-sufficient in food and agricultural raw materials. However, Guinea's agricultural performance has been poor. Whereas the country was self-sufficient in cereals in the fifties, in the past two

decades it has imported increasing quantities of cereals, mainly rice, to feed its growing urban population. The team was unable to obtain reliable, GOG-generated data on food imports.* Nevertheless, it is estimated that in the past few years, Guinea has imported over 100,000 metric tons of cereals, 60,000 to 70,000 metric tons of rice alone. Although it is estimated that 85% of the population is engaged in agriculture, agriculture contributes a small part of the GDP. Over the three-year period, 1975-1977, agriculture (including livestock and fishing) has accounted for only 39% of the total GDP.

Agricultural exports have also declined considerably. Formerly, four crops (bananas, pineapples, coffee, and palm kernels) constituted the main foreign currency earners. Before independence, agricultural exports represented over 75% of export income. This percentage fell to 50% in 1966, 23% in 1972. Over the three years 1976-1978, agricultural exports represented only 2 to 4% of total export earnings. Taken as a percentage, this poor performance obviously reflects the increase in bauxite production and sales, but also a drastic decline in the volume of agricultural exports. For example, in 1972-73, 60 tons of bananas were exported as compared to 44,000 tons in 65/66 and almost 100,000 tons in the fifties according to GOG statistics.

Table 2 in Annex I presents agricultural production trends the

---

* Trying to obtain data from the Guinean authorities is a frustrating experience. Either the data do not exist, or if they exist, they are usually unreliable, and often nonsensical. In the case of food imports, certain information is treated as "confidential" and not divulged at all.

past decade. Production in major cereals has stagnated (rice) or even declined (maize, fonio). Average yields for the country are given for 1975 when a GOG agricultural survey was undertaken. These yields are quite low: yields of rice, millet, corn, citrus fruits, coffee and peanuts are lower than the average for West Africa; manioc and banana yields are about average. Only pineapple yields are higher than average. Low yields are due mainly to poor cultural practices (not necessarily traditional ones), lack of necessary inputs and lack of farmer incentives to maximize production. These problems inherent in the Guinean setting, will be discussed at length under Section E.

Table 3 in Annex I presents detailed statistics by region on average area planted, total levels of production, yields and per capita production for 10 major crops in 1975. From these data, the maps in Figures A-1 to A-6 were constructed showing the geographic location of the range of yields and of percapita production. A rapid analysis of the maps shows that the yields and production per capita are consistently the lowest in the Fouta-Djallon, except for fruit. The soils of the Fouta-Djallon are the most eroded soils in Guinea, due mainly to a combination of agricultural practices (slash and burn agriculture) and demographic pressure on the land leading to shorter fallow periods. In certain places, the fallow period is reduced to 2 to 3 years, which is insufficient to restore soil fertility.

Another fact accounting for a low per capita production in the Fouta-Djallon is the high density of population. As described earlier, the size of family holdings is quite small, resulting in low per capita production. Figure A-1 shows that the per capita yearly cereal production

in the Fouta-Djallon is less than 100 kg. If one takes the estimate that the yearly per capita cereal needs is 150kg, then the Fouta-Djallon is a net importer of cereals. Using this figure, only 15 regions out of 33 produce a surplus which can be absorbed by the urban centers. It is, however, interesting to note that the two regions which produce the highest per capita surplus are border regions (Yamou and Koundara). Because of their particular location, crossing the border to sell farm surpluses at higher prices is easily done. Yet, incentives offered by the higher prices on the border markets do not play an important role in the production of surpluses. Considering the price structure in Guinea, a problem which will be analyzed at length later on, the above situation should be examined more closely.

C. AGRICULTURAL POLICY AND PLANNING

1. Government policies towards agricultural production and development.

The GOG, since 1970, has emphasized three goals for the agricultural sector:

1) fulfilling food needs of the urban population (in order to avoid imports);

2) providing a steady supply of agricultural raw materials to food processing industries;

3) developing exports of agricultural surpluses.

Interest in rural development professed by the government is not reflected by investments. From 1964 to 1973, only 7.4% of national income was invested in the agricultural sector. In the last five year plan (1973-1978), investments in the agricultural sector increased to 13.8%. The

most important item of investments during the last five year plan was for the equipment of collective units (FACs, etc.). About 75% of the total investments in agriculture went to provide equipment for these units.

a) Emphasis on collectivization.

The agricultural policy formulated at the time of independence advocated a transformation of rural society to eventually arrive at the collectivization of all agricultural production in highly mechanized production units. Attempts to promote collectivization have been made in the rural areas by collectives first, then the FACs and most recently the FAPAs. Promotion of collectivization was a result of the socialist ideological policy of the GOG and of the GOG concerns to feed the urban population and civil servants.

b) Growing concern to feed the urban population.

One of the main concerns of the GOG is to provide for food at low prices for its urban populations and for all GOG officials located in the rural and urban areas. The government has been unable to achieve this goal.

The small farmers, for reasons examined elsewhere in this report, have relapsed further into subsistence farming and are not producing surpluses for the GOG, except for the required norm of 120kg of cereals levied yearly per each able bodied person in the family unit.

Collective farms, because their production must be marketed through official channels, should be understood as an attempt to achieve the goal of feeding the urban populations and official consumers. Other types of collective farming, armed forces farms, police, militia, and "party militant" farms have the same goal. Virtually every Guinean is supposed to

be involved in agricultural production. Every school, rural or ruban (C.E.R.: Centre d'Education Revolutionnaire), is actively engaged in agriculture to provide practical training to its students while participating in production activities.[1/]

Marketing quotas (each able-bodied individual between 14 and 65 years old, not salaried must sell 120kg of agricultural produce to official marketing agencies) are also part of the same policy aimed at feeding the urban population at the lowest cost. These "quotas" can be considered as a surtax on the rural population. However, the data that we were able to obtain from 4 ERC (Entreprise Regionale de Commercialisation) that we visited, strongly suggest that these quotas are far from being met. If these quotas were met, one cannot see how the GOG would need to import over 100,000 metric tons of cereals per year.

c) Emphasis on mechanization and on large production units.

GOG officials are infatuated with the idea of highly mechanized large production units. The team was repeatedly told that what Guinea needs is American technology and equipment. The logic behind that is that since America was so successful in this domain, there is no reason why this success could not be replicated in Guinea, the only thing needed being the American technology.

In the past, Guinea has imported 5,500 tractors of which 3,520 from Romania. The emphasis has been on agricultural equipment; the other necessary inputs needed for modern mechanized farming, namely fertilizers, insecticides, pesticides, and high-yielding variety of seeds, have been neglected. From 1976 to 1978, only 237 metric tons of fertilizer were

1. At the level of grammar school, each student is supposed to cultivate 0.01 ha. In high school 0.1 ha in the first cycle, 0.2 ha in the second cycle. The students of the vocational schools have to cultivate 0.3 ha each.

distributed, going largely to the agro-industrial state enterprises. Inputs are available only to the state farms, collective farms and GOG enterprises. It would appear that the GOG does not recognize that the peasants are making the largest contribution (approximately 83%) to the feeding of the Guinean population. State farms and collective farms are only marginally significant in comparison to peasant production. Nevertheless, the GOG goal is still collectivization of all agricultural production in Guinea.

In spite of it all, it seems that even civil servants do not quite believe in the success of collectivization. But politically, it would be impossible for a civil servant not to state the party line.

2. Organization of the Ministry of Agriculture, Water and Forestry and the FAPAs (see Figure B).

Rural development is the concern of two ministries: the Ministry of Agriculture-Water-Forestry-FAPAs, and the Ministry of Livestock and Fishery. Figure B in Annex presents an organization chart of the Ministry of Agriculture. To make the picture more complete, the direction of Livestock and Fishery has been added to the chart at the regional levels, although it depends upon the Ministry of Livestock and Fishery. The various services which exist at the national level are combined at the CGR level in only three services. The number of services at the regional level is further reduced with the service of crop protection being placed within Agriculture. At the district level, the Ministry of Agriculture is only represented by the FAPAs, one agricultural agent to supervise agricultural production in the FACs of the district and one forestry agent.

The FAPAs differ from the other services in that they are

directly responsible to the "Inspector General's" office of the FAPA at the national level. Communications between the inspection of the FAPAs at the national level and the FAPAs themselves are channeled through the "secretary general in charge of rural development and the FAPAs" at the regional level. The various services (Agriculture, Water and Forestry and Livestock) which exist at the regional level do not have any links with the FAPAs, other than reviewing progress and making comments and suggestions. Hence, the FAPAs seem to exist as an autonomous entity with minimum links with the local and regional institution and certainly none with the local farmers. Therefore, at the district level, the only true representative of the Ministry of Agriculture are the two agents whose functions have been described above. Prior to the decision to create the FAPAs, there was one agricultural agent working at the level of the PRL, employed mainly as a statistician, in about half the PRLs of the country and mainly responsible for the reporting of production in the FAC to the Ministry. After the creation of the FAPAs, these agents, because of shortage of trained personnel, have been assigned to work in the FAPAs, leaving only one agent for the entire district. Since one district can have between three to ten PRLs and the population of a PRL ranges between 1,500 and 2,000, the agricultural agent of the district is supposed to serve between 6,000 and 20,000 people, in most cases scattered over a wide area. Considering the lack of roads, shortage of vehicles, and the fact that the agricultural agents are assigned to work only on the FACs, one can deduce easily that technical assistance to the peasants amounts to nil.

D. POLITICAL ORGANIZATION AT THE LOCAL LEVEL

The country is divided both administratively and politically into

seven CGRs(Commissariat General de la Revolution), previously (prior to 1979) called MDA (Ministere du Development Rural). At the level of the CGR, the title of the government's representative, the Commissaire General de la Revolution, is equivalent to that of Minister. The Commissaire is responsible directly to the President. The seven CGRs correspond more to an administrative entity than a geographical one; a CGR may include regions which belong to different geographical zones; for example, the CGR of Faranah includes, inter alia, the regions of Kissidougou (part of Forest Guinea), and Dinguiraye, which is part of Upper Guinea. The seven CGRs are divided into regions of which the total is 33 (See Figure C). The regions in turn are divided into districts (270). The PRL (Pouvoir Revolutionnaire Local) forms the basis of the administrative and political hierarchy and represents either a large village or a grouping of smaller villages and hamlets in rural areas or a ward in urban centers. Each PRL represents 1,500 to 2,500 people. An arrondissement may consist of 3 to 10 PRLs (see Figure C1).

To analyze the political and administratiave structure thoroughly would require an examination of the structure of services and agencies at each level; this is beyond the scope of this work. Rather, given AID's new directions mandate, we will focus here on grass roots organization, namely the PRL.

The PDG (state party) and the state, which are closely intermingled at all levels, merge at the PRL level, in the sense that the PRL administrators are at the same time politicians. Directing the activities of the PRL is a committee elected by the villagers, composed of a

mayor, his assistant (who is the administrative secretary and treasurer) 3 members, each responsible for a specific aspect of the village life, regrouped in four categories: economic affairs, social affairs, and public works and communications. The committee member reponsible for economic affairs, for example, is responsible to agricultural production of the FACs, gathering and storing of FAC products as well as "marketing quotas" and the selling of these products to state stores, the ERC. He should also be in charge of the distribution of consumer goods and agricultural inputs sold through the ERC. However, as examined earlier, official marketing channels have never been able to market agricultural inputs, and as far as the marketing of consumer goods is concerned, there are strong indications that this does not extend much beyond Conakry anymore, let alone in the rural areas. Similarly, the committee member in charge of public works and communications is responsible for village infrastructure (bridges, feeder roads, collective buildings and the like). He calls upon the villagers to help with maintenance or, when the work required is beyond village capabilities, he is expected to inform the relevant services at the regional level of these problems.

The party is also organized with a women's section, CNF (Comite National de Femmes), and youth sections, RDA (Jeunesse de la Revolution Democratique Africaine); the PRL also has one woman representative and one youth representative, each of them elected respectively by the village women and the village youth. Information from and to government services and agencies is channeled through PRL members. The work of the PRL members is principally labor intensive, consistent with the PDG's emphasis on "human investment".

Each PRL has its own budget made up of profits from the sales of agricultural produce to the ERC, the sales of party cards[1], revenues from women handicraft activities, from cultural events organized by the PRL, etc. The decision on how to allocate these funds is left to individual PRLs. They are used for any activity aimed at improving village life.

The grass roots level organization that the PDG was able to build through the PRL structure is valid for two reasons. First, the members of the PRL are villagers and elected by the villagers themselves; it would be fair to say that it is a democratic institution which is likely to be responsible to the needs and interests of the villagers. Of course, it may be argued that PRL bureau members must follow or at least pay lip service to the party line and party instruction. However, in practice, because of the remoteness of many villages, members of the PRL bureau have some leverage in interpreting party rules in favor of villagers' interests. Moreover, since members of the PRLs are small farmers themselves, one may assume their interests lie with those of the villagers.

In other African countries, often political leaders at the village level are at the same time traditional chiefs; combining two sources of power. In Guinea, the PDG built its power base long before independence on its long struggle against the hated traditional hierarchy. In 1957, the PDG succeeded in abolishing the traditional chieftancy. As a result, the present PRL leaders are totally separate from traditional chiefs, which probably reinforces the democratic character of the institution. When trying to implement projects aimed at reaching villages, the PRL appears to be an effective way to mobilize the population and to channel inputs and

1. Buying the party card every year is compulsory for all Guineans. The price of cards is now 70 sylis.

technical information directly to villagers. The EEC-funded project for the development of wells and springs in the Fouta Djallon is a good example of how cooperation with the PRLs can be used to implement a project. When infrastructure is completed, it is turned over to the PRL as a collective (village) infrastructure and one member of each PRL is chosen to be responsible for ensuring proper maintenance.

E. MARKETING SYSTEMS

1. Official Market Structures and Prices.

The distribution of imported and locally produced goods to official stores, processing industries and export enterprises became a government monopoly in February 1975, when the GOG abolished private trading and traditional weekly village and urban markets. Recently, private commerce has again been permitted in many commodities, but the government maintains a monopoly in strategic or basic products (cereals, peanuts, manioc, coffee and the like).

IMPORTEX, the state enterprise with monopoly rights over imports and exports including foodstuffs, places orders abroad; when goods arrive, they are sold to COFICOM, a parastatal company at the national level concerned with internal wholesale trade. COFICOM transfers merchandise to 24 national public enterprises which it controls, including inter alia, ALIMAG (imported foodstuffs), AGRIMA (imported agricultural equipment), ENISEP (imported seeds, insecticides, pesticides, and fertilizer). Goods are then distributed throughout the country by regional trading enterprises (Entreprises Regionales de Commerce: ERCs). Up-country, the network of retail stores does not go below the regional level, while in Conakry, at the

district level, there is one more level of retailing through the ECOMAs (Enterprise Commerciale d'Arrondissement).

Official marketing channels operate also from the PRL level on upwards. At this level, agricultural products corresponding to marketing quotas are collected under the responsibility of the PRL bureau committee member in charge of local economic affairs. Prices are only paid at the official government rates (see Table 4 in Annex). The ERC dispatches trucks to collect these products and warehouse them at the regional level. The ERC does not have a fleet of trucks (no more than 2 or 3 trucks are in working condition at the regional level); hence, the ERC calls upon the collective truck transport units for transporting the agricultural products. Part of the products thereby collected stay at the regional level, another part is sent to Conakry or other regions short of these commodities.

All civil service employees and parastatal salaried workers have the right to buy cereals and basic food items (cooking oil, sugar, etc.) from government stores at official prices with rationing tickets. In reality, not even Conakry has adequate supplies for the "official" buyers of cereals and basic food items. In the interior, the system does not function. The team discovered that even civil servants can no longer rely entirely on the official marketing agencies. Ironically, this situation seems to have been exacerbated by the government's liberalization of its policy towards the parallel market.

In theory also, villagers have access to basic consumer goods at official prices through the PRLs, supplied by the ERC. In practice, however, the system does not work. As in the case of food items, there is

such a shortage of officially imported consumer goods, that not even Conakry is adequately supplied. Limited amounts of these goods are sent into the interior for consumption in regional capitals. Hence, the rural population has to rely entirely on the black market or contiguous foreign, parallel markets for basic consumer goods that they need. (See Tables 4 and 5 in Annex I for parallel market prices of basic consumer goods.)

2. Parallel Market

A parallel market currently exists in villages, small towns, and urban centers. Most of the merchandise is sold in small quantities by retail merchants. Producers of foodstuffs sell directly to the consumer or to middlemen. There is also a large volume of trade where goods are transported on 8- to 10-ton capacity trucks. The prices charged by sellers in the parallel market are set by supply and demand forces. For example, grain is more expensive during the planting and growing season. Prices are generally four times more expensive than prices on the official market, a logical reflection of the parallel-to-official ratio in the money market. There are slight regional price differences due to transportation costs. Prices are lowest at the point of origin or the point of entry of the goods into Guinea. An example of domestic transportation costs is that an eight-to-ten ton cargo can be hauled from Labe to Conakry for 10,000-15,000 sylis. This amounts to less than two sylis per kg. Prices for a variety of goods sold on the parallel market are listed in Table 5 in Annex I.

The market serves domestic and international commerce. The cost of hauling 8 to 10 tons of goods from Labe to Dakar is 100,000 sylis. Fruit, vegetables, cattle, and grain are hauled to neighboring countries

where they are sold for hard currency. Guinean merchants then buy consumer goods with that currency and haul the goods back to Guinea.

There are certain risks for sellers on the parallel market. Police occasionally confiscate merchandise from retail sellers in local markets. In addition, police sometimes confiscate entire truck-loads of goods at border crossings.* More frequently, police accept bribes for allowing goods to enter and exit Guinea illegally.

F. DESCRIPTION OF AGRICULTURAL PRODUCTION IN THE TARGET AREA

1. Target Population Issues.

For reasons of logistics, the team considers it important to choose a target population which is located in a region contiguous with that of existing and planned AID projects. This area would encompass a triangular region roughly described by the three points: Labe, Kindia, Faranah. This section of the report explores the issues and justification for choosing this target area. The issues encompass four interrelated topics: 1) per capita economic production, 2) population density, 3) extent of seasonal male emigration, and 4) changing roles of women.

The target area covers three of the four geographic regions of Guinea: Lower, Middle, and Upper Guinea. Kindia is in lower Guinea, Faranah is in Upper Guinea, and the rest of the target area encompasses the Fouta-Djallon in Middle Guinea. The Fouta-Djallon is distinguished from the Kindia and Faranah regions by more depressed economic conditions and the four targeting issues apply especially to this area of Middle Guinea.

---

* These confiscated goods may then either be sold to civil servants through ERC stores or be disposed of at the whim of the police.

Economic Production

The Fouta-Djallon is considered to be an important producer of domestic animals in Guinea. The land is well suited to herding. However, because of the high population density, the Fouta-Djallon has intermediate rank in per capita cattle production. In Kindia and Faranah, per capita animal production is less important.

The Fouta-Djallon is also known for its fine production of orchard crops, especially citrus fruits. Again, because of high population density, the area has an inferior position in terms of per capita fruit production (Figure A-5). In Kindia, per capita fruit production is high and in Faranah it is low.

In cereal production, the Fouta-Djallon is not considered to be an important producer. Per capita grain production is lower than in any other region of Guinea (Figure A-1). In this regard, Kindia and Faranah have a high level of production.

Population Density

The average population density for the three geographical regions included in the target area is lower Guinea, 22 persons/km^2, middle Guinea, 23/km^2, and upper Guinea, 11/km^2. Representative population density of selected political regions in the target area is: Kindia, 20/km2, Labe, 45/km2, and Faranah, 11/km2. Although the average population density for the geographical regions masks the differences, the density of the regional centers supports the conclusion that the Fouta-Djallon has a high population density when compared to other regions of Guinea.

Out-Migration

Middle Guinea is considered to have a high rate of seasonal out-migration of male heads of household. The area from which this migration takes place is the densely populated area around Pita and Labe. Males leave to find work in other urban centers and in neighboring countries. There is no quantitative data on migration rates or length of time spent at seasonal wage labor.

Women's Role

When men leave the Fouta-Djallon to seek wage earning opportunities, the wife becomes the de facto family head, although there is some sociological evidence of a surrogate male head of household (brother-in-law, etc.) intervening in the role of protector and assisting in everyday chores and decision making. This creates additional agricultural work for the woman and gives her additional economic responsibilities.

Summary

A key justification for AID interventions in the foregoing target area is the change in women's roles resulting from seasonal emigration of male household heads. This creates extra work for the woman who is already heavily burdened with subsistence tasks during the peak work season (planting crops). The women's situation is a direct result of the agricultural and demographic conditions described above. It is the team's recommendation that AID put a high priority on the Fouta-Djallon as a target area. The problems discussed above make this area easy to justify as a primary recipient of AID assistance. As a lesser priority, AID could consider additional interventions near Faranah and Foulaya where AID

projects are currently underway. This is a two-phase approach with the first priority on projects in and around the Fouta Djallon and with later interventions in the areas of existing AID projects.

2. Description of Agricultural Production in the Target Area

a) FAPA Production

The FAPA's (Fermes Agro-Pastorales d'Arrondissement) are state collective farms operating at the district level. Their objective is to produce food for the urban population.

Inputs

In theory, government-supported inputs for a typical FAPA include: 1,000,000 sylis for buildings, 600,000 sylis for a tractor and accessories, and 40 - 65,000 sylis for the purchase of farm animals. The annual fertilizer allotment is 30 - 40 kg/ha and the fuel allotment will permit 3-4 hours of tractor time per hectare, representing approximately 29,000 sylis per annum. In reality fertilizer allotments are rarely delivered.

In reality the inputs fall far short of the plan. There are no farm buildings, farm animals, or fertilizer. About 5,000 kg of rice seed is provided, 4,000 litres of diesel, a tractor, a disc plow and a disc harrow. These inputs are provided on credit and the FAPA is expected to pay back the inputs with the equivalent value in crops. Other inputs include a motor-cycle for the director of the FAPA and a shotgun for the guard.

Yields

The yields on FAPA's, in terms of quantity harvested as compared to quantity of seed supplied are dismally low because of incorrect cultural practices. Fertilizer and pesticides are seldom if ever used. Poor water

management also contributes to low yields, as in the case of rice. Rice and maize yields are about 2-4 kg of harvested grain per kg of seed. In a brief field survey, the best yield reported was 12:1. Even this yield is considerably lower than that of independent farmers using traditional farming techniques, i.e., short handled hoe, extensive cultivation, etc. Independent farmers' yields average approximately 25:1 for rice.

Structure and Performance of Input Delivery Institutions

Agricultural machinery and equipment are maintained and provided to the FAPA's by the AGRIMA workshop systems. 90% of the shops' workload is maintaining 65 hp. diesel tractors (Roumanian manufactured). Only this model was observed working in FAPA farm fields. The shops also provided disc and disc harrows and towing trailers for the tractors.

The shops are providing Italian rice harvesters (12 hp. diesel) to the FAPA's. 700 were imported in 1978-1979. The team observed over 300 harvesters in Conakry and in Middle Guinea zone, all unused. The FAPA's are not using those allocated to them.

Few complaints were expressed by FAPA officials concerning tractor support. Apparently, AGRIMA is maintaining the tractor service. The FAPA systems are new, experiencing start-up difficulties. At the farm sites, no maintenance and operational buildings have been constructed. Field repairs of equipment will be difficult.

The FAPA's are staffed with inexperienced, recent college graduates, who are utilizing poor cultivation practices that damages the land and results in depressed crop yields. It is interesting to note that many of FAPA's difficulties are rooted in inexperienced and unmotivated

field operations staff which will require much training if the FAPA's are to be established. By contrast AGRIMA and supporting systems to FAPA includes a hard core running system, albeit it also is plagued with many difficulties but it does run.

Staffing the FAPA

In theory, the FAPA has the following staff: two agricultural specialists, three agricultural managers, two veterinary assistants, two tractor drivers, one mechanic, and six full time field workers. Additional labor is provided by agricultural faculty students and faculty drop-outs who perform a two year apprenticeship at the FAPA.

In practice, the skilled staff is much smaller than described above and skewed towards field labor provided by skilled students. There is a director, an assistant, a farm manager, an assistant manager, one or two tractor drivers, one veterinary assistant, five agricultural laborers, and 10-20 university students. There is no mechanic and the farm management and university students lack even the basic qualifications to complete rudimentary mechanized farm work. There is a small variation in staff composition among FAPAs but the foregoing is a typical description of eight FAPAs observed by the team in a large area of Guinea.

Regional Similarities and Differences

A general idea of regional similarities and differences between FAPA's is provided by the GOG's first-year plan for land and animal exploitation by regions. The breakdown of cultivated land into different crops varies regionally as follows:

	Land Area Per FAPA		
	Lower Guinea	Middle Guinea	Upper Guinea
Cereals	50 ha	30 ha	50 ha
Tubers	10	10	15
Fiber	0	0	25
Peanuts	0	0	15
Gardens	4	5	5
Orchards	20	20	15

The number of farm animals also varies by region:

	Animals Per FAPA		
	Lower Guinea	Middle Guinea	Upper Guinea
Cattle	11 head	24 head	20 head
Sheep	12	20	25
Pigs	6	0	0
Chickens	70	60	60
Beehives	0 hives	100 hives	100 hives

Rice is the most widely cultivated cereal in lower and upper Guinea. Fonio and maize have that distinction in middle Guinea. Manioc, vegetables, and peanuts are grown in all three regions.

b) FAC Production

The village level collective farm, FAC (Ferme Agricole Communale), was created in 1979 as a result of consolidation of production brigade collectives, the BMPs and BAPs. These brigades were established in 1975 and were provided with either a tractor (Brigades Mechanisees de Production, BMP) or a plow and two oxen (Brigades Attelees de Production, BAP). Communal land was set aside for these brigades in each local level party cell (Pouvoir Revolutionnaire Local, PRL) which, theoretically, was to be worked by mandatory labor ("corvees"). The government financed cultivating equipment, tools, and seed on a loan basis. Production was to be used to repay loans. Any remaining profit was allocated to the village budget for community services (schools, dispensaries).

To date, output of the BMP's and BAP's have not covered investments made in them. The team did not see a BMP, a BAP, or a FAC during the field trip. Several Guinean civil servants stated that the FAC system was abandoned shortly after it was conceived.

c) Small Farmer Production

Inputs

Independent small-scale farmers do not use mechanized inputs in their agricultural production. The peasant's main inputs are seed and subsistence labor by family members, and approximately 100 GS per year to purchase new and replacement hand tools. The amount of seed used can vary from 50-200 kg each year. A cash input was observed for two peasant families, constituting the hiring of a tractor to plow land to be planted in rice. In both cases, the cost of the cultivation was declared to be only the price of the fuel. It would appear that this may have been a moonlighting FAPA tractor. One family reported the cost to be 600 sylis. Tractor hire by peasants was only observed in the Faranah region.

Labor inputs cannot be quantified with existing data. However, available data on the agricultural calendar for commonly planted crops suggest that during the peak cultivating and planting season (April - July), availability of manpower may limit the area which a family can bring under production. All the major high calorie yielding crops (rice, peanuts manioc, maize) require land preparation at the beginning of the rainy season. This season is the time of greatest labor demand. The weeding and harvesting seasons for the major crops are more staggered and do not present a peak labor demand.

Yields

Information on crop yields for peasant farmers comes from field observations of the team and from data available in Guinea. Available data gives average crop yields in kg/ha. These are summarized in Table 3 and in figures A2, A4, and A6. Interviews of peasants provided an approximate idea of harvest yields per kg of seed. The yields are as follows (kg harvested: kg seed): Rice, 30:1; Peanuts, 12:1; Fonio, 4:1. Because regional variation in crop yields is important in Guinea, specific crop yields are discussed in detail below.

Regional Similarities and Differences

The major agricultural difference between regions is the selection of crops to be grown and the crop yields/ha. Table 3 summarizes crop yields/ha (Column C) and annual production per capita (Column D). The following remarks can be made. Rice: lower Guinea is the leading producer, upper Guinea is intermediate, and middle Guinea is a poor producer. Fonio: Middle Guinea is the leading producer, upper Guinea is intermediate, and lower Guinea produces the least. Maize: Middle Guinea is the best producer, upper Guinea is intermediate, and lower Guinea produces the least. Bananas, pineapple, and citrus: Lower Guinea is the best producer.

The agricultural calendar differs from region to region due to different beginning and ending dates of the rainy season. Figure D1 to D4 in Annex I present the extent of the rainy season for the four regions based on the 11 "graph ambrothermique." These figures describe the theoretical agricultural calendar (land clearing, plowing, seeding, weeding and harvesting) for the four regions.

Socio-Cultural Factors in Agricultural Production

Sex roles and the division of labor. In Guinea women tend to do the tedious and continuous work of garden and crop maintenance and men tend to do the heavy and intermittent work, such as clearing land and repairing houses and fences. Women also sell garden produce in local markets.

Men and boys perform the following specific tasks: land clearing, fence repair, preparing and clearing fields for crops, and building and repairing houses, and granaries. Women and older girls perform the following specific tasks: hoeing home gardens for crop planting, planting, weeding, and harvesting field crops, weeding and fertilizing home gardens, cutting and tying grass for thatch roofs.

Organization of Work. Most agricultural activities are performed by members of a nuclear family and the harvest is at their disposal. However, male members of extended families work together in clearing land and turning soil. Wives in polygamous households cooperate in planting maize and cocoyams which demands careful timing to ensure the growth of these interplanted crops.

An interesting aspect of cooperation involved womens' marketing activities. Women who sell their garden produce often sell to intermediaries on the black market. These intermediaries are often related to the gardeners and this arrangement makes the black market less risky for sellers and intermediaries.

Land tenure system. The traditional land tenure system throughout all of Guinea (except for the Fouta-Djallon) involved the usufructuary rights to land being used for cultivation or being returned to fallow. This right was inherited in the family line but did not include the right to sell or

otherwise dispose of the land. If a field were not used for crops or returned fallow, the user's rights would lapse and the chief or elder could reassign it. Therefore, no land, no matter how overgrown, was without a claimant group. It might appear to be vacant or unclaimed because the bush fallow system permits only a few years of cultivation followed by many years of fallow. During the fallow period the land reverts to bush giving the appearance of disuse. However, the claimant intends to recultivate the land after the proper fallow period. The major change in the tenure system since independence is that the PRL council (village level) now replaces the chief as the agent with the authority to reassign land.

Tenure practices in the Fouta-Djallon were formerly more hierarchical than in the rest of Guinea. Former serfs derived their cultivation rights from their masters. Although these conditions changed at independence, this change has been slow to take effect.

d) Other State Farms

Other forms of large-scale farms exist in Guinea but they are not well documented. These forms include joint ventures between the Government and foreign investors, state owned plantations, and farms run by the army and police for production of food supplies for their own uses. The team visited the Salguidia pineapple farm and processing plant and cannery, which is a model agro-industrial entity in Guinea. At the time of the visit, the canning production was slowed down because of equipment failures in the processing line.

G. CHANGES IN THE TRADITIONAL ROLE OF WOMEN IN AGRICULTURE AND MARKETING

The subsistence tasks traditionally performed by women have been described earlier. This section briefly describes 1) the role of women in processing and in marketing agricultural production, 2) the degree of independence of the women in marketing that production, and 3) the women's control over the income derived from marketing crops.

Women and older girls are expected to perform the specific tasks necessary to produce finished whole grains from harvested stalks. Men help with threshing but women perform the winnowing and hulling of rice and fonio. Women process manioc into a form that can be stored and they prepare corn for dry storage.

A portion of the crops produced in the home garden and milk obtained from cattle is consumed by the family and family and part is sold by women in local markets. When a woman decides to market something, she asks her husband's permission. However, the decision concerning the timing and quantities of specific items to be marketed is made by the woman.

The money which she receives from the sale of crops is completely at her disposal. She can use this money to buy cloth for herself or other personal items. However, her husband would also feel responsible for providing clothing for his family. Thus, it is not women's responsibility to spend market earnings on family support.

There has been little change in the woman's traditional role in agriculture and marketing. The most important change occurs in Fouta-Djallon where male family heads are migrating out of the area to seek wage-earning opportunities in cities in Guinea and in neighboring countries. When the man temporarily leaves the family, the woman becomes the de facto household head and performs extra work to make up for her husband's absence.

Exhibit II-1

DOCUMENTS REVIEWED

Sinet Canal, Jean, La Republique de Guinee, Editors Souales, Paris, 1970

Riviere, Claude, Classes et Stratifications Souales en Afrique: Le Cas Guineen, Presses Universitaires de France, Paris 1978

Rwiere, Claude, Guinea: The Mobilization of a People, Cornell U Press, 1977

International Monetary Fund, Guinea: Recent Economic Developments, 1979

Mayer, Claude, "L'Agriculture en Guinee", report prepared for the World Bank, mimeo, 1974.

FAO, "Projet de Development de l'Agriculture a Siguire" mimeo, 1979

Melon, Harold D., et al., Area Handbook for Guinea Foreign Area Studies Division, American University Press, Washington, 1975

III. ANALYSIS

A. IMPACT OF GOVERNMENT POLICIES ON AGRICULTURAL PRODUCTION

1. The FAC's.

The performance of the FAC's to date has been at a minimum disappointing. Compared to individual or family holdings, the FAC collective field is of marginal significance in area and, above all, in yields. The failure of the FAC's can be traced to a number of causes:

1) The idea of collectively cultivating a field whose produce was earmarked for the government smacks of colonial times, when similar measures were introduced.
2) For villagers it has never been clear what benefit they would gain from these activities. Therefore, they do not have any primary interest in the collective fields. As a result, collective fields are neglected and individuals avoid work in the FAC's when their day of "obligation" comes around.
3) The necessary inputs which could increase agricultural production have never been delivered to the FAC's. Furthermore, the problem of spare parts availability and general maintenance problems, have created more deadlined than operative tractors.
4) The GOG has provided only about 1100 agricultural agents to cover 2400 FAC's as technical assistants.

2. The FAPA's

The FAPA's, of which there are now about 250, have only been in existence for a year, so it is hard to evaluate them in depth. However, it seems that the FAPAs are bound to run into similar problems as the FACs, based on the team's professional judgement. Low yields and low overall production can be expected due to the following:

1) The lack of necessary inputs; the only equipment used is the tractor, a 65 hp diesel, Roumanian-built "Universal". In the absence of other agricultural inputs, the use of a tractor increases production costs, without necessarily improving yields. Moreover, because of inadequate training of agricultural technicians, tractor misuse leads to more rapid soil erosion and loss of top soil than would occur under traditional agricultural practices.
2) A predictable lack of interest by students working the FAPA's. These students are government salaried laborers; their productivity is not tied to their monthly salary. Hence, they have little incentive to increase their level of effort for increased FAPA production. Furthermore, they are university drop-outs: It is likely that they will be frustrated and bitter about being sent back to rural areas since their expectations were no doubt associated with ministerial positions in Conakry or other regional city.

3) Although we have no data to confirm such hypothesis, it would not be surprising if people working in the FAPAs supplemented their salaries through sale of part of the harvest on the side, resale of gasoline, fertilizer and the like, thereby reducing the productivity of the FAPAs. Similar diversions of goods are said to occur in state enterprises.

3. The Small Farmers

Despite repeated government campaigns to stimulate the marketing of cash and subsistence crops, agricultural production for market distribution apparently still constitutes a minor economic activity in most rural areas, once "marketing quotas" have been fulfilled, if they are fulfilled at all. (See Table 9 in Annex I for agricultural produce officially marketed). There are two main reasons for the farmers having reverted to a subsistence level of agriculture:

1) GOG agricultural policies. As discussed earlier, the GOG has little interest in encouraging an increase in small farmer production, the emphasis being on collective farms. Inputs necessary to increase production do not reach the small farmers; what few inputs are available in-country are set aside for parastatal plantations and other collective production units. Technical assistance is not available to small farmers; the concept of an extension service hardly exists. Given these conditions, agricultural practices have remained traditional and in the main, production barely keeps up with population growth in the rural areas. Considering the problems

of soil erosion and population pressures, if the present GOG policy towards the small farmer is maintained, it is likely that per capita agricultural production will fall.

2) GOG marketing policies. This stems from the government's official monopoly on the collection and marketing of subsistence and cash crops. In an attempt to do away with private traders, the government has instituted state marketing organizations and has made it illegal for peasants to sell to private traders, a measure which has been enforced by the militia, present almost everywhere in the countryside. Ideally, small farmers could sell their surplus to the government at official low prices and buy from government stores at equally low prices. The problem with government stores is that if the prices are displayed, the goods are conspicuously absent from the shelves, outside the capital city. Whatever consumer goods the country is able to import go directly to civil servants and party faithful; whatever is left goes to the urban consumers. After selling their harvest to the government, rural farmers have to turn to the black market to buy whatever they need, at prices 3 to 5 times higher than in government stores: (a situation reflecting the exchange rate on the black market: 4 times lower than the official one).

As a result, the Guinea farmer is considerably worse off than his counterpart in neighboring countries. Table 7 in Annex I compares the prices paid to the producer in Guinea and neighboring countries, using the

black market rate of exchange. On the average, the Guinean farmer receives less than half that of his neighbor for the same quantity of produce. Table 8 presents the terms of trade between paddy rice at official government prices and consumer goods on the parallel market. It costs the peasant 72 kg of paddy rice to buy a "pagne" (approximately 2x1 1/2 yards of printed cloth) for his wife,33 kg to buy himself a pair of plastic shoes. 1 kg of sugar costs him 14 kg of rice. Given this situation, it is not surprising that small farmers have lapsed into an almost complete subsistence state, marketing only what they are forced to.

For the last two years, the GOG has liberalized its policy towards the parallel market, resulting in a market boom. This is especially true for agricultural produce which is not officially marketed by the government, due to reasons of fragility and/or perishability. For these agricultural products (almost all vegetables and fruits), there are apparently no more restrictions on the parallel market. Such is not the case for the marketing of cereals and basic food crops (peanuts and manioc). There are still restrictions: theoretically, a small farmer can sell his produce directly to a consumer, but it is illegal for him to sell to an intermediary. This greatly reduces the amount of produce he can market openly on the parallel market. Furthermore, as long as an official regional marketing agency has not obtained its "marketing quota" for agricultural products, cereals and basic food crops appearing on the parallel market can be confiscated. Thus, the parallel market, with prices 3 to 5 times higher than the official prices, could provide a production incentive to farmers. However, because of existing market restrictions, the quantities of goods that can be

absorbed remain limited. This situation does not create a climate for incentives that could induce production surpluses.

B. IMPACT OF AGRICULTURAL AND MARKETING POLICIES ON THE RURAL POOR

Two agricultural policies affect the welfare of the rural poor. First, the government "norms", agricultural production tax, compels the peasant to produce more food on his already limited means. However, the government provides no inputs to help him achieve this. It is uncertain how effective the government has been in extracting agricultural production from the small farmers. Thus it is not possible to assess this impact with certainty.

The second impact is in relation to the GOG policy concerning the FAPA. The government intends to resettle peasant populations around FAPAs, which are seen as embryonic state collective farms which can be expanded to a much larger size. It is difficult to imagine how the government could possibly achieve this goal without military force. The peasant is a much better farmer than the FAPA staff, so there is no incentive to use FAPA techniques, and even less incentive to resettle around the FAPA.

In addition to the foregoing, it appears from field observations that the GOG has taken some of the best agricultural land and set it aside for the FAPAs. The team strongly suspects that the government expropriated the peasants' best lands in order to create FAPA's. If this is in fact the case, the creation of FAPAs has forced the peasants affected to cultivate more marginal land. In such a case, the small farmers' yields on agricultural inputs (labor and seed) would have decreased as a result of creating the FAPA. On the other hand, it should be noted that FAPAs still represent only a very small proportion of total land under cultivation in Guinea, and that creation of new FAPAs has been suspended pending "consolidation of the esisting ones. Hence the current threat to small farm holdings is limited.

The GOG's market and incentive policy, described earlier, has had creation of new FAPAs has been suspended pending "consolidation" of the existing ones. Hence, the current threat to small farm holdings is limited. a considerable impact on the welfare of the rural poor. As noted above, the lack of market incentives has left the peasant no option but subsistence farming. Without freely accessible markets to convert agricultural surpluses into cash, there is no incentive to produce agricultural surpluses. In addition, there are virtually no consumer goods available which might be adjuncts of a higher standard of living. Even on the parallel market there are no radios or bicycles for sale in the interior of Guinea. Without access to a cash economy, the small farmer has no way to raise his level of living by cash crop production. Therefore, current GOG marketing policies are causing a stagnation in the peasant's standard of living which remains at the subsistence level.

C. ASSESSMENT OF AGRICULTURAL TRAINING, RESEARCH, AND EXTENSION

Analysis of the educational sector pertaining to agricultural institutions is problematic. This is due to the lack of reliable agricultural and educational statistics. Further, the GOG is unable to provide quantative and qualitative information concerning the organizational layout of these systems (number of institutions, students, curricula). Due to time constraints, the team was unable to perform to its complete satisfaction, a technical analysis of the training institutions and the links between research-education institutions and agricultural/pastoral producers.

This section is limited to observations of the places and institutions visited by the team, including dialogues with GOG officials. Visual inspection was conducted but limited due to a certain inflexibility in our official GOG program. GOG officials were unable to resolve programmatic

conflicts concerning the respective fields of interest of team members. The team was consistently shown GOG parastatal undertakings and FAPA collectives although closer contact with the small farmers, students and villagers was requested.

1. National Agricultural Research Institute (INRAF) and Faculty of Agronomy at Foulaya

The institute is considered the foremost agricultural research institute in Guinea. The team was disappointed by the low level of academic sophistication. Scientific tests observed were sophmoric and inadequately designed, there is a need for TA in research methods, design, agronomy, horticulture, and in cultural practices necessary for intensive production in the tropical climatic conditions of Guinea.

The staff and professors have been trained in Eastern bloc countries or by Eastern bloc technical assistance in Guinea. Their training in cultural practices and methods, observed field trials, and irrigation lay-out and techniques reflects primarily temperate zone practices which are inappropriate for Guinea. Projects observed included varietal trials, fertilizer response, water requirements and line breeding. These were all inadequate in size, scope, and control to meet the minimum needs of scientific research.

The faculty is required to produce food crops and to attain full staff self-sufficiency in all food items. This is too much of a burden for the professors, in addition to their duties of teaching. The professional faculty staff were enthusiastic but are hampered in upgrading their professional skills due to a near total lack of text books and an absence of contacts between this institution and other research organizations in Guinea

and West Africa. They receive no trade journals, magazines or scientific publications. To compound their problems, Guinea has no international scientific organizations. It is reported that Guinea has recently joined WARDA and SAFGRAD.

The low level of competency of the staff is evidenced by the conditions of the test sites and fields under cultivation. The irrigation system was incorrectly installed and badly maintained. The flow of irrigation water was observed in some areas to run down hill between rows of corn on a 6 degree slope. This leads to loss of top soil at the approximate rate of 20 metric tons per acre per year.

The staff confided in the team that necessary inputs, i.e., seeds, fertilizers, insecticides, pesticides etc. were either unavailable when needed or never delivered. The staff anticipated that three of the seven trainees selected to undergo training in the U.S. at the M.S. level, may be posted to this institution. However, this decision has not been made and the three returnees are now in Conakry. We were able to interview two of the returnees and found them to be quite capable to conduct scientific tests in their respective fields.

It is the team's opinion that the addition of the returnees to this facility would greatly enhance teaching and research capabilities.

2. Faranah Agricultural College and Tindo Demonstration Farm

While there are some agricultural agents in Guinea--mostly assigned to work with collective farms--there is no extension service linking farmers to government services and information. Technical Assistance assistance planned for the FAF/Tindo complex could form the nucleus for instituting service.

Discussion with the faculty at FAF indicated that the basic

concept of Education/Research/Extension as the heart of agricultural development is not understood in Guinea. The concept of extension, down to and including the peasant farmer, is not envisioned or planned by the faculty. The staff were adamant in addressing the political goals of the GOG, i.e., the collectivization of all agricultural activities throughout Guinea. They assert that extention should only be concerned with the current vehicle for agricultural collectivization, the FAPA.

The wide divergence between this approach and our concept of agricultural extension and will have to be addressed at the highest GOG levels as pointed out in the Agricultural Production Capacity and Training project evaluation, evaluation plan, and throughout the body of this report.

3. Technical Analysis of Links Between Education-Research Institutions and Agricultural and Pastoral Producers

The main agricultural research institution in Guinea is at Foulaya. Faranah college is also charged with an agricultural research function. Other agricultural teaching institutions exist but do not currently have research programs.

Each research institution is semi-autonomous in theory. There are no formal communication links between them. There is no program of publishing research results. This has led to a duplication of effort in applied research. This is also due to a lack of coordination and planning at the national level. The unpublished research results which presently exist are not shared among other institutions.

In addition to the lack of a systematic and organized research effort, there is no understanding of the two-way information link between research-education and producers via an extension service as known in the U.S.

IV. CONCLUSION

A. DIFFICULTIES OF PROJECT AIMED AT INCREASING AGRICULTURAL PRODUCTION

Eighty percent to eighty-five percent of the population of Guinea is composed of rural farmers working on small land holdings and producing most of Guinea's food crops (83%). The production by units other than small individual farms (17% of total agricultural production) is either marginal (FAPA's, FAC's, state farms) or enclave production for exports or for processing industries.

Projects aimed at increasing agricultural production should therefore focus on increasing production of the small farmer. However, the GOG, following President Sekou Toure's philosophy, has put all its efforts on collective rather than individual production. It appears that the GOG has no intention to make available the necessary inputs to increase agricultural production of the small farmer. Even if this were its intention, the GOG would still have considerable problems delivering these inputs to the small farmer for the following reasons:

1) most of these inputs would have to be imported (fertilizers, insecticides, and pesticides). The GOG is faced with acute shortage problems of foreign exchange, needed to acquire those inputs. Moreover, importing agricultural inputs is not a GOG priority; other imports take precedence. Generally speaking,

investments in agriculture do not match the interest claimed by official circles in developing this sector: other sectors have priority over the agricultural sector for investments.

2) the distribution network required to deliver these inputs, if they were available, does not exist.

Other crucial factors for the success of projects aimed at increasing agricultural production are:

1) the necessity of having a well-developed extension service. At the present time, no extension service exists in Guinea, and the concept itself of an extension service is not understood.

2) the necessity of having solid agricultural research and well-trained technicians. If anything, agricultural research in Guinea is still in an embryonic stage and agricultural technicians are inadequately trained.

Finally, and this may be the most crucial problem, small farmers will adopt new technologies and new ideas only if they can increase their income per investment unit as compared to their present level of income per investment unit. As previously explained, two marketing systems coexist: The official marketing channel, with official government prices, and the parallel market with prices about 4 times higher than the official ones. To a large extent, the farmer is compelled to sell most of his surplus to the government marketing organization, leaving only limited quantities available for the parallel market. Under these conditions, an increase in the farmer's marketable surplus does not lead to an increase in his purchasing power substantial enough to make worthwhile his extra labor.

B. PROBLEM FOR PROJECT DESIGN

Considering the broad goal of increasing the rural population's standard of living, one of the ways to achieve this goal is through the small farmer: increasing his production, so as to increase the surplus that he can sell, enabling him to buy the goods and services he desires.

The problem is that this surplus, because of the unfavorable terms of trade between agricultural produce and consumer goods, does not lead to an increased purchasing power.

Therefore, even if we could succeed in raising small farmer agricultural production, there is no guarantee that it would lead to an increase in rural welfare.

Other donor agencies (World Bank, FAO), recognizing the importance of the problems of incentives, have proposed in their projects either one of the following alternatives:

1. The farmer sells his production at low prices to official government channels, but in return, he is guaranteed to find in government stores the goods and the agricultural inputs he needs at equally low prices. Such is the case of the IFED Siguiri Rice Development project and the World Bank Rice Development Project in Gueckedou which are just getting underway.

2. The government subsidizes prices paid to producers to make them competitive with the parallel market. For example in the Cotton Development Project (region of Siyuri-Kankar), the EEC obtained agreement that the price to the producer be 25 sylis/kg instead of the official 5 sylis/kg.

If such measures prove to be successful, leading to an increase in the quantities of agricultural products marketed by the small farmer, the GOG will have evidence that such measures will pay off in the long run. The GOG may then find it advantageous to continue the same policy, even after the donor's involvement in the project is over, and hopefully adopt these policies in its overall agricultural development strategy. However, it is the team's opinion that AID should not get involved in projects aimed directly at increasing large-scale agricultural production, until the results of the EEC and World Bank projects are known and the above hypotheses are verified.

C. PROSPECTS FOR MEANINGFUL USG/GOG FUTURE COLLABORATION IN THE AGRICULTURAL SECTOR

Given Guinea's particular situation, the team proposes that AID focus on projects which would increase the standard of living of small farmers but not directly increase agricultural production available for official sur-taxing and marketing. Projects affecting the rural poor's quality of life would be in the following domain: clean water supply, health, nutrition, housing, soil conservation, small plot vegetable gardening, etc.

ANNEX I

TABLE 1

Distribution of Size of Land Holdings
(Agricultural Census 1975)

REGIONS	- 1 ha		1 a 2 ha		2 a 5 ha		5 a 20 ha		+ 20 ha	
	A%	B%	A%	B%	A%	B%	A%	B%	A%	B%
LOWER GUINEA										
BOFFA	11	34	28	36	48	28	11	2	2	-
BOKE	29	52	39	35	27	12	5	1	1	-
FORECARIAH	10	33	25	33	46	28	19	6	1	-
FRIA	5	16	30	42	55	39	10	3	-	-
DUBREKA	12	36	29	33	52	29	7	2	1	-
KINDIA	22	51	35	32	38	14	5	3	-	-
TELIMELE	22	42	42	40	35	17	3	1	-	-
CONAKRY	5	12	46	54	46	33	3	1	-	-
MIDDLE GUINEA										
LABE	41	69	43	25	15	6	1	-	-	-
DALABA	39	70	27	19	27	10	7	1	-	-
GACUAL	34	70	26	18	35	11	5	1	-	-
KOUNDARA	7	26	16	31	37	32	24	10	16	1
MALI	30	62	35	27	30	10	5	1	-	-
MAMOU	25	57	43	31	30	12	2	-	-	-
PITA	23	53	30	28	34	16	13	3	-	-
TOUGUE	24	44	48	43	22	12	6	1	-	-
UPPER GUINEA										
DABOLA	5	12	32	53	47	31	16	4	-	-
FARANAH	5	17	21	37	51	40	21	6	-	-
KANKAN	4	27	9	20	35	33	52	20	-	-
SIGUIRI	5	23	18	31	51	38	26	8	-	-
KOUROUSSA	10	40	23	27	44	29	23	4	-	-
KEROUANE	11	36	43	46	34	15	12	3	-	-
DINGUIRAYE	7	24	21	28	68	47	4	1	-	-
FOREST GUINEA										
BEYLA	12	19	39	48	37	28	12	5	-	-
GUECKEDOU	15	36	31	39	33	20	21	5	-	-
KISSIDOUGOU	1	6	16	32	57	53	25	9	-	-
MACENTA	9	27	38	47	34	21	19	5	-	-
N'ZEREKORE	8	23	32	42	51	32	9	3	-	-
YOMOU	12	28	39	45	37	24	13	3	-	-

A - Percentage of land holdings in relation to total area cultivated.

B - Percentage of land holdings in relation to number of family heads.
Ex.: In Boffa, 11% of the land under cultivation is divided into holdings of less than one ha, and is controlled by 34% of family heads.

TABLE 2

Trend in Agricultural Production (expressed in 1000 TM)
and Yields in 1975

	1960/69	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	Yields 1975 T/ha
Cultures Vivrieres												
Riz (paddy)	311	420	400	-	360	422	391	426	320	366	348	0.80
Mais	77	50	48	-	62	68	68	68	33	62	47	1.15
Fonio	68	70	72	73	75	74	74	75	52	68	69	0.50
Sorgho et Mil	7	8	8	7	6	5	5	5	3	4	4	0.12
Manioc	437	525	480	-	-	700	554	616	380	117	88	1.3
Patates douces	78	95	100	-	64	69	69	71	71	-	-	-
Ignazes	-	-	-	-	52	36	56	57	58	-	-	-
Taro	-	-	-	-	-	29	29	29	30	-	-	-
Citrus et Legumes	88	-	100	-	-	108	114	110	115	-	-	-
Cultures Commerciale												
Arachide	17	20	20	-	72	79	77	80	25	82	82	0.65
Bananes et Plantains	75	60	33	-	90	95	95	96	97	98	98	4.50
Ananas	15	30	19	-	90	20	20	20	20	146	147	10.00
Cafe	13	23	30	-	13	14	14	14	14	14	14	0.33
Palmistes	27	32	32	-	-	30	40	40	12	-	-	-
Brigadue de Production												
Riz (paddy)	-	-	-	-	-	-	23	137	212	-	-	-
Manico	-	-	-	-	-	-	26	92	130			
Arachide	-	-	-	-	-	-	4	21	37	-	-	-

Sources: World Bank and IMF for years 1960 to 1977.
Data provided by the Guinean authorities for years 1978-1979 and for the yields.

TABLE 3

Statistics on Agricultural Production
(based on 1975 agricultural survey)

A. Average in 1000 ha
B. Production 100 metric tons
C. Yields (t/ha)
D. Production per capita (kg per year)

REGIONS ADMINISTRATIVES		RIZ				FONIO				MAIS				GRAINS TOTAUX (y compris sorgho et mil)		
		A	B	C	D	A	B	C	D	A	B	C	D	A	B	D
LOWER GUINEA	BOFFA	11,10	14,99	1,35	168	4,00	2,00	0,50	22	0,20	0,23	1,15	3	15,30	17,22	193
	BOKE	13,75	20,01	1,46	138	6,15	3,08	0,50	21	0,45	0,52	1,16	4	20,35	23,61	163
	FORECARIAH	14,65	15,02	1,03	141	3,20	1,60	0,50	15	0,60	0,69	1,15	6	18,45	17,31	162
	FRIA	3,75	0,99	0,26	28	2,49	1,25	0,50	36	0,10	0,12	1,20	3	6,34	2,36	67
	DUBREKA	13,70	10,00	0,73	82	4,39	2,20	0,50	18	0,27	0,31	1,15	3	18,36	12,51	103
	KINDIA	20,05	27,97	1,40	176	5,85	2,93	0,50	18	1,24	1,43	1,15	9	27,14	25,33	203
	TELIMELE	18,69	4,11	0,22	24	5,15	2,58	0,50	15	1,85	2,13	1,15	12	25,69	8,82	51
	CONAKRY	8,50	9,99	1,18	205	2,15	1,08	0,50	22	0,78	0,90	1,15	18	11,43	11,97	245
MIDDLE GUINEA	LABE	1,89	1,04	0,55	4	15,47	7,74	0,50	26	6,84	7,87	1,15	27	24,20	16,65	57
	DALABA	7,19	2,98	0,41	23	8,27	4,14	0,50	32	2,34	2,69	1,15	21	17,80	9,81	76
	GACUAL	10,10	11,41	1,13	97	5,59	2,80	0,50	24	1,90	1,90	1,15	19	17,59	16,40	140
	KOUNDARA	19,10	6,47	0,34	101	4,71	2,36	0,50	37	3,25	3,25	1,15	58	34,06	12,57	196
	MALI	8,60	3,01	0,35	18	10,00	5,00	0,50	29	3,55	3,55	1,15	24	22,15	12,09	71
	MAMOU	8,95	2,82	0,32	16	8,60	4,30	0,50	25	3,00	3,00	1,15	20	20,55	10,57	61
	PITA	6,58	2,99	0,45	16	10,96	5,48	0,50	29	5,34	5,34	1,15	33	22,88	14,61	78
	TOUGUE	4,00	1,16	0,29	13	5,16	2,58	0,50	28	1,85	1,85	1,15	23	11,01	5,87	64
UPPER GUINEA	DABOLA	10,38	6,28	0,61	82	4,54	2,27	0,50	29	0,52	0,60	1,15	8	15,44	9,15	119
	FARANAH	18,20	17,29	0,95	143	5,75	2,88	0,50	24	2,12	2,44	1,15	20	26,07	22,61	187
	KANKAN	28,70	16,93	0,59	109	11,14	5,57	0,50	36	3,50	4,03	1,15	26	43,34	26,53	171
	SIGUIRI	29,90	14,50	0,48	68	6,43	3,22	0,50	15	5,87	6,75	1,15	32	42,20	24,47	115
	KOUROUSSA	13,67	7,72	0,56	79	5,40	2,70	0,50	28	1,49	1,71	1,15	17	20,56	12,13	124
	KEROUANE	3,15	5,50	1,74	148	2,31	1,16	0,50	31	0,35	0,40	1,14	11	5,81	7,06	190
	DINGUIRAYE	11,00	8,53	0,78	89	4,00	2,00	0,50	21	4,90	5,64	1,15	59	20,90	16,17	169
FOREST GUINEA	BEYLA	25,00	27,00	0,93	145	4,55	2,28	0,50	12	1,03	1,18	1,15	6	30,58	30,46	163
	GUIECKEDOU	23,45	26,62	1,14	160	-	0,00	0,50	-	1,27	1,46	1,15	9	24,72	28,08	169
	KISSIDOUGOU	37,80	31,56	0,83	196	1,80	0,90	0,50	6	0,74	0,85	1,15	5	40,34	33,31	207
	MACENTA	20,55	21,27	1,04	156	0,37	0,19	0,51	1	0,96	1,10	1,15	8	21,88	22,56	165
	N'ZEREKORE	21,95	27,55	1,26	154	-	0,00	0,51	-	2,28	2,62	1,15	15	24,23	30,17	169
	YOMOU	10,48	21,27	2,03	329	-	0,00	0,51	-	0,25	0,29	1,16	5	10,73	21,56	334
	BRIGADES	33,80	6,32	0,19	-	-	-	-	-	-	-	-	-	33,80	6,32	-
	TOTALS	468,43	373,30	-	-	148,42	74,29	-	-	58,84	67,69	-	-	683,69	508,28	-
	AVERAGES	-	-	0,80	107,17	-	-	0,50	20,66	-	-	1,15	17,38	-	-	145

Table 3 continued

A. Average in 1000 ha
B. Production 1000 metric tons
C. Yields (t/ha)
D. Production per capita (kg per year)

REGIONS ADMINISTRATIVES		ARACHIDES				MANIOC (SEC)				CAFE				DIVERS			
		A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
LOWER GUINEA	BOFFA	5,80	3,77	0,65	42	1,05	0,12	0,11	1	-	-	-	-	0,45	3,24	7,20	26
	BOKE	4,85	3,15	"	22	2,25	0,27	0,12	2	-	-	-	-	1,00	7,20	7,20	48
	FORECARIAH	3,36	2,18	"	20	1,59	0,19	"	2	-	-	-	-	0,72	5,40	7,50	40
	FRIA	2,75	1,79	"	51	0,58	0,07	"	2	-	-	-	-	0,18	1,30	7,22	28
	DUBREKA	5,85	3,80	"	31	1,05	0,12	"	1	-	-	-	-	0,41	2,95	7,20	24
	KINDIA	9,06	5,89	"	37	3,20	0,38	"	2	-	-	-	-	1,20	8,64	7,20	46
	TELIMELE	3,95	2,57	"	15	3,00	0,35	"	2	-	-	-	-	1,25	9,00	7,20	52
	CONAKRY	2,15	1,27	"	26	1,25	0,15	"	3	-	-	-	-	0,27	1,94	7,19	3
MIDDLE GUINEA	LABE	5,58	6,63	"	12	4,81	0,57	"	2	-	-	-	-	1,85	13,33	7,20	38
	DALABA	2,59	1,68	"	13	3,60	0,42	"	3	-	-	-	-	1,85	6,34	7,20	57
	GACUAL	6,32	4,11	"	35	1,66	1,20	"	2	-	-	-	-	0,35	2,52	7,20	25
	KOUNDARA	4,13	2,68	"	42	2,25	0,27	"	4	-	-	-	-	0,49	3,53	7,20	54
	MALI	3,25	2,11	"	12	1,33	0,16	"	1	-	-	-	-	0,60	4,32	7,20	29
	MAMOU	4,20	2,67	"	16	1,58	0,19	"	1	-	-	-	-	0,98	7,06	7,20	53
	PITA	2,35	1,58	"	8	5,70	0,67	"	4	-	-	-	-	0,91	6,55	7,20	37
	TOUGUE	3,22	2,09	"	23	1,22	0,14	0,11	2	-	-	-	-	0,42	3,02	7,19	33
UPPER GUINEA	DABOLA	3,63	2,36	"	31	1,10	0,13	0,12	2	-	-	-	-	0,10	0,72	7,20	9
	FARANAH	4,86	3,16	"	26	2,50	0,30	"	2	0,27	0,09	0,33	0,7	0,55	3,96	7,20	29
	KANKAN	8,23	5,35	"	35	9,55	1,13	"	7	-	-	-	-	1,62	11,66	7,20	44
	SIGUIRI	8,84	5,75	"	27	5,89	0,70	"	3	-	-	-	-	1,23	8,86	7,20	63
	KOUROUSSA	3,13	2,03	"	21	2,73	0,32	"	3	-	-	-	-	0,30	2,16	7,20	21
	KEROUANE	0,46	0,30	"	8	1,80	0,21	"	6	0,15	0,05	0,33	0,8	0,20	1,44	7,20	24
	DINGUIRAYE	6,36	4,13	"	43	3,10	0,37	"	4	-	-	-	-	0,49	3,53	7,20	32
FOREST GUINEA	BEYLA	3,27	2,13	"	11	4,80	0,57	"	3	0,64	0,21	0,33	1,5	1,22	8,78	7,20	68
	GUIECKEDOU	1,06	0,69	"	4	2,38	0,28	"	2	9,76	3,17	0,32	18	0,45	3,24	7,20	18
	KISSIDOUGOU	3,60	2,34	"	15	2,60	0,31	"	2	15,43	5,01	0,32	31	0,85	6,12	7,20	38
	MACENTA	2,54	1,65	"	12	1,10	0,13	"	1	6,20	2,02	0,33	144	0,40	2,88	7,20	20
	N'ZEREKORE	2,20	1,43	"	8	4,42	0,52	"	3	7,12	2,31	0,32	8	0,57	4,10	7,19	14
	YOMOU	0,41	0,27	0,66	4	1,05	0,12	0,11	2	3,35	1,09	0,33	15	0,18	1,30	7,22	18
	BRIGADES	3,49	2,27	0,65	-	8,04	0,95	0,12	-	-	0,00	0,00	-	0,28	2,02	7,21	-
	TOTALS	121,19	78,78	-	-	87,18	10,31	-	-	12,92	13,95	-	-	20,33	47,10	-	-
	AVERAGES	-	-	0,65	27,44	-	-	0,12	2,53	-	-	-	3,38	-	-	6,71	37

Table 3 continued

A. Average in 1000 ha
B. Production 100 metric tons
C. Yields (t/ha)
D. Production per capita (kg per year)

	REGIONS ADMINISTRATIVES	BANANE				ANANAS				AGRUMES et AUTRES FRUITS				FRUITS TOTAUX			
		A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
LOWER GUINEA	BOFFA	0,8	3,60	4,5	40	0,75	1,88	2,51	4	1,25	16,25	13	134	2,80	21,73	20,01	178
	BOKE	1,28	5,76	4,5	40	1,09	2,73	2,50	19	2,95	38,35	13	257	5,32	46,84	20,00	316
	FORECARIAH	1,26	5,67	4,5	53	0,72	1,80	2,50	17	2,00	26,00	13	196	3,98	33,47	20,00	266
	FRIA	0,25	1,13	4,62	32	0,15	0,38	2,53	11	1,35	17,55	13	390	1,75	19,06	20,05	433
	DUBREKA	0,72	3,24	4,50	26	0,53	1,33	2,51	11	1,18	15,34	13	126	2,43	19,91	20,01	163
	KINDIA	1,85	8,33	4,50	53	1,40	3,42	2,44	22	2,85	37,05	13	206	6,10	48,80	19,94	281
	TELIMELE	1,25	5,72	4,58	33	0,95	2,38	2,51	14	2,72	35,36	13	208	4,92	43,46	20,09	255
	CONAKRY	0,52	2,34	4,50	48	0,39	0,98	2,51	20	0,66	8,58	13	15	1,57	11,90	20,01	83
MIDDLE GUINEA	LABE	0,42	1,89	4,50	6	0,30	0,75	2,50	3	2,23	28,99	13	84	2,95	31,63	20,00	93
	DALABA	0,16	0,72	4,50	6	0,26	0,65	2,50	5	0,74	9,62	13	87	1,16	10,99	20,00	98
	GACUAL	0,33	1,49	4,52	13	0,28	0,70	2,50	6	0,65	8,45	13	86	1,26	10,64	20,02	105
	KOUNDARA	0,20	0,90	4,50	14	0,16	0,40	2,50	6	0,71	9,23	13	142	1,07	10,53	20,00	162
	MALI	0,16	0,72	4,50	4	0,15	0,38	2,53	2	0,58	7,54	13	52	0,89	6,64	20,03	58
	MAMOU	0,48	2,16	4,50	13	0,31	0,78	2,52	5	1,40	18,20	13	137	2,19	21,14	20,02	155
	PITA	0,75	3,38	4,51	18	0,56	1,40	2,50	7	1,43	18,59	13	106	2,74	23,37	20,01	131
	TOUGUE	0,14	0,63	4,50	7	0,15	0,38	2,53	4	0,25	3,25	13	36	0,54	4,26	20,03	47
UPPER GUINEA	DABOLA	0,70	0,32	4,60	4	0,16	0,40	2,50	5	0,17	2,21	13	29	1,03	2,93	20,10	38
	FARANAH	0,16	0,72	4,50	6	0,34	0,85	2,50	7	0,55	7,15	13	52	1,05	8,72	20,00	65
	KANKAN	0,59	2,66	4,50	17	1,35	3,38	2,50	22	1,85	24,05	13	91	3,79	30,09	20,00	130
	SIGUIRI	0,54	2,43	4,50	11	0,80	2,00	2,50	9	1,84	23,92	13	171	3,18	28,35	20,00	191
	KOUROUSSA	0,15	0,68	4,53	7	0,21	0,53	2,52	5	0,76	9,10	11,97	89	1,12	10,31	19,02	101
	KEROUANE	0,11	0,50	4,55	13	0,60	0,15	2,50	4	1,33	17,29	13	288	2,04	17,94	20,05	305
	DINGUIRAYE	0,35	1,58	4,51	17	0,45	1,13	2,51	12	0,75	9,75	13	89	1,55	12,46	20,02	118
FOREST GUINEA	BEYLA	1,75	7,88	4,50	42	0,55	1,38	2,51	7	1,48	19,24	13	137	3,78	28,50	20,01	186
	GUECKEDOU	1,27	5,72	4,50	34	1,25	3,13	2,50	19	0,96	12,48	13	72	3,48	21,33	20,00	125
	KISSIDOUGOU	1,13	5,09	4,50	32	0,32	0,80	2,50	5	0,75	9,75	13	60	2,20	15,64	20,00	97
	MACENTA	2,20	9,90	4,50	73	0,19	0,48	2,53	4	0,49	6,37	13	45	2,88	16,75	20,11	122
	N'ZEREKORE	1,80	8,10	4,50	45	0,29	0,73	2,52	4	1,02	13,26	13	46	3,11	22,09	20,02	95
	YOMOU	0,37	1,67	4,51	26	0,50	0,13	2,60	2	0,16	2,08	13	29	1,03	3,88	20,11	57
	BRIGADES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TOTALS	21,07	94,93	-	-	14,17	35,43	-	-	35,06	455,00	-	-	71,91	585,36	-	-
	AVERAGES			4,50	25,28			2,51	9			12,96	119,28			19,99	253,29

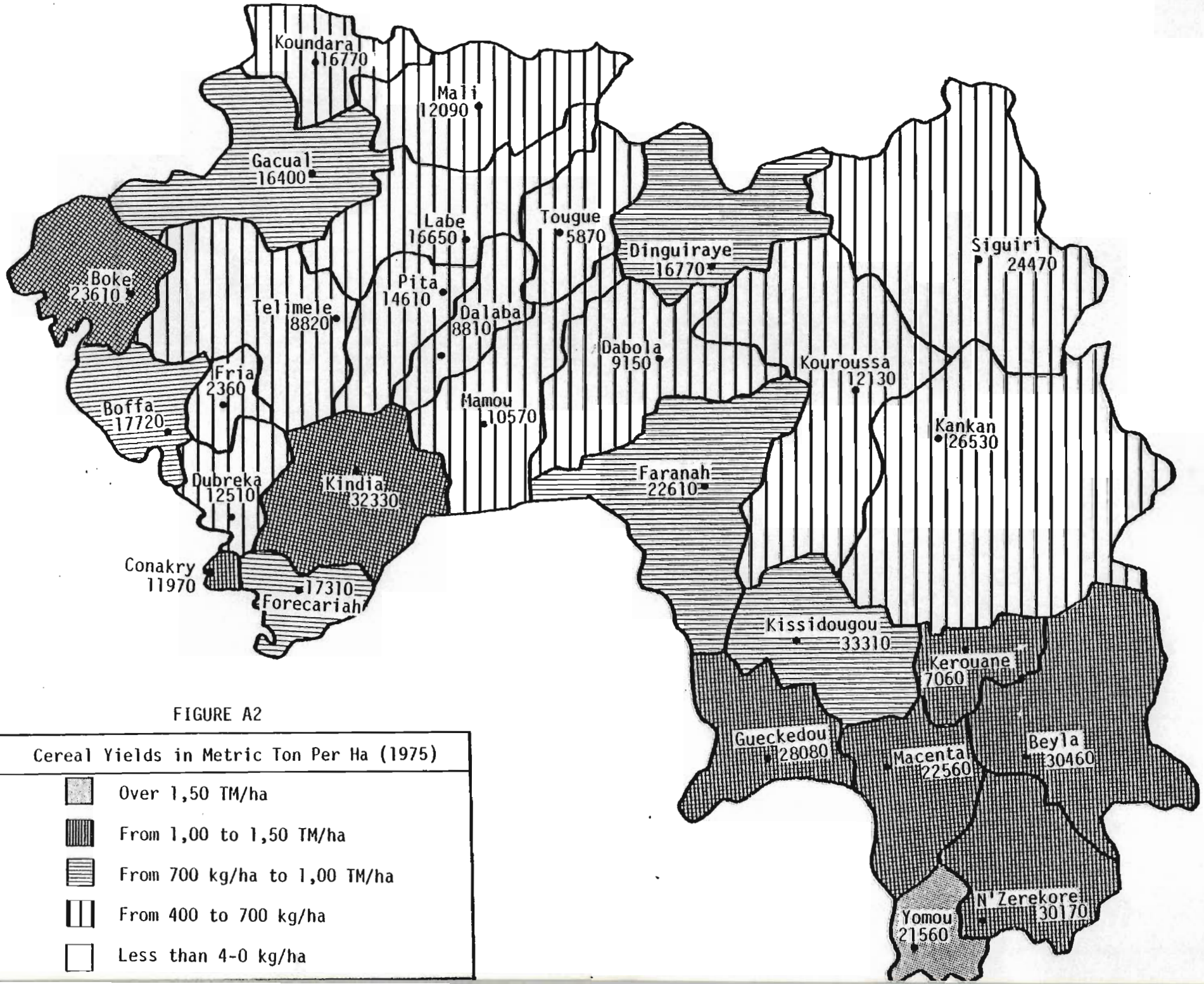


FIGURE A2

Cereal Yields in Metric Ton Per Ha (1975)
Over 1,50 TM/ha
From 1,00 to 1,50 TM/ha
From 700 kg/ha to 1,00 TM/ha
From 400 to 700 kg/ha
Less than 4-0 kg/ha

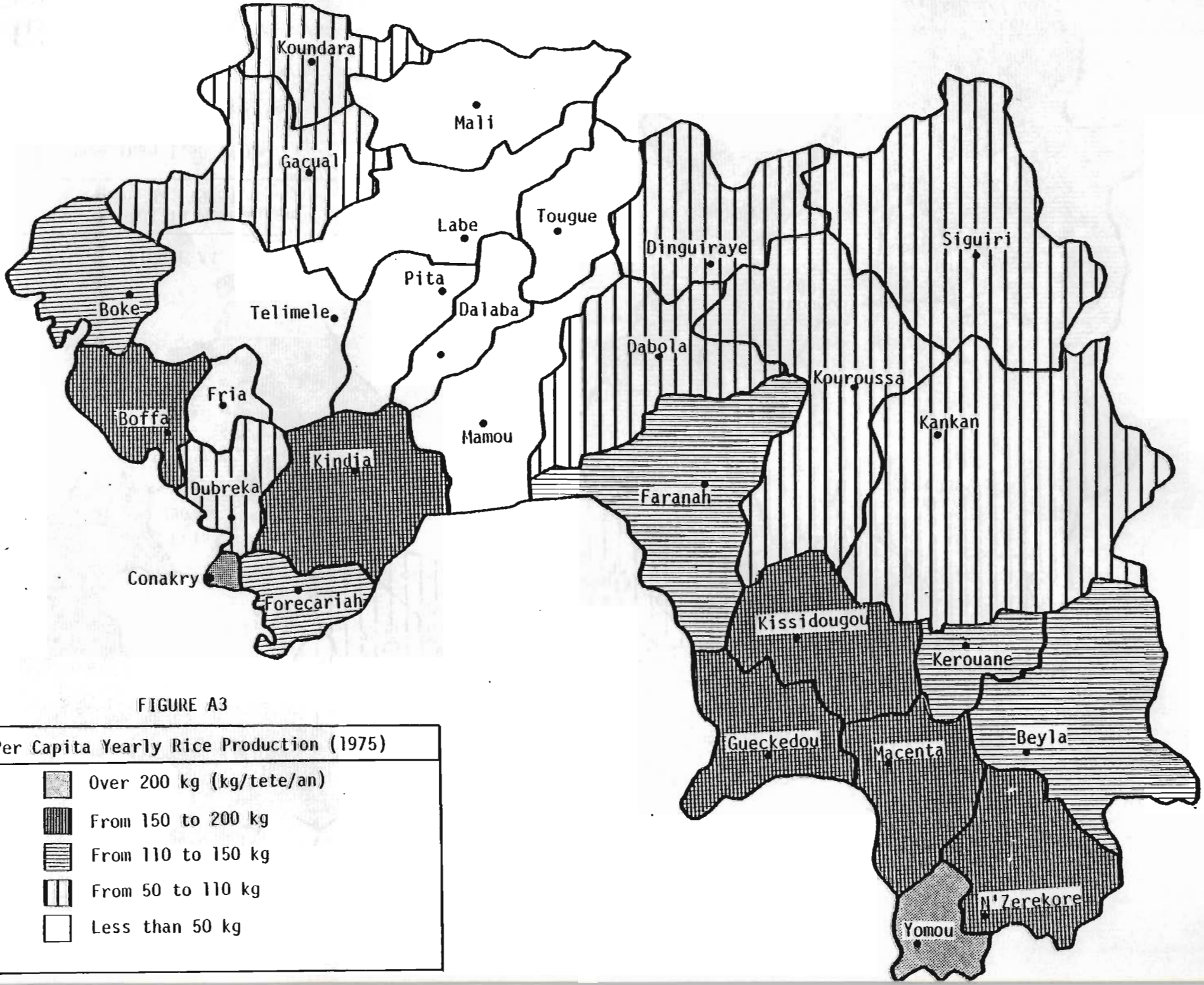


FIGURE A3

Per Capita Yearly Rice Production (1975)

- Over 200 kg (kg/tete/an)
- From 150 to 200 kg
- From 110 to 150 kg
- From 50 to 110 kg
- Less than 50 kg

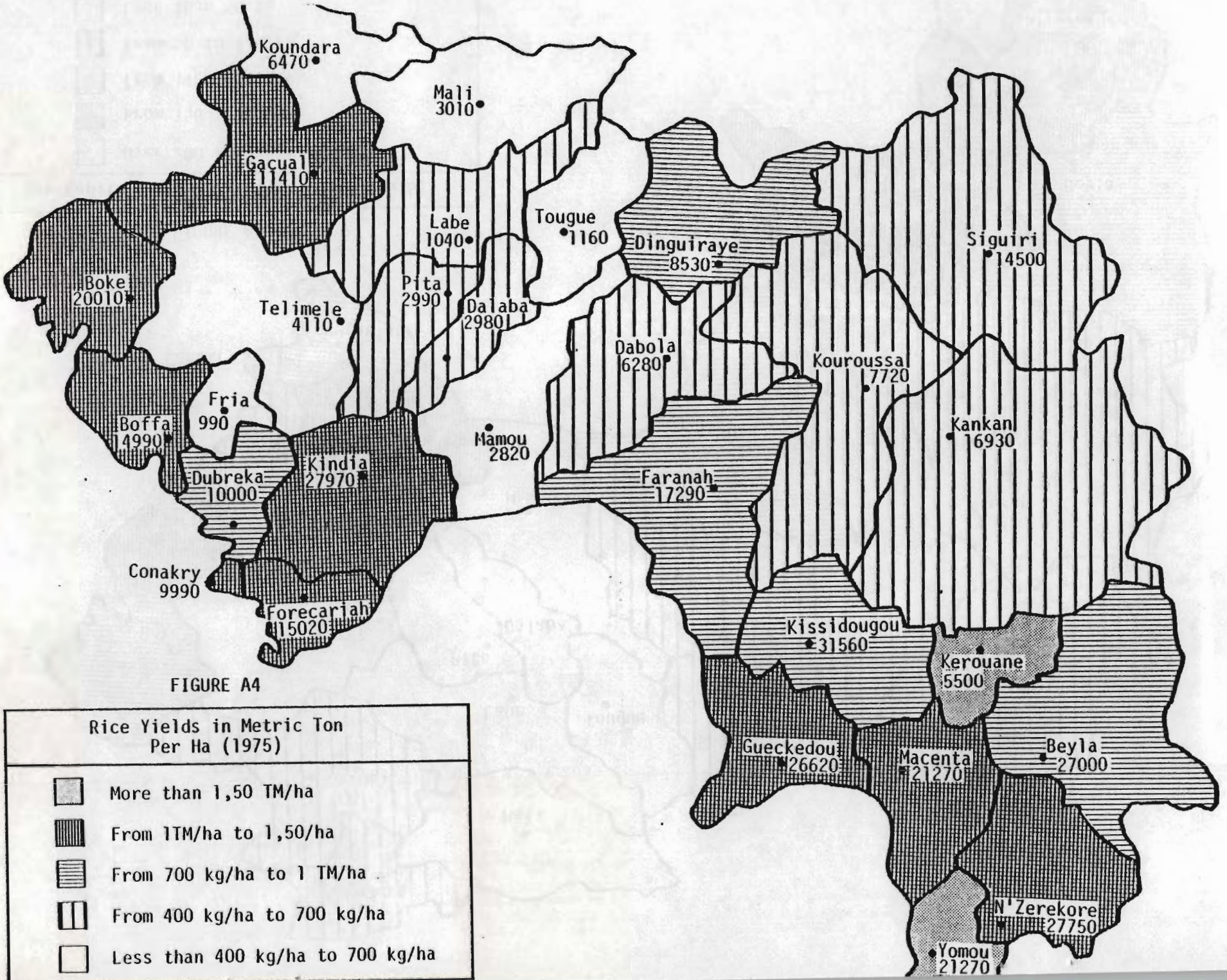


FIGURE A4

Rice Yields in Metric Ton Per Ha (1975)

- More than 1,50 TM/ha
- From 1TM/ha to 1,50/ha
- From 700 kg/ha to 1 TM/ha
- From 400 kg/ha to 700 kg/ha
- Less than 400 kg/ha to 700 kg/ha

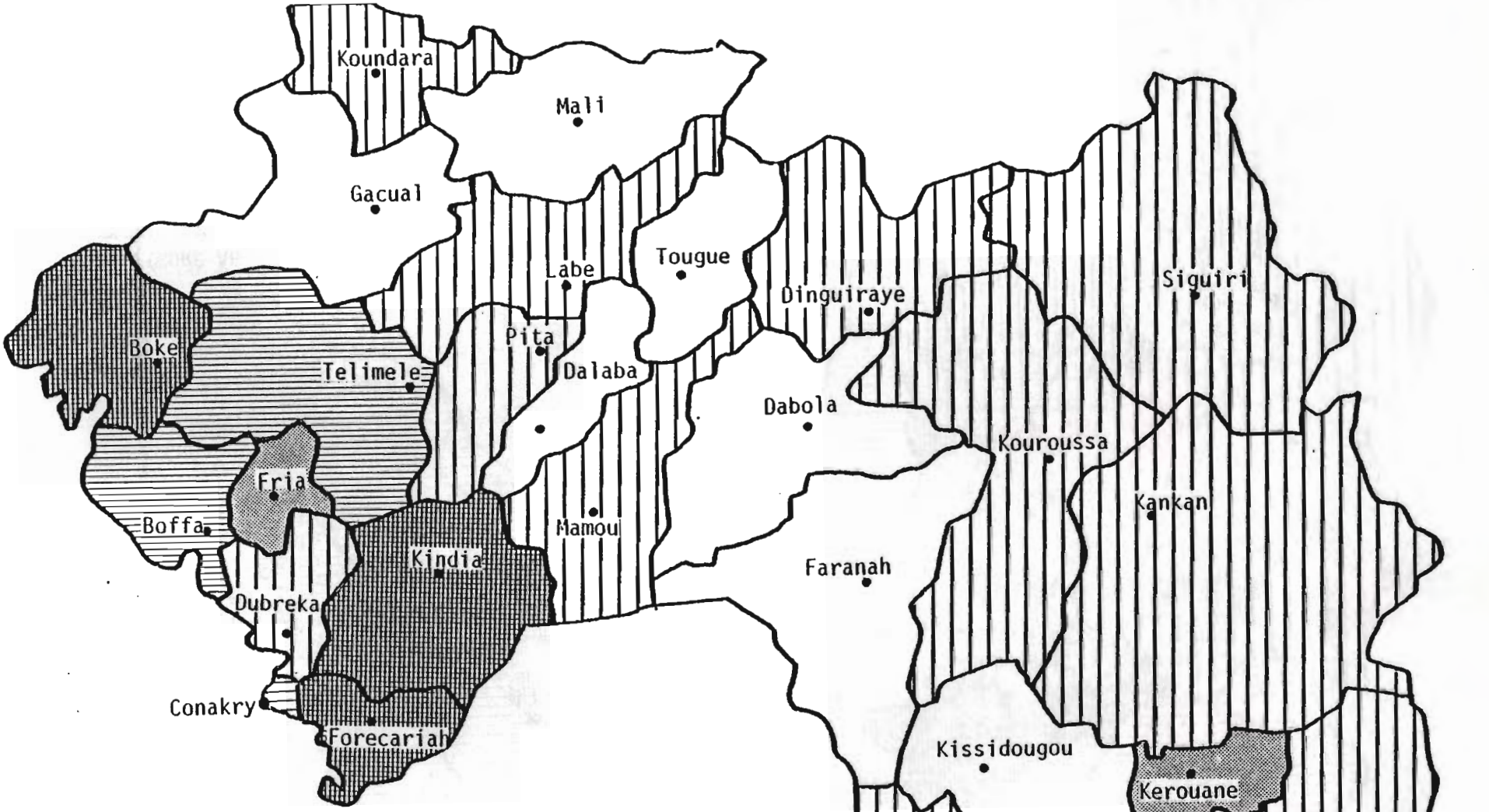


FIGURE A5

Per Capita Yearly Fruit Production (1975)

- Over 400 kg
- From 300 to 400 kg
- From 200 to 300 kg
- From 100 to 200 kg
- Less than 100 kg

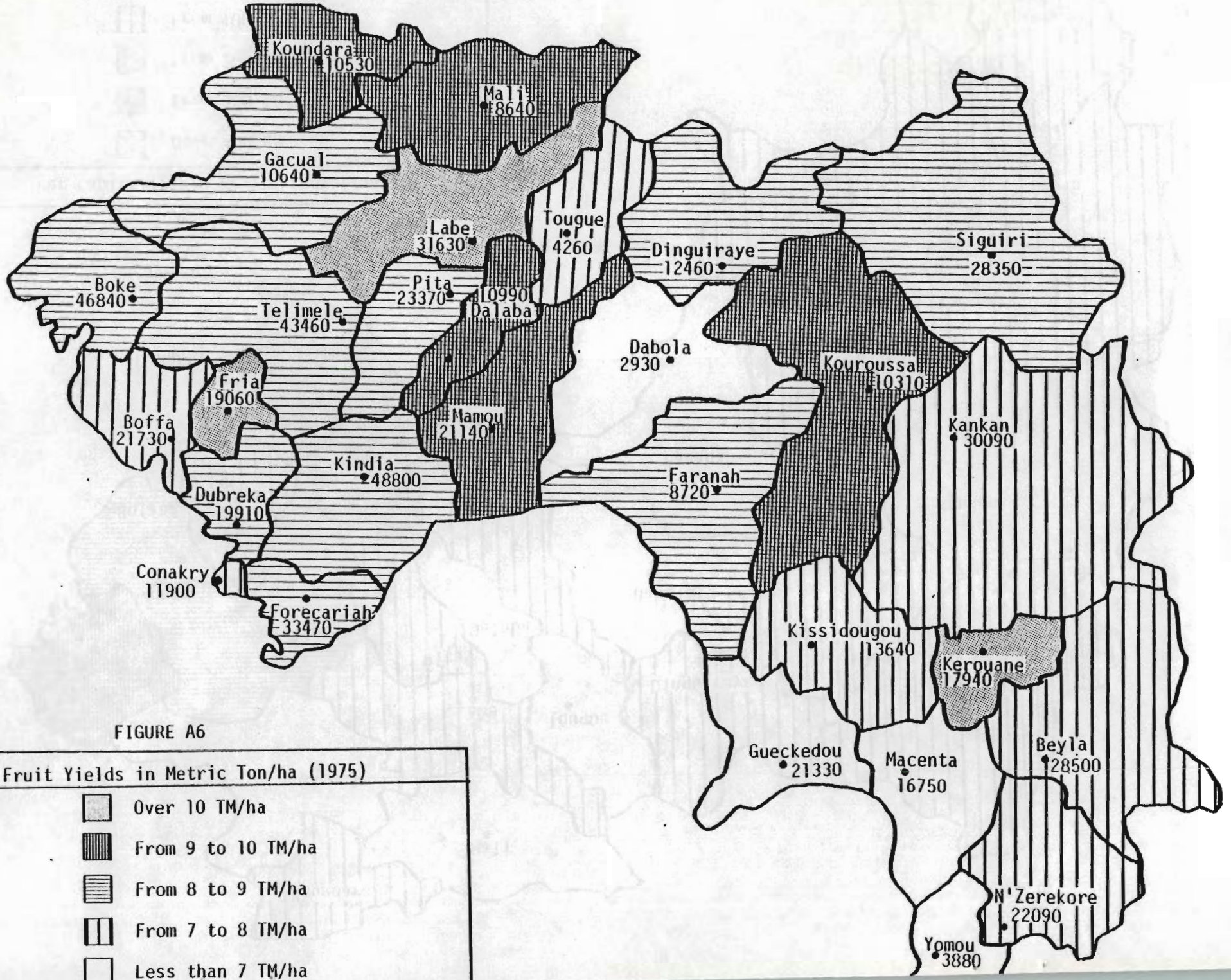
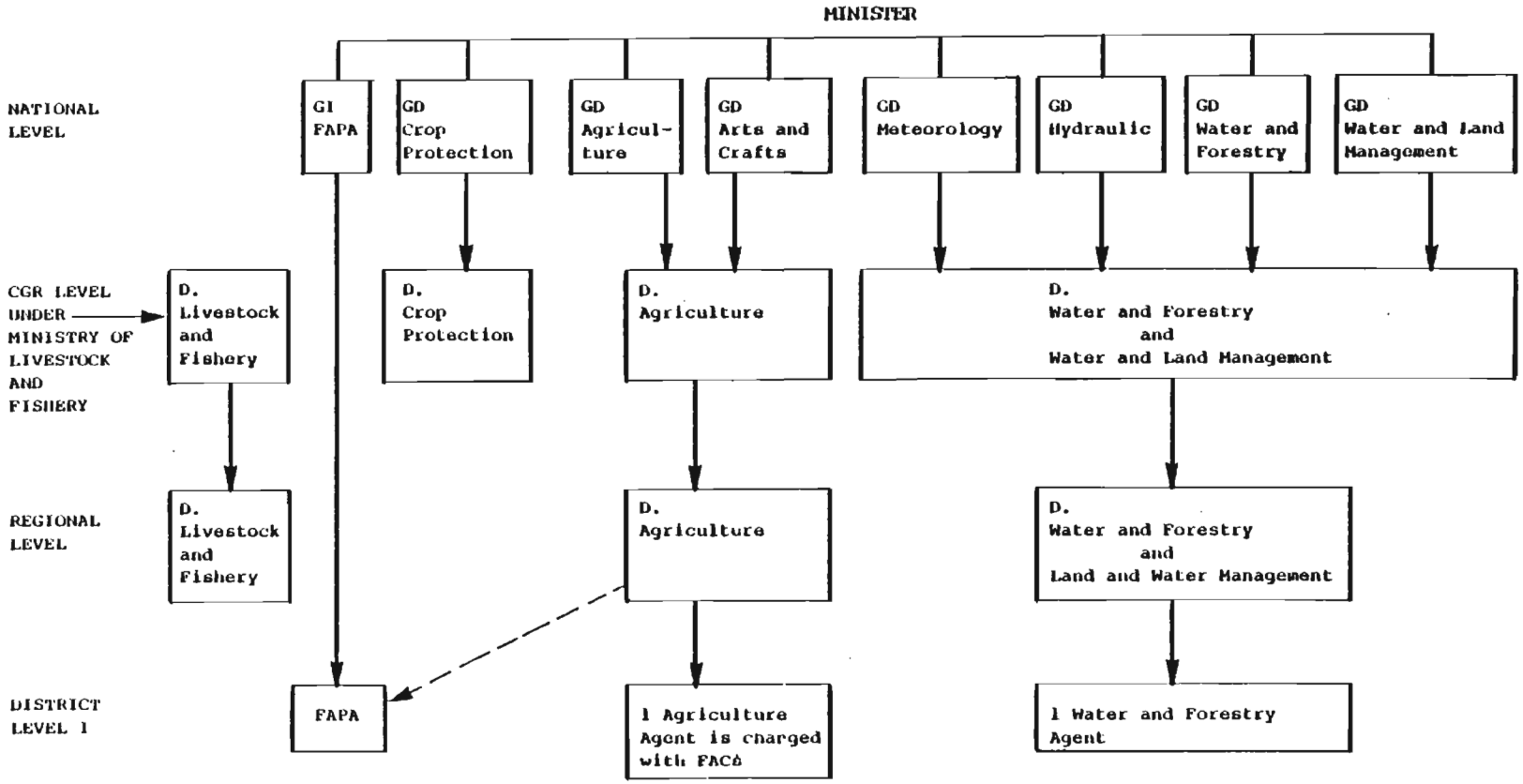


FIGURE A6

Fruit Yields in Metric Ton/ha (1975)

- Over 10 TM/ha
- From 9 to 10 TM/ha
- From 8 to 9 TM/ha
- From 7 to 8 TM/ha
- Less than 7 TM/ha

FIGURE B: Organization Chart of the Ministry of Agriculture, Water and Forestry and FAPAs



Note: GI = General Inspection
GD = General Direction
D = Direction

FIGURE C

Administrative and Political Organization

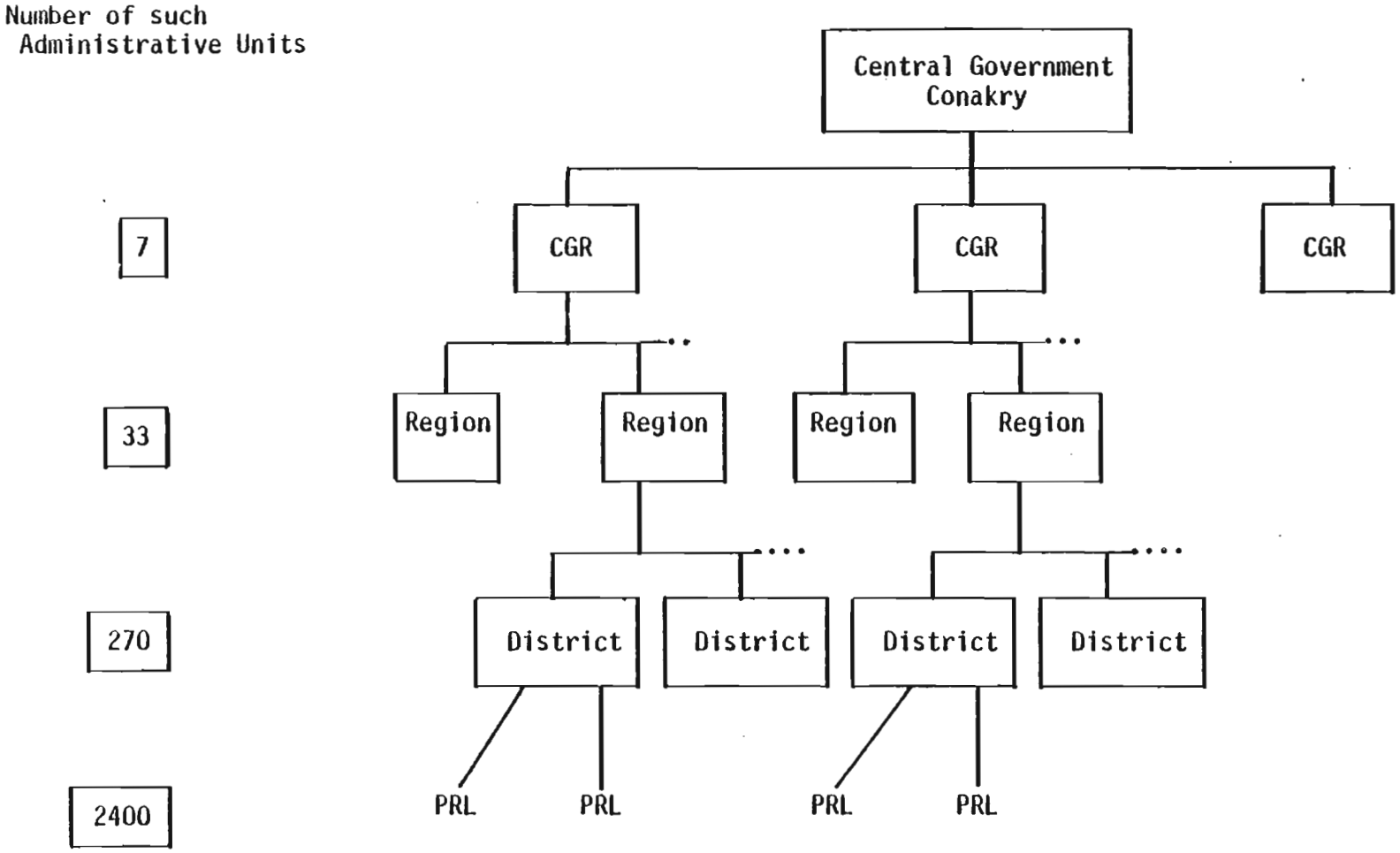


FIGURE C1

Description of the 7 "Conseils Generaux de la Revolution"

CGR	Regions included
Faranah	Faranah, Gueckedou, Kissidougou, Dabola, Duinguiraye
N'Zereckore	N'Zereckore, Macenta, Beyla, Lola, Yamou
Kankan	Kankan, Siguiri, Mandiana, Kerouane, Kouroussa
Labe	Labe, Pita, Koubia, Mali, Lelouma, Tougue
Boke	Boke, Boffa, Koudara, Guaoual
Kindia	Kindia, Dalaba, Mamou, Telimele
Conakry	Federation Conakry I Federation Conakry II Federation Conakry III Forecariah, Coyah, Fria

TABLE 4

Offical Prices and Parallel Market Prices for Products[1] (in syllis[2]) per kg.

FOOD CROPS	OFFICIAL (paid to the producer)	OFFICIAL (sold to civil servants or exporting agencies)	PARALLEL
Rice (net)	15	20	54
Rice (paddy)	9	13	36
Corn (net)	12	18	47
Corn (on the cob)	7	10	--
Fonio (net)	13	18	45
Fonio (paddy)	5	9	--
Millet	7	10	44
Manioc (dry)	5	9	29
Peanuts (shelled)	8	10	98
Peanuts (unshelled)	6	9	--
Tomatoes[3]	10	--	100
Mangoes[3]	1	--	9
CASH CROPS			
Kany (dry)	5	7	--
Beeswax	50	57	--
Coffee	34	41	200
Palm Kernels	6	10	--
MEAT	50	--	125
FISH	20	--	75 (Conakry)

Note: 1. Prices on the parallel market indicated here are from Mamou, a central city of the interior of about 25,000 people. The produce were purchased and weighed to obtain an accurate weight measure. Prices were collected in May 1980 and should not be used as yearly averages because of probable seasonal fluctuations.

Note: 2. $1 = 20 syllis (official rate)

$1 = 80 syllis (black market rate)

Note: 3. The official price for mangoes and tomatoes is the price paid by the food processing industries. Parallel market price for these items are Conakry prices.

TABLE 5

Parallel Market Prices of Basic Consumer Goods

	CONAKRY	INTERIOR
Palm Oil (local)	100 s/l[1]	125 s/l
Peanut Oil (imported)	180 s/l	140 s/l
Sugar (imported)	220 s/kg[2]	130 s/kg
Soap (imported)	255 s	250 s
Tomatoes (concentrated; imported, 70g)	10 s 10 s	10 s
Salt (local)	12.5 s/kg	--
Powered Milk (500g)	125 s	200 s
Coffee (Ivory Coast, 50g)		125 s
Maggi Cubes (imported, 2)	5 s	--
Enamel Bowls (set of 2, imported)	425 s	200 s
Enamel Wash Basin (imported)	250 s	125 s
Aluminum Bucket (local)	600 s	--
Shoes (plastic)	225 s	300 s
Cloth (2 yards x 1.5 yards = 1 "pagne")	600 s	650 s
Cloth (tergal: for 1 pair of pants)	600 s	650
Plough (local)	--	2000
Hoe (local)	--	100
Knife (local)	--	100
Cigarettes (Marlboro)	50	50

s = syli
1. The official price for oil is 40 s/l
2. The official price for sugar is 40 s/kg

EXPLANATIONS PERTAINING TO FIGURES D1 TO D4

GRAPH OMBRO-THERMIQUES

AND

THEORETICAL AGRICULTURAL CALENDARS

SCALE

Periods of land clearing

Periods of ploughing

Periods of seeding

Periods of weeding

Periods of harvest

Length of the "rainy" season

The length of the season called "rainy" is determined on the temperature-in-the-shade abacus after the observations of KOPPEN: A monthly average temperature of 20°C jives of average evapo-transpiration (ERP) of 70mm/month. Any 6°C increase in temperature doubles the water requirements. The shape of the curve obtained is exponential, applicable for Guinea, with comparable results to the ones obtained from the TURC formula.

FIGURE D1: Maritime Guinea Theoretical Agricultural Calendar

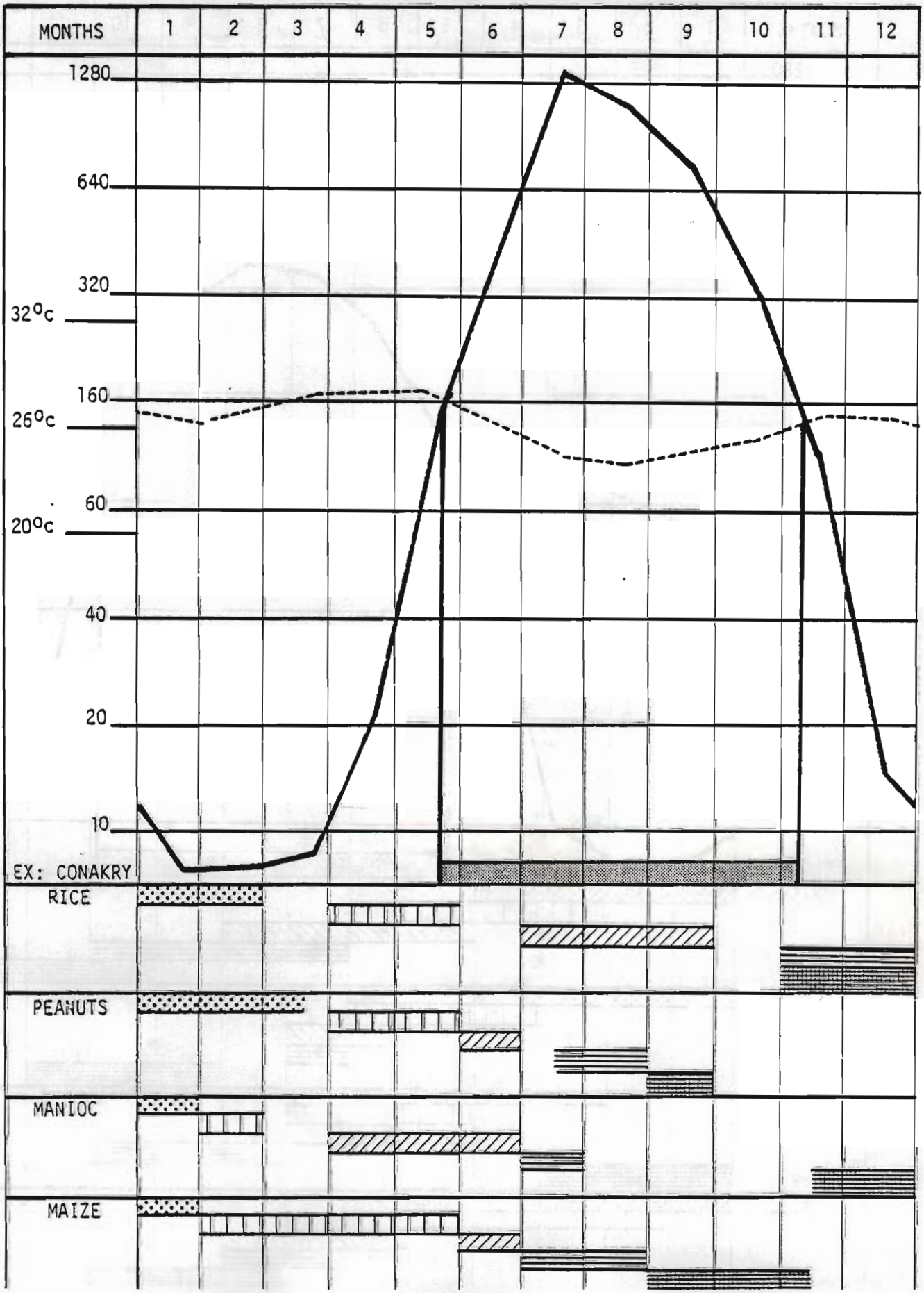


FIGURE D2: Fouta-Djallon (or Middle Guinea) Theoretical Agricultural Calendar

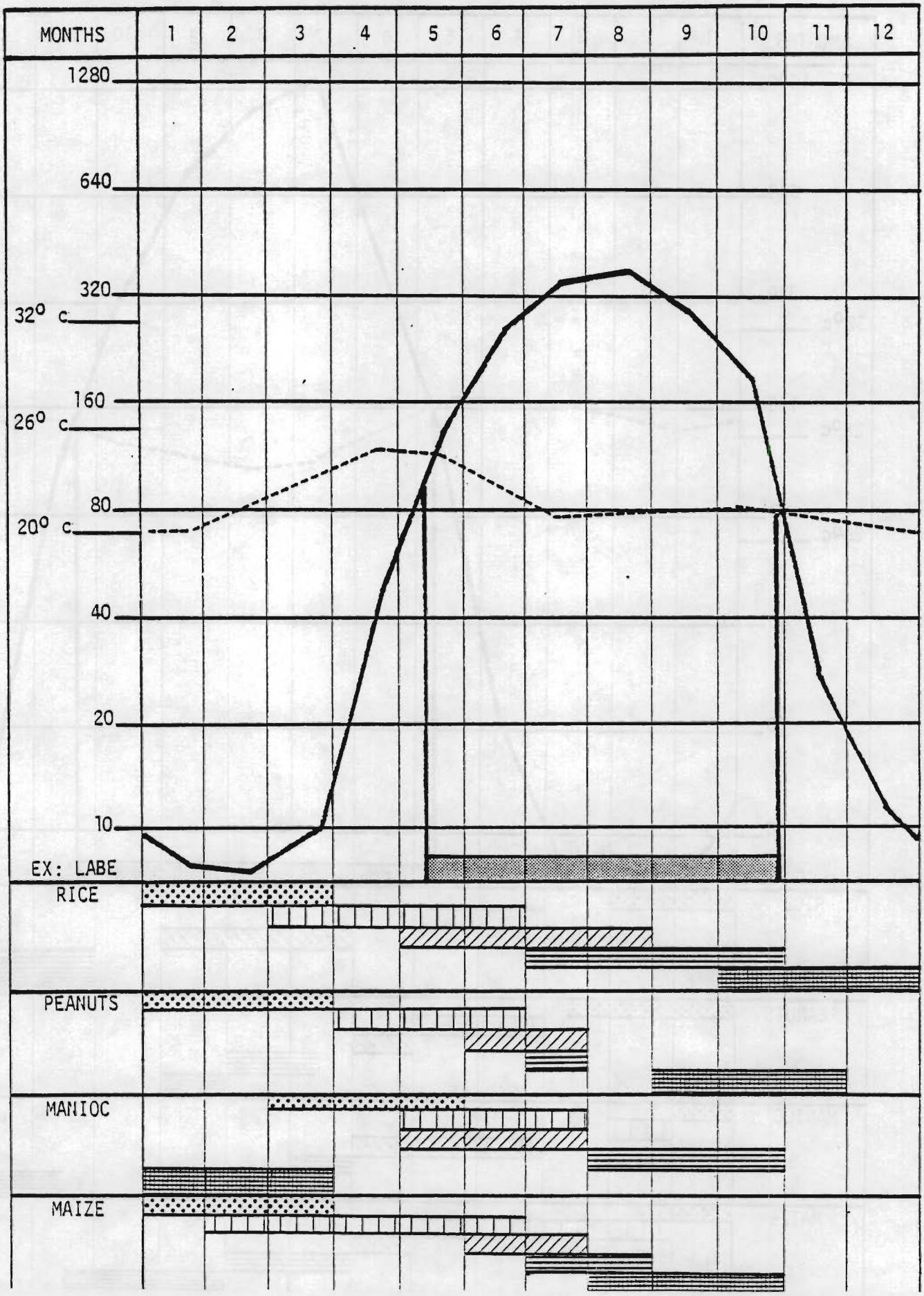


FIGURE D3: Upper Guinea Theoretical Agricultural Calendar

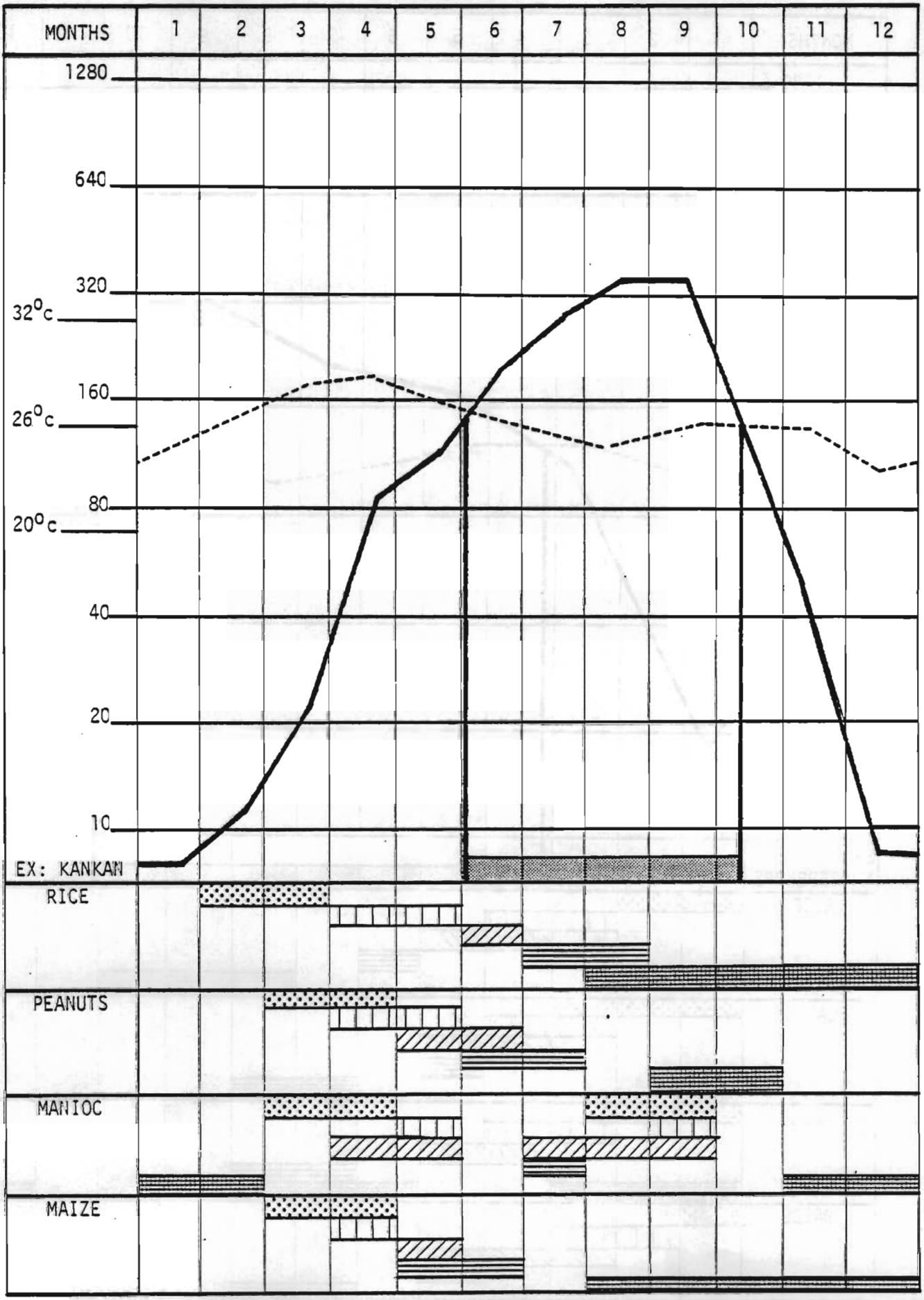


FIGURE D4: Forest Guinea Theoretical Agricultural Calendar

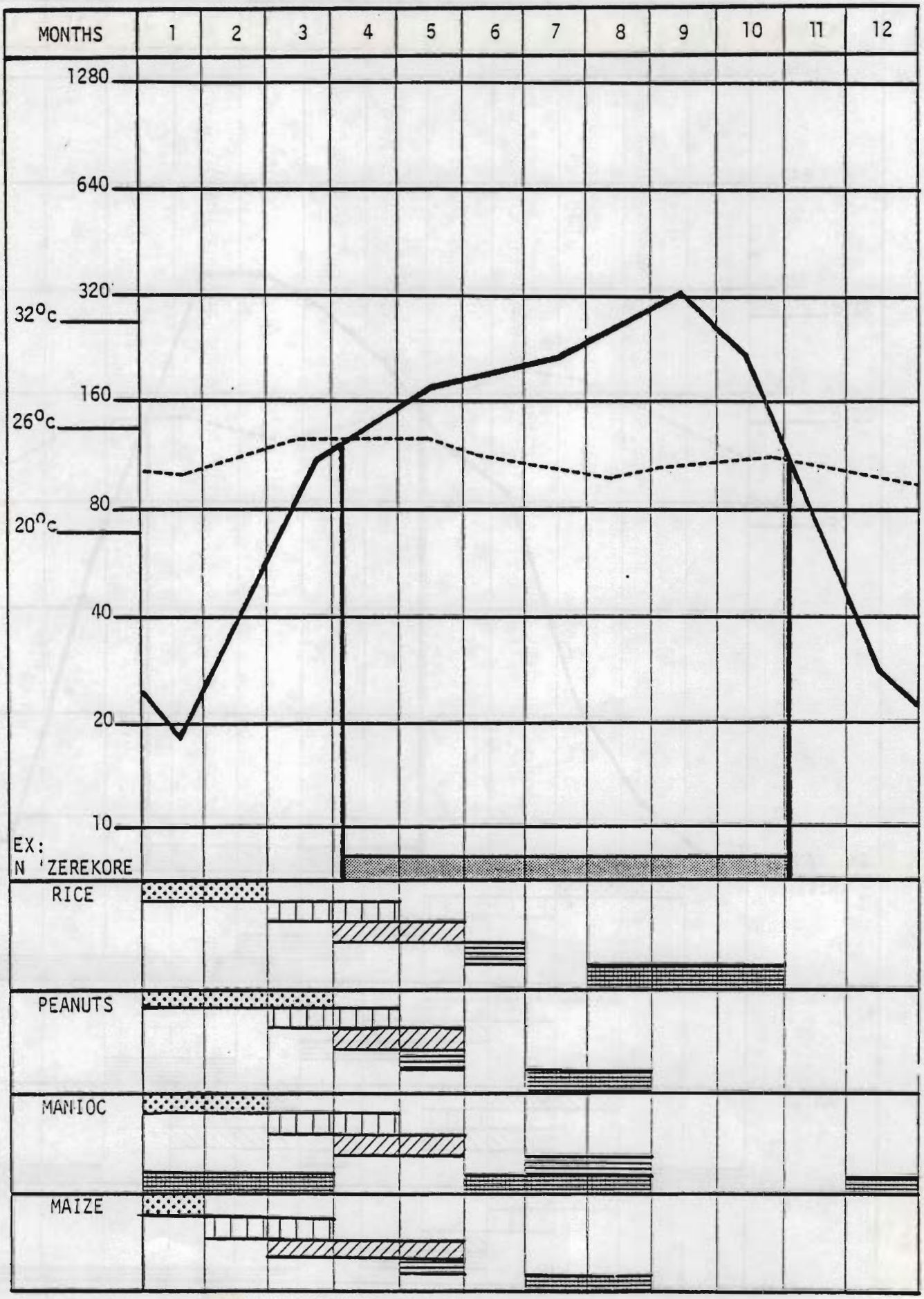


TABLE 6

Comparison of Official Guinean Prices and Neighboring Countries' Prices Paid to the Producer for Basic Agricultural Products 1975 (using black market rate of exchange[1])

PRODUCE	Guinea (CFA/kg)	West Africa (CFA/kg)
Rice	26.25	42.5
Fonio	16.25	30.0
Peanuts	16.25	41.5
Maize	18.75	35.0
Manioc	16.25	55.0
Sweet potatoes	11.25	26.0
Millet	16.25	30.0
Citruses	6.25	40.0
Bananas	8.75	16.0
Coffee	48.75	175.0
Pineapples	22.50	18.0

1. On the black market, 1 syli = 2.5 CFA. The black market rate is used here because the farmer, once he has sold his harvest at offical prices, has to turn to the parallel market for consumer goods, where prices depend on the black market foreign exchange rate.

TABLE 7

Terms of Trade Between Paddy Rice (sold at official prices) and Basic Consumer Goods on the Parallel Market

ITEMS	Number of KG of paddy rice needed to buy one unit of consumer goods (in the interior)
Palm Oil	13.9 kg
Sugar	14.4 kg
Soap	2.8 kg
Tomatoes (70g concentrated)	1.1 kg
Powdered milk	22.2 kg
Coffee (Ivory Coast, 50g)	13.9 kg
Enamel bowls (set of 2)	38.9 kg
Shoes (plastic)	33.3 kg
Cloth (2 yards cotton x 1.5 yard "pagne")	72.2 kg
Plough	222.2 kg
Hoe	11.1 kg
Cigarettes (Marlboro)	5.6 kg

TABLE 8

Agricultural Produce Marketed Officially
(in metric tons)

	1977	1978	1979
Rice (net)	20,636	7,027	7,341
paddy	32,490	16,931	21,841
Millet-sorghum	3,904	3,361	7,458
Fonio (net)	7,329	678	457
(paddy)	5,482	4,578	10,813
Manioc (dry)	---	2,848	8,273
Maize	10,189	9,000	16,952
Peanuts (unshelled)	5,048	4,402	2,444
Peanuts (shelled)	87	80	41
Palm kernels (net)	13,280	15,309	18,237
Palm kernels (unshelled)	59	---	---
Coffee - Robusta (net)	2,186	944	2,431
Beeswax	83	17	6
Perfume oils	85	25	24
Hot peppers	24	1	---
Palm oil	526	484	---
Kani	---	---	79

Source: Data provided by the Guinean authorities

ANNEX II

ANNEX II

A. RESEARCH INSTITUTE AT FOULAYA - PHYSICAL FACILITIES

The purpose of the proposed Research Laboratory Building is to aid in the strengthening and development of research, education and extension services at the National Faculty of Agronomy and National Agricultural Research Institute at Foulaya. This goal, as set forth in the policies of President Toure, will lead to improvement of Guinea's food crop production and assist in developing the agricultural sector's self-sustaining abilities. It is recognized by all concerned, including the faculty and administration, GOG officials, AAO/Conakry and A&E design team, that in order to achieve this long range goal, the proposed facility must meet all the needs in as efficient and economical a manner as possible. The building is designed to house in four separate and independent laboratories: the research activities of biology, physiology, genetics and cytogenetics, and phytopharmacy. In addition, each laboratory would have various related utilities, annexes and office space for the researchers. This building as well as the individual laboratories are designed in accordance with the latest United States standards for this type of facility. Along with this. facility, certain improvements in other areas of the site will increase the overall productivity and quality of the Institute staff's ability to study and improve their crop and animal husbandry technologies.

B. FARANAH AGRICULTURAL COLLEGE

The GOG has set forth policies that encourage the growth of the county's agricultural sector and self-sufficiency. This goal of a strengthened and well-developed agriculture will be accomplished through improved research, education and extension services at the National

Agricultural Research Institute at Foulaya (INRAF) and the Faranah Agricultural Institute. The latter institution is the regional agricultural school and serves the purpose of being a proving ground for academic and practical agricultural training for the students and extension workers. The college is where the classroom work is blended with the on-the-job training for a comprehensive background that would allow the students and the extension agents to serve Guinea's present and future agricultural needs. The development of these goals is hindered by the lack of basic equipment, inadequate facilities and insufficient research capabilities. This is borne out by the fact that many of the existing buildings at the Faranah College date back to Guinea's pre-independence period and are in various states of disrepair or too small for the projected increase in student population.

The above shortcomings provide the basic reasons for the addition of the various proposed buildings on the campus of Faranah College and Tindo demonstration farm.

The purpose of the proposed buildings, as called for in the Project Paper, is to alleviate as many of the aforementioned problems as well as satisfy the agricultural needs of Guinea in as efficient and economical manner as possible. These buildings and the proposed upgrading of some of the existing facilities were conceived in accordance with the latest United States standards. The improvements or scope of work as described in the Project Paper call for the design of various new unequipped buildings and the upgrading or replacement of existing water distribution systems.

ANNEX III

ANNEX III

A. WATER SUPPLY ACTIVITY, LABE

The National Service for Water Point Development (SNAPE), a service department in the Ministry of Agriculture (MOA) is conducting a well and spring development activity in Middle Guinea (Fouta-Djallon) north of the 11th parallel. The objective of the activity is to develop water supplies for small villages. SNAPE was created by official decree in January 1980. Prior to the decree, it was an operating organization for about two years.

SNAPE is funded by the MOA. Additionally, it is receiving commodity and technical assistance (TA) support from the EEC.

The funding allocations are shown in Table 1. The department is organized as shown in the organization chart Figure 1. The TA provided by EEC are 1) project leader (civil engineer), 2) well construction expert, and 3) mechanic maintenance expert. Short time consultant service is provided by EEC to conduct ground water geologic investigations. The TA provided by the EEC is through a contract with BURGEAP, a French consulting and engineering firm.

Geologic ground water investigation in the zone north of the 11th parallel (See Figure 2) has shown that a fractured sandstone layer of indeterminate thickness underlies the cap rock over about 15% of the area. The remainder of the area is the hard rock zone. By constructing wells from 15 to 30 meters deep (most are about 20 meters into the fractured sandstone zone), water flow of about 5 - 10 lit/sec can be developed, enough water for a population of over 9,000 people. In the non-sandstone area, wells will yield a flow of less than one lit/sec, enough water supply for less than

2,500 people and frequently a very limited water supply for less than 300 people. By drilling bore holes deeper into the fractured sandstone zone and by utilizing mechanical pumping,additional water flow can be developed for limited irrigation. Spring developments are the exploitation of seeps from water bearing aquifiers intercepted near the lower elevations of the slopes in the small swales that abound in the region adjoining the main stream channels. The amount of water flow developed varies from less than one lit/sec to over 15 to 30 lit/sec. The larger amounts will provide enough water for the village water supply and for irrigation of garden plots, when suitable land is available.

Village water requirement studies were conducted by SNAPE in the areas as shown in figure 3 and the results of are listed in Table 2. The study indicates that 553 wells and 745 springs for a total of 1,298 water points are required to provide the rural villages with adequate water supply. The estimate is based on the criteria of 20 lit/day/person water requirement and that the people must trek more than 1-1/2 km for water. When these same criteria are extrapolated over all of Guinea's rural area, a total of about 4,000 water points would be required. As shown in the Table, 997 water points are needed for those villages in the middle region that trek less than 1-1/2 km for their water supply. SNAPE's activity is concentrated in the region around Labe and Pita. It is planned to expand the activities to Kankan, and Mamou in order of priority as rapidly as permitted by funds and resources.

The activity has constructed about 47 wells and developed 72 springs. The organization is gaining experience and it is estimated that a

progress rate of about 168 water points developed per year can be maintained. The wells are constructed by sinking into the ground 1.8-meter-diameter, one-meter-long, wire-reinforced, 15-cm thick concrete ring caisson. Successive rings are constructed as the lead ring penetrates the ground. Figure 4 shows a schematic sketch of a typical well. The lead ring is lowered by hand excavation below the lower or cutting edge of the ring. Some wells, particularly those in the fractured sandstone zone areas, cannot be excavated by hand and must be excavated by a small clam shell operated by a small rubber tire dragline. The successive rings are required to prevent sand and mud seepage into the well. The caissons are sunk into the water-bearing strata far enough so that about 5-10 lit/sec water flows will be developed in the sandstone zones and about one lit/sec water yield in non-sandstone zones. The larger yielding wells will provide enough water for limited irrigation. The ground water geologists estimate that the identified water bearing fractured sandstone zone would not yield enough flow of water to provide for major irrigation. The possibility of small scale irrigation is not precluded. By deepening the wells into the fractured sandstone, additional yield of water can be developed. SNAPE is planning a program of drilling bore holes to deeper depth in the fractured sandstone, in an effort to develop additional water supplies. This program has not been started.

The concrete caisson wells cost from 55,000 to 70,000 FF* to construct a 20-meter deep well. SNAPE believes with increased staff experience, costs can be reduced to about 45,000 FF. The higher costs are attributed to better quality construction and the ancilliary mechanical excavation equipment required for construction of some of the wells in the fragmented sandstone formations. Of the total cost, 40% is local currency for purchasing labor and local materials. Most of the Fx costs are to procure cement,

*Costs are given in French Francs because of firm's nationality

reinforcing wire, steel, equipment, spare parts and TA.

SNAPE is capable of developing 130-150 water points--wells and springs--per year. This number of water points is less than the increasing needs for all of Guinea's population. SNAPE hopes to improve its service and speed up progress of water point development by increasing staff and input of other aid.

The wells are constructed to about one-half meter above the ground level with a reinforced concrete cover. A 40cm X 40cm hole is constructed in the cover, so that the villagers are permitted to extract water by means of hand and rope bucketing from the well. The area surrounding the well is paved with concrete, extending about one to two meters from the rim of the well. This feature along with raising the well above ground level and covering it, helps to prevent surface water from entering and contaminating the water. Extraction of water from the well by hand permits contamination of the water from buckets and ropes and entry of other contaminants. Installation of pumps and constructing a lid over the entry hole is one option available for reducing contamination of the water. SNAPE have installed four different models of manual pumps on the wells as a trial to determine the most suitable type of manual pump that the villagers are most likely able to operate and maintain. The pumps were procured from France and Germany. The most suitable model will be installed on ten additional wells. SNAPE is conducting a training program with the villagers to emphasize the need for proper operation and maintenance of the wells and pumps. A villager is given rudimentary training and responsibility for maintenance and repair of pumps. For example, a well was observed in Labe with two pumps in place. One hand pump has been inoperable for several days.

SNAPE officials are standing by to determine if and when the man trained to maintain the pumps is able and willing to do anything about the situation. The villagers were observed quarreling over whose turn was next at the remaining pump. Another interesting feature at this well: the city had constructed a small shed and installed an electric powered pump to enable villagers to move easily extract water from the well. The city needed the motor elsewhere and some time ago removed the motor. Back to manual pumping and never mind village water requirements.

The use of manual pumps over a sealed well to extract water from these types of wells is essential if a clean drinking water supply is to be maintained. USAID has had considerable experience with manual pumps for wells but has never really developed a fully fool-proof manual pump that will require no maintenance and proper care. USAID is still trying, and perhaps the SNAPE idea of trying to educate and motivate villagers to an awareness of proper operation and maintenance will yield results. A large majority of the villagers just don't adequately maintain and operate manual water pumps.

Spring development is being conducted by SNAPE concurrently with the well construction program. This is a good source of clean water supply. Spring sites in the Labe region are usually found in the lower reaches of low swales and small valleys entering the main streams. The spring appears as a wet spot or a relatively small swanpy area near the lower reaches of the small valleys and swales. It is fed by a water-bearing aquifer which is recharged by rain from an infiltration area, which may be located some distance up the swale in the watershed area. The water moves from the

recharge area underground in a rock crevice or water-bearing aquifer under the cap rock and when the aquifer intercepts the ground surface, a seep or spring occurs. This may appear as a swampy area or a small amount of water may be seen flowing from the rock outcrop. The site is opened up and cleaned, by digging out or excavating the site to expose and determine the source and direction of water flow from the aquifer. When the water-bearing acquifer is exposed, a concrete facility is designed and constructed to protect the spring source. The objective is to achieve maximum water flow from the water bearing aquifer. The structure is to maintain the water source free from contamination and also permit the villagers to readily extract water. Each spring development is a custom design and none are identical. SNAPE is incorporating a sand filter in the spring development design. After the aquifer is exposed, a pit is excavated at a lower elevation than the aquifer. It is important to get maximum yield, so that an unimpeded water flow is permitted from the aquifer. The pit is floored with concrete. A rock layer is laid over a pipe drain system and a smaller rock layer interspersed with a 20 cm. thick filter sand bed and a layer of rock. The water flows down through the rock and sand filter, into the drain system which is outletted below the set-up by a pipe through a concrete wall. The entire filter runs from the outlet wall to the aquifer to prevent the entrance of surface water into the system. The aquifer and filter system is permanently sealed with concrete. This system of water supply requires virtually no maintenance. This has the appearance of a delivery pipe extending from a concrete wall with continuous flow of water. The pipe is outletted high enough to that villagers can

readily fill buckets and pans. The area below the outlet wall is paved with concrete to maintain cleanliness. The spring observed had laundry washing facilities constructed of concrete two or three meters distant from the outlet pipes. One spring observed had a concrete animal watering trough located at the tail end of the system. All springs developed provide clean water supply and a laundry or animal watering trough or both. One spring development observed was delivering over 10 lit/mm. This is a fairly large flow and SNAPE officials estimate that flow would provide water supply to the village and irrigate about one hectare of land. A suitable plot of land that could be irrigated was observed lying below the spring development.

SNAPE is conducting intensive training of its staff in all aspects of well construction and spring development. The staff has achieved capability that permits the expatriate EEC staff to find it necessary only occasionally to directly supervise the technical details of the activities. The EEC staff is highly satisfied by the response of the local staff to the training program. Hopefully, the training of villagers to maintain and operate the water supply facilities will achieve similar results.

Detailed "as built" plans are prepared of all constructed water facilities. The plans are engineering-wise very good and cost estimates are fairly accurate. This would satisfy USAID 611(a) requirements that adequate planning and reasonably accurate cost estimates are prepared for the activity.

In Labe, SNAPE's logistical support facilities are limited. They

are officed temporarily in the hydraulic department building in limited space. The parts store base and workshop are too small. SNAPE has a small house nearby allocated for their use. A concrete foundation has been constructed in the compound and SNAPE will utilize its own construction forces to construct a building on the foundation during the coming rainy season, when much of the field operations are shut down.

The activity appears to be an active, aggressive going concern, hampered only by the amount of support that is provided to it. Since this is a direct program in cooperation with the rural population, USAID could justify involving itself in the program. The EEC officials would welcome additional aid. It is not known how the GOG feels about USAID involvement in SNAPE activities.

If USAID should determine this is an activity worthy of pursuit, the following issues and possibly others will need addressing:

1) Is the GOG interested and will they request USAID assistance to the activity? According to EEC officials, the GOG would welcome USAID involvement. This is the impression formulated in Labe, apparently among the local GOG officials. This aspect needs testing at higher levels of GOG, not necessarily at the PID stage, but project justifications would be strengthened if assurances could be advanced at the PID level that the GOG has expressed interest and how strong.
2) EEC officials at the action level expressed a strong desire and would cooperate with assistance from USAID. It is not known

whether the governing officials of EEC would welcome a USAID-EEC cooperative effort. USAID programs are replete with cooperative activities with other donors. Thus there is precedence to justify a cooperative effort with EEC.

3) This is not a direct agricultural assistance activity. On the other hand, this is the "decade of water" and much emphasis is being addressed to development of clean water for rural people. This activity ideally fits into this category. There is a good possibility for development of small village garden plots by use of surplus water from the spring developments. By conducting assessments and water flow measurements of those springs already developed under the program, the scope of a village garden plot activity could be determined. This type of agricultural activity would be small, but nevertheless is a direct rural people activity, and that step seems difficult to do in Guinea under the GOG development policy.

4) This is really an "enclave" project. The EEC is the driving force, strongly manages the activity and supplies critically needed FX for purchase of off-shore commodities. USAID, if it becomes involved, would be a party to the "enclave" activity. One cannot say confidently that the GOG would "pick up the ball"; certainly not at this point in time, if EEC assistance were terminated. On the other hand, SNAPE is, although an embryo organization, entrenched by decree and one can hope that

infusion of assistance will further entrench, strengthen and improve its operations to where it will function on its own without exterior aid. USAID will have to remain in the activity at least the statuatory time of five years and possibly longer. Increasing population and already existing need for more rural water supplies will provide pressures on the GOG to do something about developing rural water supplies.

There are three optional courses open to USAID to involve itself in the activities, provided the above issues can be resolved:

1. A "time slice" of the activity could be bought. The activity is ongoing and technically sound and USAID would merely buy a time slice of say five years. The justification presented in the PID and, if approved, in the PP would be based on the adequacy, criteria of procedures, and technical soundness of the activity. The increased number of water points developed during the time slice period would be determined as the result of USAID's contribution and TA if needed. Under this modus operandi, site-specific developments by AID cannot be identified. AID would not involve itself in field operations. There would be a co-mingling of GOG-EEC and AID assistance to support the whole activity. The ratio of local currency to FX would be 40-60%. This approach is easy to administer from the AID side and requires in-country minimum AID staff. With the "low profile" policy of the U.S. embassy, much can be argued for this approach to assisting the activity. The time slice

method of providing assistance is utilized by USAID and thus is not unprecedented.

2. EEC officials have suggested that USAID might support only the spring development sector of the activity. The ratio of local currency to FX ratio would be 60-40%. This might be a desirable approach in view of the local currency available to GOG-USAID projects through counterpart funds. This approach would involve additional field project management and possibly technical assistance as USAID would be involved in field operations. There would be a bit of co-mingling of foreign assistance as it would be identified and results definitively determined. It can be further argued that if USAID wants to move into direct agricultural activities, the step to garden plot activities and possibly larger scale irrigation could be accomplished on the basis of the spring development program.

3. Lastly, USAID could involve itself in the entire activity, providing TA and FX for purchase of off-shore commodities and attempt to scale up significantly the scope and size of the activity. This would be a classic USAID project. Although in cooperation with the EEC, AID's contributions could be identified all the way through the outputs of wells, springs, and possibly other activities. This "modus operandi" requires technical assistance and active project management. For example, EEC officials indicate that a planning section will be required in SNAPE. AID could provide TA to and help

establish a planning section if this step would seem appropriate during the PP or design stage of project development. The Fx to local currency ratio is 60-40% when considering the activity on this basis. Much can be argued for a classic USAID project in the activity. The activity can be significantly accelerated, and enough TA balanced with the funds available can be provided to assure that the activity goes.

B. F.E.D. PROJECT AND POTENTIAL FOR USAID INVOLVEMENT

The EEC project is based in Labe and covers the CGR of Labe. SNAPE (Service National de l'Amenagement de Points d'Eau) was created especially for this project. The headquarters of SNAPE are in Conakry. Eventually, the RPRG would like this service to cover the entire country, with 5 centers like the one at Labe.

The basic goal of the project is to provide better water supply (quality, quantity, access) to villagers, using the structure of the PRL's.

A basic survey has shown that villagers whose water supply is farther than one km use less than 5 L/day/capita. After the project has built a well or the infrastructure for a spring, the same villagers use 10 to 15 L/day/capita in the case of a spring, about 10 L/day/capita in the case of the well.

Two kinds of water supply: The well or the spring infrastructure. The well is generally situated within the village. The spring infrastructure is built on the site of an existing spring. At the unimproved spring site, a mediocre amount of water percolates to the surface creating a swamp where the villagers get their water. The project builds 1) a well near the spring which serves as a kind of dam, thereby increasing the quantity of water retained in the ground, 2) two pipes through the well to drain the water, 3) a concrete area around the two pipes which serves as an area for washing, 4) a watering tank for the animals, and 5) whenever the spring is situated in a valley with steep slopes, a concrete stairway to facilitate access.

Conversations with women have shown that they generally prefer the

spring infrastructure over the well. The spring infrastructure does not upset the tradition of going to the spring which has traditionally been a kind of special moment of the day when women can get together away from their husbands' eyes. The domestic task is at the same time a social gathering. On the other hand, putting a well in the middle of a village very much upsets the social function of the spring; women cannot hang around so freely in the middle of the village.

Organization of the construction:

Participation from the villagers is requested in the form of:

1) Lodging and feeding the team of the SNAPE workers while they are building the infrastructure.
2) Land preparation (clearing a path to and around the spring to facilitate the access of equipment, or in the case of the well, the digging of the well to water level with traditional techniques). When the team of the SNAPE arrives, the work left to them is to pore a ring of concrete to line the well, and dig the well deeper using the eqipment that the villagers do not have. The participation of the villagers is estimated to amount to 30-25% of the total cost in the case of springs, to 25-30% of the cost in the case of the wells.

Problems in Obtaining Villagers' Participation

At the outset, the project met with much distrust on the part of the peasants. Having been burnt on previous occasions by government projects, they were reluctant to get involved in the project. The most common reaction was that they feared that the government, after telling them

the infrastructure was given to them, would make them pay for it later on. This apparently happened 6 to 8 months ago, when the government decided that all the PRL's who had received a tractor would have to pay for it or give it back. Since, obviously, the PRL's were not able to raise the money, the tractors were taken away to build up the FAPA's equipment. Because of this mistrust, the project had to choose to build the infrastructure in the villages which not only asked for it but were willing to participate as previously described. Apparently, this initial reluctance of the peasants has been overcome by and large, and now there is no problem obtaining full cooperation from the peasants.

Maintenance

The infrastructure is given to the villagers as a collective unit, with one member of the PRL specifically nominated to maintain this collective equipment. He is expected to make sure that the SNAPE in Labe is contacted if any serious problem occurs. Undoubtedly, Guinea, because of its local level political organization (PRL) is favored for this type of project over other African countries where such organization does not exist. In other Aftican countries, a well may have to be appropriated by an individual in order to be maintained adequately. The case of the spring infrastructure is not likely to pose many problems. For the wells, manual pumps are provided on a trial basis, mainly to check their viability before being systematically installed. In any case, if the manual pump breaks down, the well could still be used with buckets pulled by hand.

For maintenance purposes, there is a campaign of mobilization and

sensitization of the villagers through a PRL meeting at the time the infrastructure is delivered. It is always possible to find a handyman in the village who can make basic repairs and whom the project can train to do so. For larger repairs, especially breakdown of the hand pumps, the responsible person should call upon the SNAPE. Each village is required to pay a percentage of the maintenance and repair costs in the form of a fee paid each year to the SNAPE. Part of this fee should be used for the building of a spare parts stores at the SNAPE in Labe. This payment of a fee should not be a problem. The PRL's do have some funds from the sale of party member cards (which villagers buy, more often as a duty than anything else), from the sale of the FAC's output to government channels, from the revenues of many women activities (handicrafts, etc.) and from cultural events organized by the PRL. It is important that villagers contribute to the maintenance, even if only a token amount in order to increase their sense of responsibility and ownership of the infrastructure.

If, after a successful trial, hand pumps were to be adopted for all the wells, the problem of the spare parts would have to be discussed. We know that obtaining foreign currency to buy spare parts is a problem for the RPRG, and that this particular problem has played a major role in projects falling apart after expatriate involvement is over. The EEC project manager is fully aware of this problem. There is not much he can do about it except to be cautious about adopting the hand pumps for the wells and continually insisting on the problem with the direction of the SNAPE. So far, they have received assurance that the problem of acquiring parts will be taken care of. A special section of SNAPE has been created to deal

only with importing equipment.

As mentioned previously, the government seems dedicated to extend the project to other regions, because of the enthusiasm of the population for the project. It could be that the RPRG has given a high priority to the project as a result of the enthusiasm it has generated. One should keep in mind that the government has always been concerned with obtaining the adherence of the rural masses to its policies, something it has failed to do in many instances. It is possible that the government could see in this project one way to reach the peasants and to end the passivity and lethargy of the population towards any government idea or action.

After talking with the head of the SNARE in Labe, Mr. Billo Kante, we got the feeling that the formula and structure adopted by EEC for this project is well appreciated. The Guineans seem to consider it an excellent project, meeting their needs in a way which is satisfactory to them (i.e., using the PRL's decentralized structure). They are negotiating for an extension of the project to certain regions of the MDR of Kankan, which are the highest priority zones after the Fouta-Djallon. Other high priority zones are the regions of Maniore and Dalaba in the MDR of Kindia.

The EEC project is based on the survey of the BURGEAP which mapped the soils and the needs of the population for the whole zone north of the 11th parallel. The report from a WHO field trip also defines the extension of the project to other regions.

Besides the structure of the project, which the Guineans like, they appreciate the fact that the three expatriate technical experts on the site have been already able to train 8 or their Guinean counterparts, i.e.,

3 "ingenieurs" coming out of the section "Amenagements" of the Faculties of Agronomy and 5 "aide-ingenieurs" having the level of CTA (1st degree or 3 years of university level courses). Apparently this training has been very successful and after only 6 months on the project, some of the ingenieurs have been able to take up sections of the region entirely on their own, the expatriate technicians visiting them only once every 2 weeks, while at the beginning they had to be present every day in the field.

As far as the level of qualification of the staff is concerned, the expatriate project director mentioned that it was generally poor, even after 5 years of university courses. However, he said that all the counterparts he had to work with were quick and bright people and eager to work and learn, if given proper incentives. Two main incentives: The first one concerns the attitude of the expatriate project director: she/he needs to be enthusiastic about the project and totally dedicated to its success. The Guineans will tend to adopt the attitude of the expatriate project director. The second point is material incentives which should not be overlooked. The Guinean staff have to gain something from the project if one wants them dedicated to its success. Guineans are thrilled by the idea of having a car for their own use. For efficiency's sake, it is sometimes necessary to plan for more cars than technically need be. The extra dollars spent on what would seem at the outset as a waste, but could pay off in the long run through, in a way, buying off the "commitment" of the Guineans.

The workers (180) in the project are generally unskilled workers (manoeuvres) who come to the project with no training. They are chosen on the basis of their physical capabilities: An individual of

obvious poor health would not stand the rigors of the work. They are trained on-the-job. Last year, the problem of absenteeism was a crucial one, as almost everywhere in Africa (up to 30% of the workforce on any one day). The project director had to be particularly hard on this issue, firing people without pity. This year the rate of absenteeism has fallen to only 2% of the workforce in any one day, partly as a result of this strict attitude, partly also as a result of the increased interest in the job. The job, after all, is not a bad one. The workers are usually well received by the populations and get to spend a lot of time with women around the springs or the wells. Above all, they are exempt, since they are salaried laborers, from the "norm" of selling 103 kgs of cereals per active family member per year to the government. Moreover, they should be able to obtain their cereals at very low official prices from the ERC (Enterprise Regionale de Commercialisation) which markets agricultural products for the benefit of urban state employees, civil servants and workers. However, most of what ERC is able to purchase is siphoned off by Conakry, the remainder being for the civil servants of Labe. Therefore, although the ERC should feed any salaried person, they have not been able to do so for the SNAPE workers. The EEC project, in an attempt to overcome this expected difficulty, has arranged to obtain food for the workers at official government prices. Salaries are the official ones, ranging from 2500 sy/month for nonspecialized labor to 3000 sylis for specialized workers, 3500 sylis for team chief, and 3750 sylis for a brigade chief.

Technically, the project has been successful so far, for the design team refused to design a standardized type of infrastructure for all spring

or well situations. In other countries, where this flexible approach has not been taken, it has resulted in prohibitive cost per unit. For the SNAPE projects a quite simple technical approach has been adopted. Each well site or spring site is surveyed and the infrastructure is designed for the specific site. It is therefore unlikely that any two infrastructures will look the same, but the savings on construction cost are quite substantial.

The wells are financed 40% by RPRG, 60% by EEC, while for the springs it is the reverse: 60% RPRG, 40 EEC. Since one objective of a USAID project would be to use PL 480 counterpart funds, the spring infrastructure development is most appropriate, since the share in sylis is 60% of the total cost. Another reason why USAID may be especially interested in the springs is that the development of spring infrastructure can be easily followed by a dry season gardening project. This will be discussed at length later. A project such as the EEC one should be extremely attractive to USAID for the following reasons:

1) It reaches the peasants without any question:

   Primary impact: a. It provides cleaner water, sometimes of drinking quality, for the village populations. It eliminates the risk of contamination of water by animals. b. It helps women. It saves them time spent in fetching water sometimes several kms from the village, especially during the dry season. It also saves them time to fill their buckets, for the undeveloped springs have a very slow output in certain cases. (Women could wait up to an hour to fill a 10-liter bucket c. Finally, the cemented area for washing makes their work

easier. More importantly it reaches the peasants without any opportunity for diverting benefit away from them when the project ends. This is a particularly important point considering the Guinean political structure and constraints on rural development.

2) There are potential secondary effects: a. An environmental impact: By regulating water output, the spring infrastructure reduces the excess flow during the rainy season, thereby diminishing soil erosion by run-off water. b. Of particular importance will be the possibilities for dry season gardening from the spring output. It has been estimated that a spring output of 5L/s can irrigate about 3 ha of gardens if the flow is properly managed. Dry season gardening activities will be a logical follow-on activity. Women and children in the Fouta-Djallon, as everywhere in Guinea, are specifically responsible for the production of garden crops, in small gardens around the houses called tapades; this is normally a rainy season activity although, in some low land areas, it is possible to get two crops of corn per year. Introducing dry season gardening should not be difficult for it is already a well-known activity yielding produce highly valuable commercially. It would also occur during the dry season at a slack time in household and farm labor (although specific dry season women activities remain to be studied). Such a project would have an impact on rural villages by:

a) Increasing rural self-sufficiency in food all year around;

b) Improving nutritution in dry seasons;

c) Increasing rural incomes through marketing of valuable crops, easily marketed on the parallel market, and almost impossible to market by official marketing organizations for various reasons. This last point, i.e., that the gardening produce cannot be absorbed by the official marketing channels, is an important consideration and a plus for this project. We would be very reluctant to recommend any project to increase production of produce that would be absorbed by the official marketing organization (ERG) (such as all cereals) because of basic rural development and agricultural price policies that will be examined elsewhere. Vegetables, because they are delicate and require prompt collection, handling and delivery, cannot be commercialized through the official channels for various logistical reasons. 1/ Therefore, above and beyond home consumption, the parallel market can absorb the surplus, if any.

However, one should focus mainly on home consumption, rather than

---

1/ Not that the government would not want to: The canning factory in Mamou is desperate for tomatoes, and the director of the factory pulls his hair in despair when he sees private trucks carrying tons of tomatoes from Labe to Conakry passing by his doorstep. The problem is that he has to pay 10 sylis for 1 kg of tomatoes, whereas the same kg of tomatoes is worth 40 to 50 sylis in Conakry.

emphasize commercialization: Although the government has considerably liberalized its policy towards the black market in the past two years (we were told that two years ago, urban markets hardly existed), the parallel market is still illegal although tolerated. 2/ As to the exports, it is even more restricted and therefore more risky; 3/ hence the volume of goods that can be absorbed through illegal exports must be limited, although it is impossible to get any quantitative information as to its limitations; moreover, in the situation of flux that Guinea is experiencing, one cannot make any prediction whether the trend is towards a greater liberalization of private trade, or whether a return to the previously tightly controlled situation may happen.

Possible USAID Project

1st phase: spring infrastructure building/well building.

2nd phase: dry season gardening project from the spring infrastructure. This phase should start with a pilot project.

3rd phase: extension of dry season gardening activities to the wells.

2/ It is legal for a peasant to sell his produce directly to a consumer. What is illegal, however, is the sale to an intermediary which happens in the trade between the interior and Conakry.

3/ Every once in a while, trucks crossing the border illegally are stopped and their goods confiscated.

Dry Season Gardening Activities:

Pilot Project activities:

1. Socio-economic survey of women activities during the dry season. This could be done while at the same time trying to implement one garden in a village.
2. Research activities: Determining which fruit and vegetable crops would do the best under local dry season conditions, the amount of water required, disease and pest problems, selection of seeds, etc. This activity could be done at the Tindo research farm if the project is located in Faranah. Or it could be done in conjunction with (1).
3. Collective organization for water management. This is the most crucial element for the success of such a project. The water coming from the spring can irrigate an area of 0.5 ha to 3 ha (depending on the output of the spring) where village women can have a garden plot. Hence women will need to organize themselves so as to divide the land between themselves. Then comes the delicate problem of water management. This can be done by building by hand small earth ridges (1/2 foot high) to divide and divert the water. The water can thereby be easily channeled through all parts of the garden. Women need to be well organized and have a good sense of collective effort so as to decide whose plot is going to be watered during which part of the day, and who is responsible for rechannelling the water at various times of the day. How the women's organization could work out needs to be studied, maybe in conjunction with (1).

Considering the political organization of the country down to the village level, and the fact that, at each level of the political organization, there is a women's committee (including at the PRL level), the mobilization and organization of the women for the project should be greatly facilitated. Women are already organizing themselves for collective handicraft activities - AGRIMA (Enterprise Nationale pour l'Importation du Materiel Agricole) is also selling to the women's committees of the PRLs imported seeds from France for garden crops on a cash basis. Hence, there is enough evidence that such an activity as dry season gardening as well as the collective organization that it presupposes, is not totally foreign to rural women in Guinea; therefore the project stands a better chance to succeed because of the already existing political organization. Finally there is a tradition among African women of doing certain activities collectively.

ANNEX III

Table 1 and 2
Figures 1, 2, 3, and 4

TABLE 1

RECAPITULATIF DES DEMANDES DE FINANCEMENT

OPERATION	PERIODE	FINANCEMENT SOUHAITE	COMPOSITION	BUDGET EN UCE EEC	BUDGET EN US$	BUDGET EN FF
Poursuite du projet existant	Campagne 80-81	4 eme FED	Projets existants	9.000.000 Project	1.400.000 Budget	5.800.000
	d'octobre 81 a juillet 86	5 eme FED	Projets existants	6.200.000 ½ of	8.600.000 this	36.000.000
Extension du projet	d'octobre 81 a juillet 86	Recherche	Atelier de forage 1	5.700.000	7.900.000	33.000.000
	d'octobre 81 a juillet 86	Recherche	Atelier de forage 2	5.200.000	7.100.000	28.400.000
TOTAL	---	---	---	18.100.000	25.000.000	103.200.000

TABLE 2

HYDRAULIQUE VILLAGEOISE

TABLEAU E

VOLUME DES TRAVAUX A REALISER
DANS LA ZONE D'ACTION DU PROJET
" PUITS ET SOURCES"

Evaluation juillet 1979

(Nord du 11e parallèle)

N°	Région	Nb. de villages ou quartiers	Population (milliers habitants)	Puits		Sources	
				Urgence 1+2	Urgence 3	Urgence 1+2	Urgence 3
L1	Labé	303	137	66	30	97	79
L2	Pita	268	164	88	56	168	41
L3	Lelouma	208	100	35	27	115	63
L 4	Mali	296	145	30	35	122	78
L5	Koubia	160	70	10	13	96	48
L6	Tongue	190	75	10	49	41	88
B1	Koundara	37	68	58	26	0	0
B2	Gaoual	-	98	50	50	50	50
K1	Siguiri	143	140	71	55	0	0
K2	Mandiana	-	90	50	40	0	0
F1	Dabola	-	75	30	30	40	90
F2	Dinguiraye	220	95	55	46	16	13
TOTAL			1 257	553	447	745	550

FIGURE 1

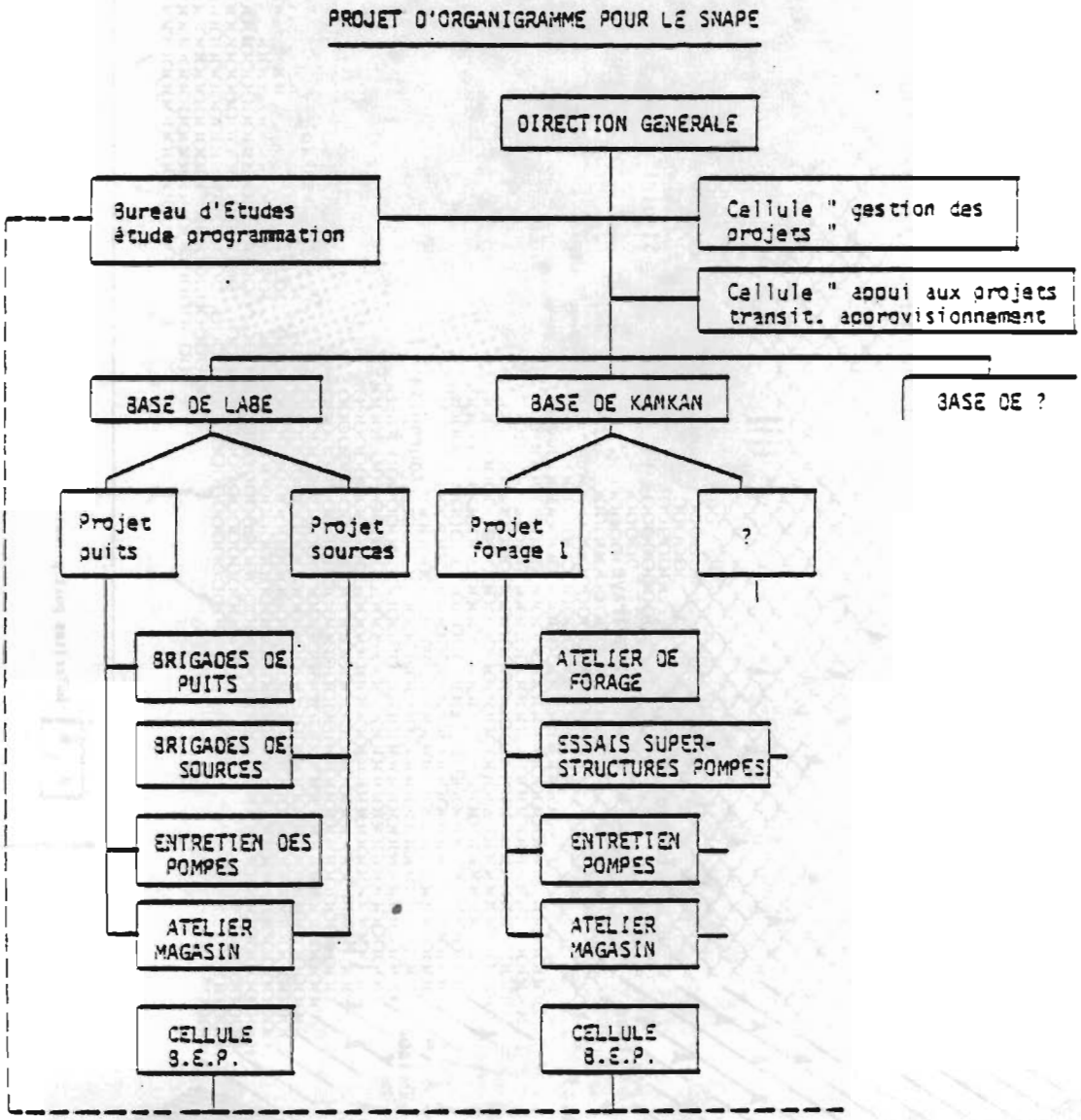
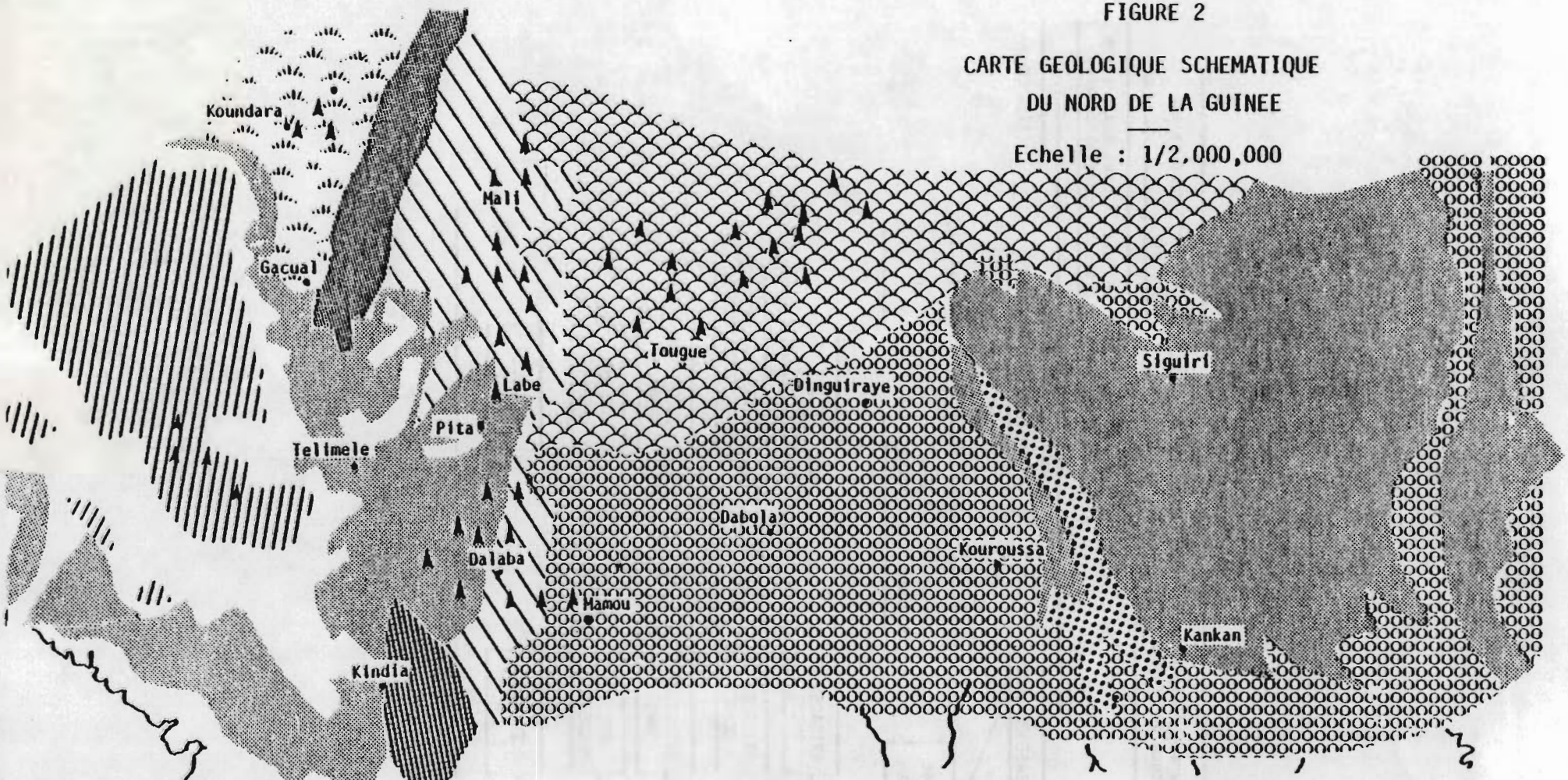

PROJET D'ORGANIGRAMME POUR LE SNAPE
DIRECTION GENERALE
Bureau d'Etudes étude programmation
Cellule " gestion des projets "
Cellule " appui aux projets transit. approvisionnement
BASE DE LABE
BASE DE KANKAN
BASE DE ?
Projet puits
Projet sources
Projet forage 1
?
BRIGADES DE PUITS
BRIGADES DE SOURCES
ENTRETIEN DES POMPES
ATELIER MAGASIN
CELLULE B.E.P.
ATELIER DE FORAGE
ESSAIS SUPER-STRUCTURES POMPES
ENTRETIEN POMPES
ATELIER MAGASIN
CELLULE B.E.P.

FIGURE 2

CARTE GEOLOGIQUE SCHEMATIQUE
DU NORD DE LA GUINEE

Echelle : 1/2,000,000



Dolerites post primaires

Terrains primaires sédimentaires

Devonien (schistes)

Gothlandien, série de Télimélé (grès, schistes)

Ordovicien, série de Pita (gres blancs) Sandstone

Cambrien supérieur, série de Youkounkoun (gres roses du Boundou)

Cambrien inférieur, série de Mali (petites et siltstones)

Terrains primaires métamorphiques

Série des Bossaris (micaschistes, quartzites)

Série des Rokelides

Terrains précambriens sédimentaires

Série de Dira-Kaata ou de Madina Kouta

gres petites siltstones

Terrains infracambriens

Birrimien (schistes, arkoses, quartzites)

Birrimien volcanique (roches vertes)

FIGURE 3

REPARTITION DES ..... EN POINTS D'EAU
DANS LA ZONE DU PROJET EAUX SOUTERRAINES

Echelle: 1/2 500.000

(URGENCES 1+2)

P/S Puits, Sources 553/745 Total general

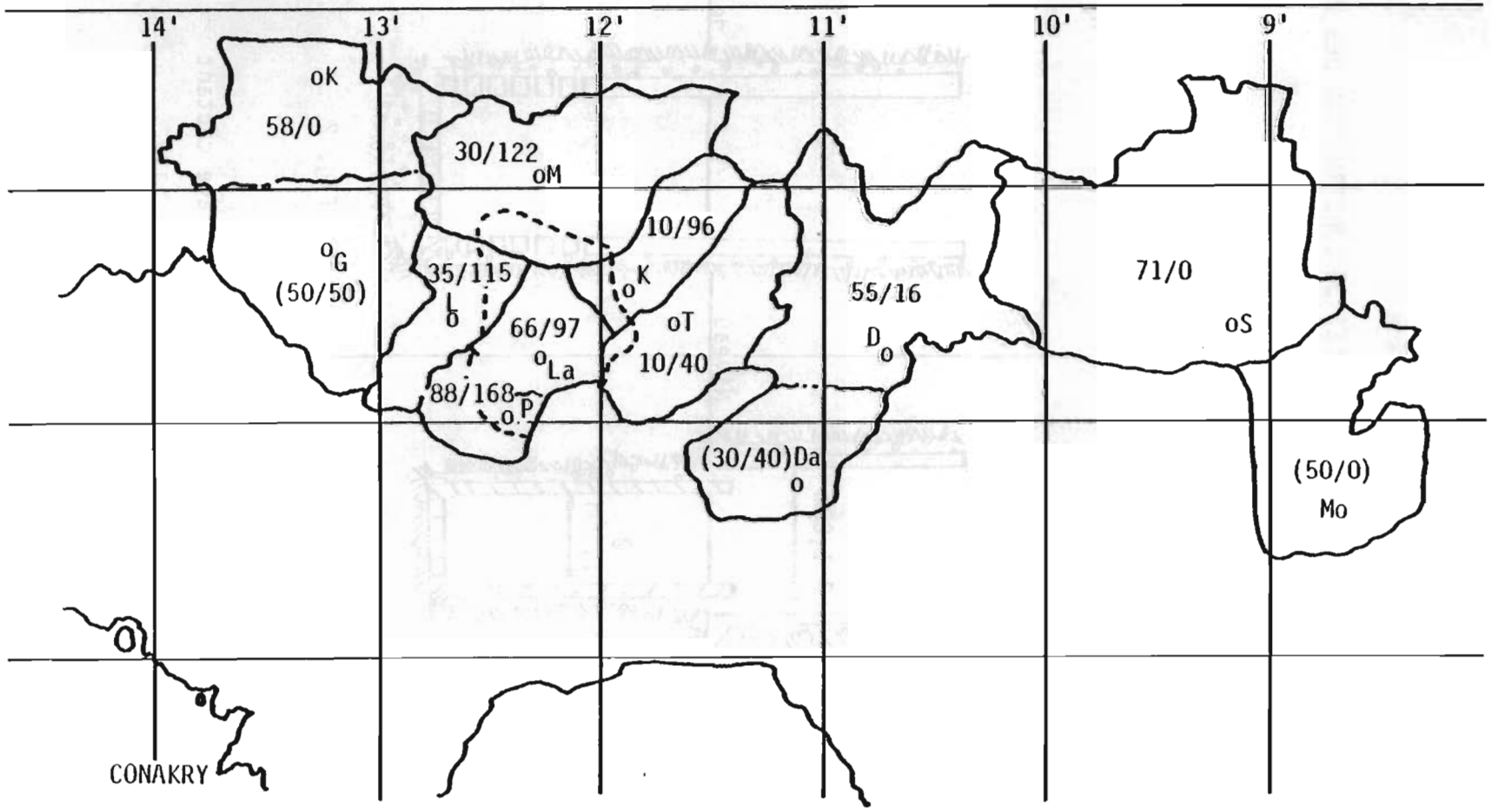


FIGURE 4

PRINCIPLES DE CONSTRUCTION DES PUITS

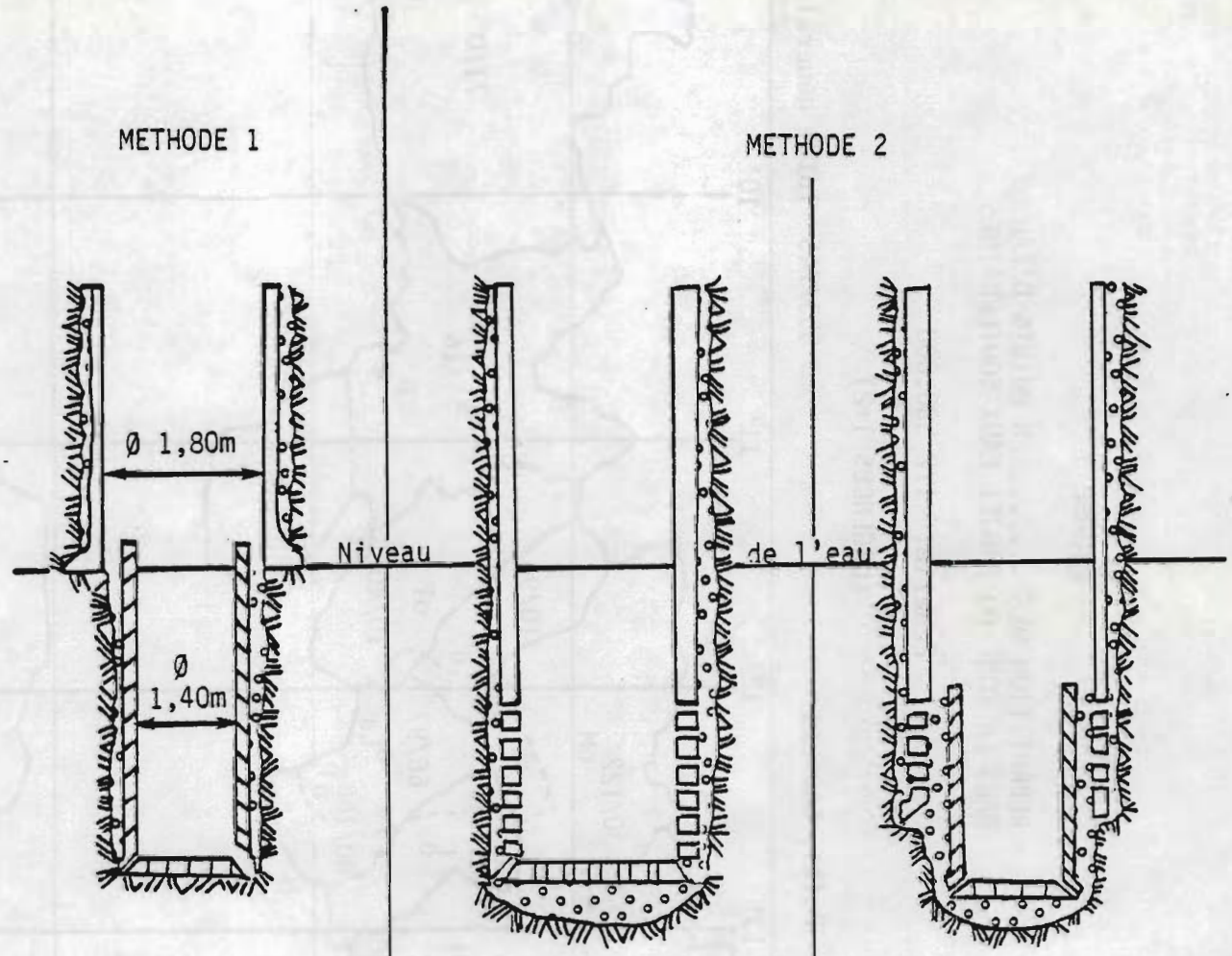


Fig. 1

Cuvelage coulé en place
Captage havé
(ou buses empilées)

Fig. 2

Cuvelage captant
havé

Fig. 3

Cuvelage captant
doubel et pralargé
par un captage autonome

REPUBLIQUE DE GUINEE

FED. 1978-1980. Projet Eaux Souterraines

FICHE DE CAPTAGE DE SOURCE

N° S2

PRL No: L1A Nom: LABÉ

SECTEUR: TINDELL Population du secteur Sup à 3.000

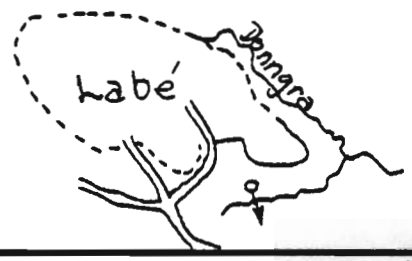
Nom de la source:

Chantier. Debut: 7.4.79 Fin: 15.5.79

Carte 1/50.000 de LABÉ 2c x: 799,000 Y: 1251800 Z: 1030

Mission: 1952 No. 63-64

Extrait de carte ou photo:



Localisation: FOND THALWEG SUR BERGE RG

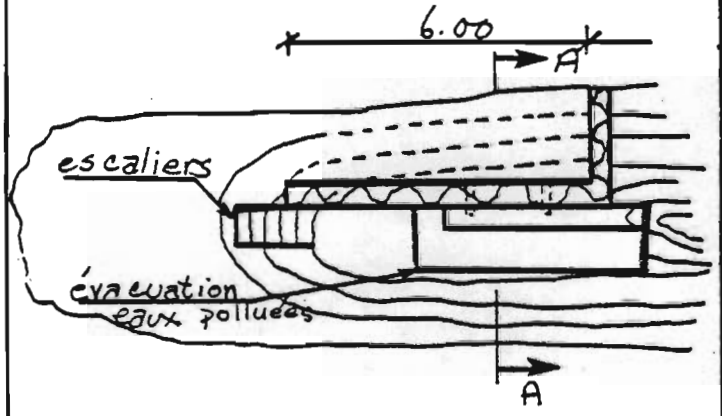
Description: CONTACT ARGILE PELITES ET FISSURES DANS PELITES

Remarques sur le debit: 0,15 l/s en SS (variable)

Principe de l'amenagement: DEGAGEMENT DES GRIFFORS - BASSIN MAÇONNE ASSIS SUR PELITES SAINES - AMENAGEMENT IMPORTANT DES ABORDS

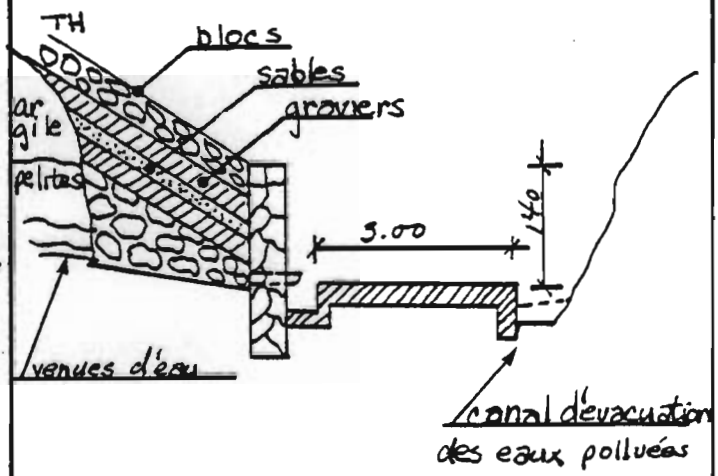
Croquis (indiquer l'echelle)

Plan



Coupes

A:A



Amenagemenis réalisés

Main d'oeuvre:	180	journees
Ciment:	6000	Kgs
Sable:	18	m^3
Graviers:	18	m^3
Cailloux:	30	m^3

Travaux. du: 14.79 au: 15.5.79

Mesures de debit (m^3/jour)

	Avant			Aprés amenagement			
Date	4-79		15.5.79	1.6.79			
Debit	13		43	170			

Entretien preconise et frequence: Suivit des resurgences laterales - Suivit de l'étancheite des murs et du Pare Feuille aval - Prevoir changement du filtre en 1990 Cimentation du filtre si entretien non realisé.

BURGEAP S.A. Fiche etablie le 1.12.79 par GALZIN

REPUBLIQUE DE GUINEE

FED. 1978-1980. Projet Eaux Souterraines

FICHE DE CAPTAGE DE SOURCE

N° S.5

PRL No: L/DB Nom: ABDOURAHMANE DIALLO

SECTEUR: KOURAHOUE Population du secteur Sup à 300

Nom de la source: KOURAHOUE

Chantier. Debut: 23-5-79 Fin: 18-6-79

Carte 1/50,000 de LABÉ 2D x: 802.200 Y: 1260700 Z: 960 Mission: 1952 No. 80-81

Extrait de carte ou photo:

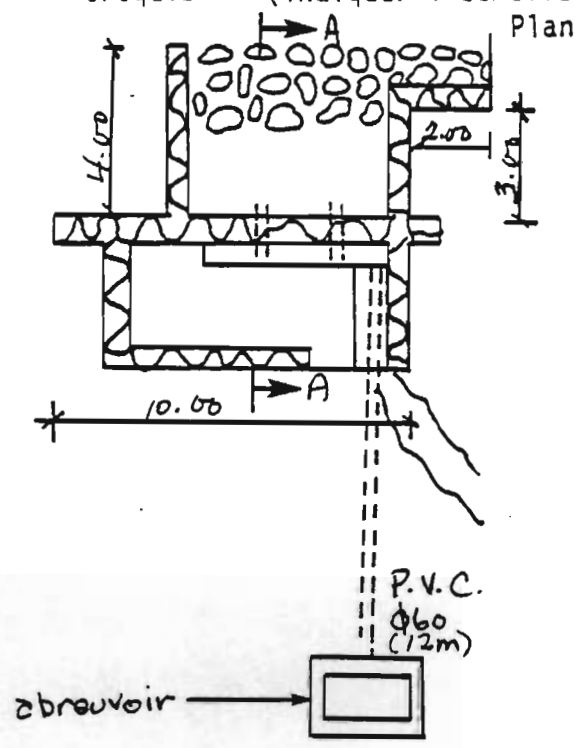
Localisation: FLANC MONTAGNE

Description: EBOULIS de dolerite DANS argile et grés altères (sable blanc)

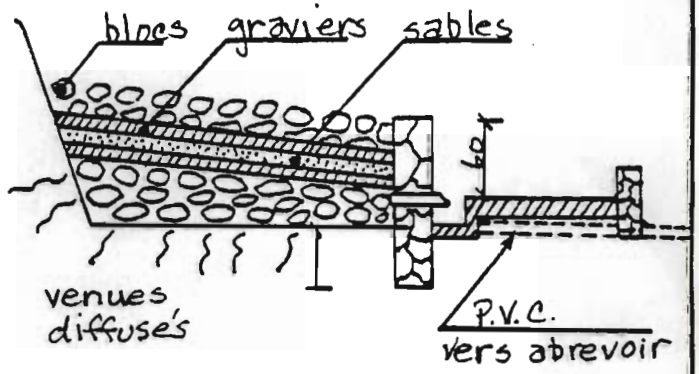
Remarques sur le debit: 0,1 l/s

Principe de l'amenagement: trés grand BASSIN drainant dans la ZONE D'EMERGENCE mur PARAFOUILLE PROFOND OU ASSIS sur gros BLOC de dolerite

Croquis (indiquer l'echelle)



Coupes



Amenagemenis réalisés

Main d'oeuvre:	100	journees
Ciment:	3000	Kgs
Sable:	9	m^3
Graviers:	12	m^3
Cailloux:	SUR PLACE	m^3

Travaux. du: 23.5.79 au: 18.6.79

Mesures de debit (m^3/jour)

	Avant		Apres amenagement				
Date	20.5.79		20.6.79	1.12.79	23.1.80		
Debit	8		24	86	103,5		

Entretien preconise et frequence: SURVEILLANCE DU FILTRE ET DU TUYAU PVC FILTRE A CHANGER EN 1995

BURGEAP S.A. | Fiche etablie le 1.12.79 par GALZIN

REPUBLIQUE DE GUINEE

FED. 1978-1980. Projet Eaux Souterraines

FICHE DE CAPTAGE DE SOURCE

N° 5.10

PRL No: LIDE Nom: GAMBIE

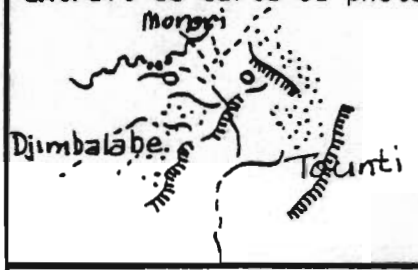
SECTEUR: Djimbalabé Population du secteur Sup: 4 600

Nom de la source: BOUNDOU SYLLA

Chantier. Debut: 1.12.79 Fin: 23.12.79

Carte 1/50,000 de LABÉ 2D | x: 803800 Y: 1265200 Z: 819 | Mission: 1952 No. 100

Extrait de carte ou photo:



Localisation: en flanc de montagne a 10m d'un axe découlement des eaux

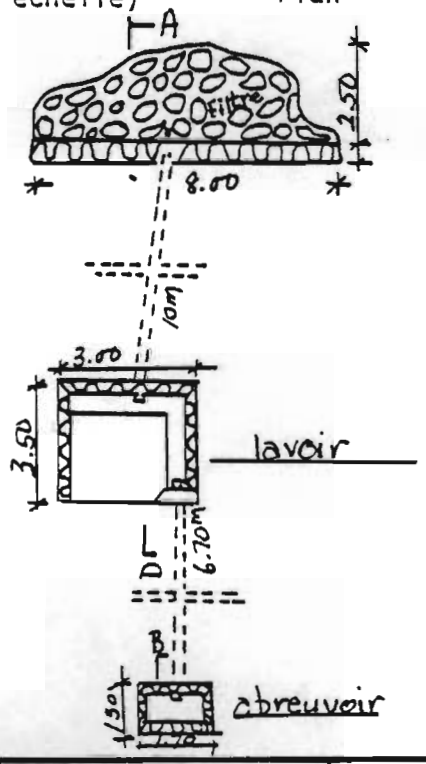
Description: sources de contact avec dolerite; resurgence dans banco et amas de blocs de dolerite

Remarques sur le debit: 50 l/l

Principe de l'amenagement: Drainage par bassin localisé sur les zones de resurgences barrage étanche-conduite vers lavoir et abreuvoir

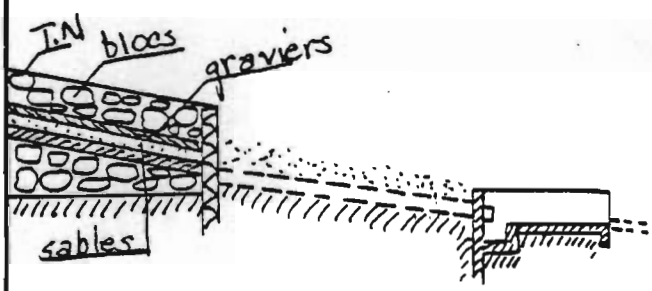
Croquis (indiquer l'echelle)

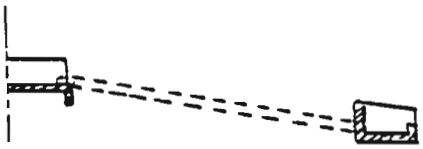
Plan



Coupes

A.A.





BB sur abreuvoir

Amenagemenis réalisés

Main d'oeuvre: 120 journees

Ciment: 2,800 Kgs

Sable: 6 m^3

Graviers: 6 m^3

Cailloux: sur place m^3

Travaux. du: 1-12-79 au: 23-17-79

Mesures de debit (m^3/jour)

	Avant		Apres amenagement				
Date	11. 79		12. 80	5. 80			
Debit	4.8		9.6	2.0			

Entretien preconise et frequence: nettoyage de laval filtre à changer en 1995

BURGEAP S.A. | Fiche etablie le 20-1.80 par GALZIN

REPUBLIQUE DE GUINEE

FED. 1978-1980. Projet Eaux Souterraines

FICHE DE CAPTAGE DE SOURCE

N° 3.16

PRL No: LIDA Nom: TOUNTOUROU

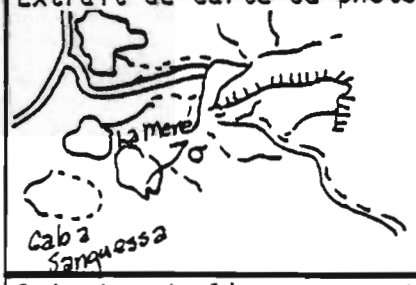
Nom de la source: ORÉ NILA

SECTEUR: ORÉ NILA Population du secteur sup: à 250

Chantier. Debut: 1.12.79 Fin: 9.1.80

Carte 1/50,000 de LABÉ x: 800300 Y: 1262250 Z: 1030 Mission: 1952 No. 100

Extrait de carte ou photo:



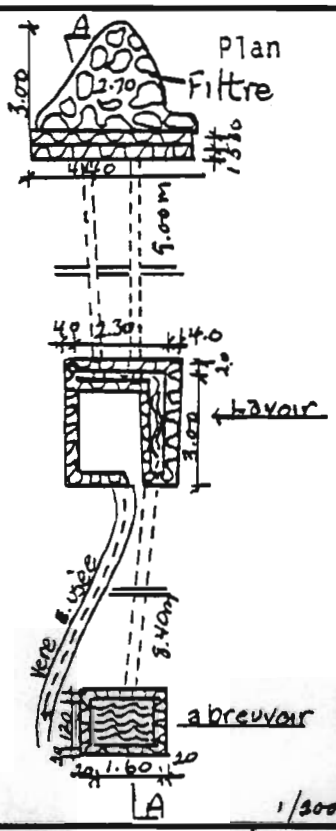
Localisation: FLANC MONTAGNE

Description: affleurement de nappe dans grés altérés probablement provoque par la presence de dolérite

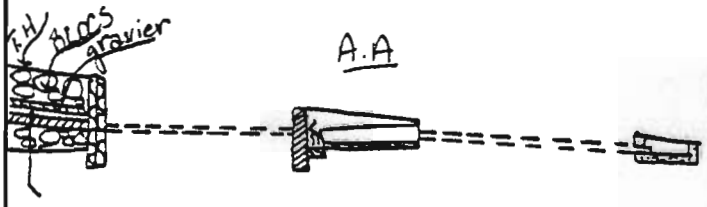
Remarques sur le debit: 100 l/h

Principe de l'amenagement: Bassin drainant dans grés alterés mer barrage-lavoir abreuvoir

Croquis (indiquer l'echelle)



Coupes



Amenagemenis réalisés

Main d'oeuvre: 192 journees

Ciment: 2000 Kgs

Sable: 9 m^3

Graviers: 12 m^3

Cailloux: sur place m^3

Travaux. du: 1-12-79 au: 9-1-80

Mesures de debit (m^3/jour)

	Avant		Apres amenagement				
Date	11-79		1-80	5-80			
Debit	2,4		19,2	8,4			

Entretien preconise et frequence Nettoyage aval remplacement du filtre en 1995

BURGEAP S.A. Fiche etablie le 20-1-80 par Galzin

REPUBLIQUE DE GUINEE

FED. 1978-1980. Projet Eaux Souterraines

FICHE DE CAPTAGE DE SOURCE

N° S.21

PRL No: L1AG Nom: MOSQUÉE

SECTEUR: SECTEUR V Population du secteur Sup. à 3000

Nom de la source: Bourdou Oubbé

Chantier. Debut: 4-1-80 Fin: 31-1-80

Carte 1/50.000 de Labé 2C x: 787550 Y: 1253000 Z: 990 Mission: 1952 No. 64-65

Extrait de carte ou photo:

Localisation: E bord de marigot au pied des berges d'une terrasse de banco de 2.50 m de haut

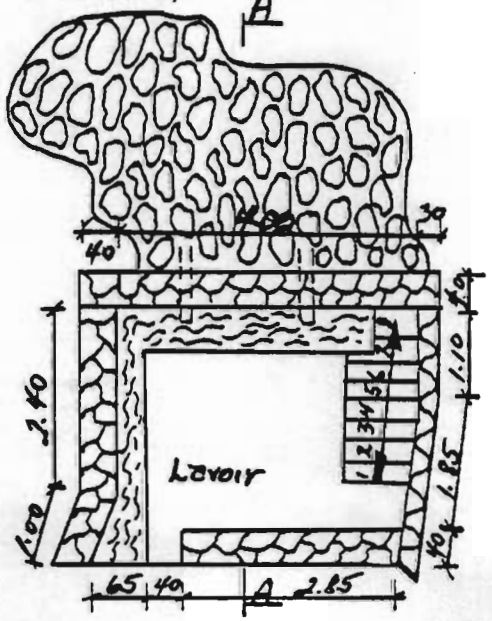
Description: Resurgence concentrée dans melange de blanco et argile lateritique

Remarques sur le debit: 100 l/l

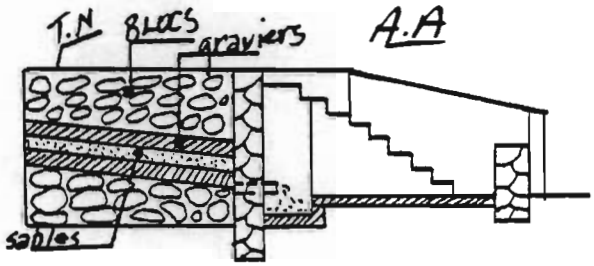
Principe de l'amenagement: Bassin drainant orienté vers les arrivées d'eaux concentrées mur souterrain profond - relevement maximum du N.S.

Croquis (indiquer l'echelle)

Plan



Coupes



Amenagemenis realises

Main d'oeuvre:	132	journees
Ciment:	2,000	Kgs
Sable:	6	m^3
Graviers:	9	m^3
Cailloux:	15	m^3

Travaux. du: 4-1-80 au: 31-1-80

Mesures de debit (m^3/jour)

	Avant		Apres amenagement				
Date	5-12-79		31-1-80	15-5-80			
Debit	2,4		19,2	9,6			

Entretien preconise et frequence Nettoyage du canal de sortie - changement du filtre en 1990

BURGEAP S.A. | Fiche etablie le 15-2-80 par Calvin

ANNEX IV

AGRICULTURAL ENGINEERING SECTOR

ANNEX IV

CONTENTS

SECTION 1

TRIP REPORT

TO: ALNA - Record

FROM: Guinea Agriculture Pre-project Assessment Activity Team

SUBJ: Trip Report, Guinea Agriculture Pre-Project Assessment Activity

The ALNA team was composed of:

Mr. Floyd McGrath, Team Leader, Agricultural Extension Specialist
Dr. William H. Bedoian, Rural Sociologist
Ms. Marie-Helene Collion, Planning & Rural Development Specialist
Mr. Fred M. Tileston, P.E. Agricultural Engineer

While in Guinea the following people accompanied the team on the field trip to Faranah and Middle Guinea areas:

Dr. Roy DeBolt Bronson, Agronomy Advisor USAID/REDSO
Mr. Abou Sylla. Division Chief, Financial Management, Ministry of Cooperation GOG
Mr. Lansana Camara, Agronomic Engineer, Ministry of Agriculture, Water, Forestry and FAPAs, GOG

Wednesday, April 16 (A.M.) - The team convened at ALNA's office in Washington, D.C. Several ALNA staff oriented the team on administrative procedures. (Attached is the detailed orientation agenda.)

In the afternoon the team was briefed by AID staff (listed under people contacted). It was emphasized that activities in Guinea were to be sought and developed that could utilize the PL 480 funds generated in Guinea as a result of the U.S. food import program. Also to develop, if possible, follow-on activities to the current AID agricultural project. Small infrastructure activities were noted as possible projects. All proposed activities were to address the agriculture sector and if possible, the poorest segment of the rural population. A brief evaluation was to be conducted of the AID Guinea Agricultural Production Capacity and Training project.

Thursday, April 17 (A.M.) - The team met with World Bank staff. They outlined three active projects under way or considered by the Bank in Guinea. They were: 1) Pineapple plantation activity at Daboya near Kindia, 2) Rice project at Gueckedou, and 3) Livestock project under preparation. The bank staff noted that their intervention in the agriculutre sector is very narrow and quite well defined.

Thursday April 17 (Noon) - We met with Mr. Spencer, Director, Costal West Africa, AID, who provided a political outlook of the situation in Guinea. It was emphasized that AID had some reservations about the GOG-collective farm effort in agriculture (FAPAs). AID believes that the FAPA systems will be very difficult to implement successfully and at best it appears that the system is not designed to help small farmers.

Thursday, April 17 (P.M.) - We left for Guinea. In Dakar it was discovered that the next flight to Conakry was Monday morning, April 21, and we were delayed three days in Dakar.

Monday April 21 to May 6 - The team met with GOG officials in the Ministries of Foreign Affairs, Agriculture and several subsidiary departments. Other donor agencies were visited, i.e., EEC, FAO, and World Bank. During this period arrangements were made by the GOG for the team, accompanied by appropriate GOG officials, to visit the site of AID agricultural projects in Faranah and Foulaya and other activities in the middle region of Guinea. Two weeks were to be devoted to the tour.

During visits and discussions with various officials in the GOG it was emphasized and reiterated that the FAPA systems were the "modus operandi" of working with agriculture systems in Guinea.

April 21 - May 7 - In Conakry, met with GOG officials and paid protocol visits. Also, during the visits the team conducted as much of the evaluation of the AID agricultural project as time permitted prior to the visit of the activity sites in Faranah and Foulaya.

All donor agencies visited stressed the difficulties of conducting activities in Guinea, particularly in obtaining pre-condition inputs from the GOG. This is due largely to the strenuous efforts of the GOG to get the FAPA underway. The GOG wants donor efforts to support the FAPA systems.

A program of particular interest to the team is an activity being supported partially by the EEC in the Labe region. The National Service for Water Point Development (SNAPE) is conducting the activity. This is a service organization within the Ministry of Agriculture (MOA). The SNAPE is a new organization, having received its official decree 19 January 1980. The activity had been conducted during a two-year period prior to the decree. The objective of SNAPE is to develop water points, usually low-producing wells or springs, to provide water supply for small villages. The EEC is providing the activity advisory support (TA) and direct budgetary support. Village farmers are the target group of this activity. This is a type of activity AID might be able to buy a piece of, provided the GOG will request assistance and EEC will cooperate.

May 7 - 10 - The team visited Faranah area. While in Faranah, the team visited the AID project sites of Faranah College and the Tindo Farm where they met with the faculty officials. Two FAPAs and some farm fields and villages were visited. The regional agricultural workshop (AGRIMA) was visited (see separate paper). At the FAPAs, the fields were observed at pre-planting and

planting conditions. The crops which would be mostly rain-fed rice would be grown during the coming rainy season. Other details of FAPAs are included in team member reports. The FAPAs are experiencing start up difficulties in the initial steps. This is the start of the second year operations.

May 11 - 13 - The team visited the Mamou area. Two FAPAs, a canning factory, a small agricultural and tool and machinery factory (AIOA), and Faculty of Agronomy at Tolo. The second FAPA visited, Dounet Nol, approximately 25 km from Mamou, is a water management type of operation largely used for rice production (27 ha in 1979, 40 ha planned for the 1980 season). The fields were rich-looking alluvial bottom land. The area can be flooded by water from the river during the rainy season. The cultivated area is bisected by a flood control dike with a concrete gate control structure in the dike which permits control of water flow between the two fields. A small dam (barrage) on the river helps to control the water during the rainy season. This FAPA had at least two diploma graduates (M.S.) working in this activity. One of them is a water management expert and plans to attend the University in Conakry.

The canning factory was provided by the Russians in 1965 and is in a complete state of disrepair. Very little of the equipment is salvageable. We got the sense that the general manager has the same opinion. Food technology is changing so rapidly that the equipment in place is badly outdated, rusted and/or scoured out. The entire plant needs replacement.

The small agricultural machinery factory (USOA) and agricultural workshop (AGRIMA) were visited. These activities are discussed in separate papers.

May 14 - 15 - We overnighted in Pita, approximately in the center of Middle Guinea (Fouta Djallon). On the 15th, Ms. Collion and Mr. Tileston drove to Labe to assess the SNAPE village water supply activity. The activity is on-going and involves the construction of wells and the development of springs for village water supply. This visit was made more pleasurable since the activity appears to be one that AID could justifiably support. We collected technical and social data that can be utilized in preparation of the project identification document (PID). Separate papers concerning the activity were prepared by the team. Messrs. McGrath and Bronson visited the state tobacco enterprise near Pita.

May 15 - 18 - In the Dalaba area, the agro-pastoral livestock experimental station, the Ministry of Animals and Fish Culture, AGRIMA and ERC agricultural stores depot were visited.

May 17 - 21 - In Kindia, an AGRIMA, a FAPA and, on the way to Conakry, a pineapple plantation and canning factory, 25 km south of Cayah, were visited. The FAPA observed near Kindia offered the best possibility for development. It was a large agricultural enterprise composed of 25 ha of flooded bottomland rice and 35 ha of irrigated upland area. The tract was irrigated by a 3 km conveyance canal starting from a small barrage on the river. The water is distributed over the fields through concrete canals. It is stated that the system was constructed by the Spanish in 1933. The concrete works have completely deteriorated and need complete rebuilding. The upland is still there and looks good. The low lying rice land is intermittently flooded and coarse sand is deposited as a result of flooding causing damage to the land.

May 21 - 29 - In Conakry, the team completed its assignment identifying the water supply and agricultural activity located at Labe as worthy of further

pursuit. Engineering and socio-economic data had been collected at Labe to formulate a preliminary project identification document (PID). Mr. McGrath, Ms. Collion and Mr. Carroll, project designer, REDSO, remained in Conakry to help prepare the PID.

SECTION 2

ACRONYMS AND ABBREVIATIONS

GOG	Government of Guinea
RPRG	Republique Populaire Revolutionaire de Guinee (People's Revolutionary Republic of Guinea)
SNAPE	Service National de l'Amenagement des Points d'Eau, National Service for Water and Point Development
BURGEAP	French Water Consulting Firm
FAO	Food and Agricultural Organization of the United Nations
INRAF	National Agricultural Institute at Foulaya
ONADER	Operation Nationale Pair le Developpement de la Rizculture
FAC	Fermes Agricoles Communales (Communal Agricultural Farms)
FAPAs	Fermes Agro-Pastorales d'Arrondissement (District Agro-Pastoral Farms)
PRL	Pouvoir Revolutionnaire Local(Local Revolutionary Power--village party cell)
CGR	Commissariat General de la Revolution (a political grouping of several regions)
AAO/ Conakry	The AID Affairs Office of the United States Agency for International Development in Guinea
USOA	Usine des Outils Agricole (Agricultural Tool Factory)
BAP	Brigade Attelee de Production (Animal Traction Brigade)
PDG	Parti Democratique de Guinee (Democratic Party of Guinea, the state party)
BMP	Brigade Mecanisee de Production (Mechanized Brigade for Production)
CEE	Communaute Economique Europeennee (European Economic Community)
ERC	Entreprise Regionale de Commercialisation (Regional Marketing Agency--official government stores)

UNDP	United Nations Development Program
WARDA	West Africa Rice Development Association
ALNA	A. L. Nellum and Associates, Inc.
NMG	Navy Marshall and Gordon
A&E	Architecture and Engineering
AGRIMA	Entreprise Nationale d'Importation du Materiel Agricole (National Service for the Importation of Agricultural Equipment)

SECTION 3

PEOPLE CONTACTED

Washington, D.C.

A. L. Nellum and Associates, Inc. (ALNA)

Ms. Donna Simms d'Almeida, Project Director

Mr. Alfred E. White, Senior Vice President

The ALNA Agricultural Assessment Team

Mr. Floyd McGrath, Agronomy Extension Specialist and Team Leader

Mr. Fred M. Tileston, Irrigation Agricultural Engineer

Ms. Marie-Helene Collion, Planning/Rural Development Specialist

Dr. William H. Bedoian, Rural Sociologist

USAID

Mr. Laurance M. Bond, Director AFR/DR/CAWARAP

Ms. Doris Mason, Project Officer, AFR/DR/CAWARAP

Mr. Bernard Lane, AFR/CWA, Desk Officer for Guinea

Mr. F. Spencer, Director AFR/CWA

WORLD BANK

Mr. Richard Noukelak, Loan Officer

Mr. Keith Oblitas, Project Officer (Agriculture)

Mr. Eugene Scanteie, Country Economist for Guinea

AAO/CONAKRY

Mr. Joseph Carroll, Guinea Project Officer and Coordinator of the Agricultural Assessment, REDSO/WA, Abidjan

Dr. Roy Bronson, Agronomist REDSO/WA, Abidjan

Mr. Walter Sherwin, AID Affairs Officer/Conakry

Mr. Norman L. Garner, Project Manager, Guinea Agricultural Production Capacity and Training Project (675-0201), AAO/Conakry

U.S. EMBASSY/CONAKRY

Mr. Oliver S. Crosby, Ambassador

Mr. Alan Thompson, DCM

Mr. Stephen Brundage, Economic and Commercial Counselor

NAVY MARSHALL & GORDON, Architects and Engineers, Faranah, GOG

Mr. Ted Finley, Architect

Mr. Ron Sullivan, Civil Engineer

Government of Guinea

Mr. Foumba Kourouma, Director of Guinea Agricultural Project (675-0201)

Mr. Sylla Camara, Chief of Cabinet

Mr. Ibrahim Kaba, Director of Cabinet, Ministry of Agriculture

Mr. Mamadi Keita, Minister of Higher Education and Scientific Research

Mr. Abou Sylla, Division Chief, Financial Management, Ministry of Cooperation

Mr. Alafe Kourouma, Minister of Agriculture, Water, Forests and FAPAs

Mr. N. Le Bihan, Grands Amenagements, Ministry of Agriculture

Mr. Phons Keita, Grands Amenagements, Ministry of Agriculture

Mr. Diallo Amadou, Director General, SNAPE

Mr. Paul Galzin, BURGEAP, Technical Engineer, SNAPE

Mr. Amara Conde, Technical Director, AGRIMA

Mr. Diam Bary Irechear, AGRIMA

Mr. Fanah Bangoura, AGRIMA

Mr. Lansana Camara, Agronomic Engineer, Ministry of Agriculture

Mr. Bernard Koundiano, Director General, Ministry of Agriculture

Mr. Mamadou Saliou Diallo, Agronomic Engineer, Ministry of Agriculture

Mr. Mamadou Thiano Diallo, Inspector General, FAPAs, Ministry of Agriculture

WORLD BANK (Contractor)

Mr. Hasan A. Tuluy, Economist, "Incentives Study Project"

UN DEVELOPMENT PROGRAM

Mr. Farouk Y. Tarzi, Assistant Resident Representative

Mr. Musy, Directorate of Hydrology

FOOD & AGRICULTURAL ORGANIZATION OF THE UN

Mr. Charles Pierson, Country Representative

ILACO, Dutch Consulting Firm (Water and Soil Development)

Mr. E. F. du Maine, Agricultural Processing Specialist

Mr. Mouter Spaargaren, Specialis, Management of Soils Survey

EUROPEAN ECONOMIC COMMUNITY

Mr. Philippe Darmuzey, Economic Counselor

IBRD-IDA (Conakry Water Supply Project)

Mr. Pierre Maxant, Water Supply Engineer, Brian Colghoun and Partners, London

FARANAH

FARANAH SCHOOL FACULTY

Dr. Diety Nandian Nandian Conde, Director of Faculty

Mr. Baha Soriari, Dean of Faculty

Mr. Sangua Mansar, Dean of Livestock

Mr. Bangaly Kourama, Dean of Rural Engineering

Mr. Aliou Camara, Vice Dean of Water and Forestry

Mr. Dielimaudion, Administrator of School

GOVERNMENT OF GUINEA

Governor, Region of Faranah

Director General

Chief of Protocol, Faranah

Various officials of FAC, FAPA and AGRIMA

At Mamou, Pita, Labe, Dalaba and Kindia, we met with the Governor of the Region, Director General, and Chief of Protocol. For technical matters we conferred with officials of FACs, ERCs, FAPAs and AGRIMA, and SNAPE officials in Labe.

SECTION 4

FOULAYA WATER SUPPLY

The existing water delivery system at Foulaya is in relative disrepair. A make-shift arrangement supplies water to some of the faculty housing. There is practically no running water at the campus. A virtually new system will be constructed by the AID project that will deliver water to the faculty housing and the main campus, including the new building. Components of the existing delivery system will, wherever possible, be rehabilitated and incorporated into the new system. This may achieve some reduction of costs. The distribution system will maintain a pressure of 25 p.s.i. The system will not include fire-fighting capability. Details of the design and rehabilitation of the system are shown in the detailed plans, located at Conakry. The water facilities will be constructed to customary U.S. standards of design of water supply and equipment.

The general scheme plans to collect water at two existing sites: one site south of the campus from the Quatamba River, a perennial stream which is located about 50 meters south of the existing pumping facility; the second, at the northeast, is a mountain-fed stream, whose flow is relatively constant throughout the year, according to Guinean officials. The average flow measured by the French in 1948, 1949, and 1950, was 5,216 g.p.m. The NMG staff measured the stream flow in June, 1976. It was 4,400 g.p.m. That amount of water is more than adequate to serve the needs of the northeast area of the campus. Water from both sources will be treated with chlorine near the pumping sites to maintain U.S. standards for potable water.

SECTION 5

WATER RESOURCE DEVELOPMENT, FARANAH AND TINDO DEMONSTRATION FARM

A contract was signed April 18, 1980, between the GOG and SATOM for construction of physical facilities of the project; some commodities have been ordered by AID and are in country for use by SATOM in the construction program. Two representatives of the A&E firm (NMG) are on board to supervise and monitor construction activities. SATOM has initiated construction activities at the site.

The evaluation team has reviewed the detailed construction plans prepared by NMG and they conform to U.S. standards for design and construction plans. The NMG resident representatives will be providing supervision of contract compliance during progress of the work.

The evaluation team, in reviewing the plans and operating program, noted that water supplies for Faranah and Tindo farms sites have not been fully assured.

FARANAH AND TINDO FARM SITES

Water Supply: There is an existing water distribution system at Faranah College, but it needs rehabilitation. Tindo Farm site has no distribution system. It is proposed in the general plan that the new water supply systems to be constructed under the contract will utilize deep drilled wells as the water supply. A hand-dug well was observed at the Faranah site, located near the north end of the farm mechanization construction building. The well is concrete lined, 15 meters deep, with a concrete cover with an access hole about 50 x 50 centimeters. A broken and dismantled hand pump was lying nearby. The hand pump had been installed in the cover of the well. A concrete lid (not at site) had been installed over

the access hole to prevent entry of surface water into the well. The pump has been out of service for a prolonged period. A small amount of water remained in the well. It has been contaminated for some time and the well is no longer a useable water supply. We were informed that there is another similar hand-dug well on the school site in similar condition and not useable. A 10 meter deep, 60 cm diameter test hole had been constructed recently by the project officials near the front of the administration building. The well was dry, and had not been tested in the rainy season. It had been back filled by the time of the team's visit. The school currently gets its water from the nearby Niger River.

The water supply delivery systems at Faranah and Tindo demonstration farm sites will be similar in design as the system planned at Foulaya. It will include a distribution system, elevated storage, design water pressures, diesel electric generators, pumps and chemical treatment of the water.

The assumption was made in the original plan that deep ground water will be available and can be exploited to provide a water supply for the delivery systems. It is proposed that deep bore holes be constructed. The ground water will be lifted by a pump into the delivery systems.

The city of Faranah is constructing a water supply system that will pump its water from the Niger River. The concrete intake structure and pump house under construction can be viewed from the nearby highway bridge crossing. A newly painted steel water storage tank can be observed, located on a high knoll in the city near the Governor's offices. The school plans to get its water supply from the city system. There will be a main line constructed along the street in front of the school gate. The city officials have assured the college that a hook-up can be made when the water

supply is available.

This aspect presents an interesting problem to the SATOM contract. The A&E people are on the site to assure that SATOM (the construction contractor) complies with the conditions of the contract. The contract calls for construction of a drilled well, under the assumption water will be found. It is not known whether the contract specifies production of water or only that a drilled hole will be constructed. The drilled well and the questionable availability of water are moot questions, if the information is correct, that the school can receive its water supply from the city system.

The water supply for the building complex of the Tindo Demonstration Farm was also planned to come from a drilled hole into an assumed ground water supply. The water supply situation is further complicated by the fact there are no well drilling rigs in Guinea. To bring in one rig only for this job would be extraordinarily, disproportionately expensive. To further complicate matters, qualified hydrogeological sources assure that there is no ground water data nor can expert opinion be expressed about the ground water situation in the Faranah area. Drilling wells would be little more than an exploration program. The most qualified sources offer a 50% opinion/chance of finding deep ground water. The Tindo Demonstration Farm complex could also get its water from the nearby Niger River.

These and other issues regarding the water supply situation for the AID project in Faranah and Tindo Demonstration Farm require more investigation than was permitted in the time allotted. Also, if the contract conditions are to be altered, change orders will need to be issued and legal issues may need resolution.

Recommendations

It is recommended that a water resource engineer, probably from REDSO be brought in to examine in depth the issues raised so far, and to evaluate the whole water supply situation, to plan and recommend appropriate courses of action. He should know the legal/contractual implications if change orders are required to the contract.

As a footnote to the Faranah water supply situation, the following information is offered: The World Bank (IDA) are conducting a water supply study for the city of Conakry through Brian Colghan and Partner, Co., London. In connection with the activity, it is planned to bring a well drilling company (George Stoow Co., London) to conduct a well drilling activity. The drilling company is expected to arrive within a few months and their contract with the GOG will be for a six month period. The firm hopes to remain in Guinea, if additional drilling businesses can be generated. There have been in the past other drilling companies operating in Guinea, but according to a Brian Colghan official, there are no drilling companies operating in Guinea other than the one that will be coming in under the Conakry water supply activity. The drilling firm hopes also to drill for water in seven cities in Guinea under a GOG program. Faranah is one of the cities proposed to be included in the drilling program. Presumably it is not common knowledge that Faranah city is developing its water supply from the Niger River.

Update by AAO/Conakry

Since the above report was prepared, most of the problems noted have been resolved. Agreement has been reached for the Faranah school and station to tie their water system into the main city line, which is being extended. A drilled well will serve as back-up in case of a failure of the city system. At Tindo, exploratory drillings indicate sufficient availability of water for a drilled well. The river remains available as a back-up solution.

SECTION 6

EXISTING CONSTRUCTION STANDARDS OBSERVED -- F.M. Tileston

The primary engineering concern is the structural scheme for any proposed new buildings in Guinea. It will apply in general to other multi-storied buildings that AID may propose there. The current technology in Guinea, in both the public and private sectors, suggests that recommendations are that some type of reinforced concrete frame be used. Other systems, such as steel joists, composite steel beams, pre-stressed precast units, etc. may be a better academic solution; but they should not be considered because their use might introduce a technology with new construction difficulties that could be insoluble or prohibitively expensive. This is the general consensus of both private contractors and Guinean officials who were interviewed by the staff of Navy, Marshall and Gordon (NMG) A & E firm employed to supervise construction of the school facilities at Foulaya and Faranah. This conclusion is confirmed by the observations and interviews of the AID/A.L. Nellum and Associates (ALNA) team during its tour in Guinea.

Although prefabricated housing and some buildings have been provided in other parts of the country, that type of prefabrication does not lend itself to the architectural requirements of the types of buildings proposed in the AID project.

According to NMG staff there were two structural schemes under consideration for the multi-storied buildings, such as the laboratory in Foulaya. The first is used primarily for buildings that are designed and constructed by the public works department of the GOG, buildings were observed in various stages of completion in Foulaya and Conakry. The structural frame consists of cast-in-place concrete beams and columns that are often rein-

forced with smooth bars although deformed bars are sometimes available.

In the construction procedure, the frames of concrete columns and beams are cast with the upper 8 or 10 inches of the beams left uncast with protruding stirrups and top bars. The floor, which is cast later, frames between the concrete beams. The first step in the floor construction is to place precast truss elements between the beams; these precast elements bear on the beams with the protruding stirrups. The precast truss element is about 7-8 inches deep and consists of a bottom chord of about 1½" X 6" concrete slab. The web consists of ¼" diameter smooth steel rods set at about a 45° angle. The top chord consists of continuous ¼" diameter smooth steel rods. After the precast element is placed between the beams, special concrete masonry units are placed over the element. The next step is to cast the concrete over the concrete masonry units filling the void between the units and also filling the upper portion of the previously cast concrete beams. The precast truss element serves as a form and acts monolithically with the cured concrete.

In Conakry the NMG planners toured a multi-storied structure that was almost ready to be occupied. The structure was designed by the Russians and was being constructed with Guinean labor and Russian supervision. The structural plans were examined. The frame consisted of one-way slabs spanning continously between beam and column bents. The construction was similar to conventional cast-in-place construction in the United States.

NMG people also noted that the drawings for the building that was designed by the Russians were as detailed as that for comparable buildings in the U.S. While the designs and drawings of the Russian systems could be used, if the systems utilizing the precast truss were used, more design detail will be required to ensure that it would meet U.S. standards.

According to authorities interviewed Guinea does not have a functioning written building code. Little information on design standards has been made available to the NMG staff.

NMG recommended that unless further information could be obtained on the precast truss system, that the multi-storied buildings be conventional, cast-in-place, one-way slabs, spanning continously between beam and column bents. This procedure would afford greater control of the design. Our inspection of the building construction procedures in Conakry and countryside indicates the same conclusion as those of NMG staff. The quality of observed concrete building frame construction is generally inferior to that in the U.S. strenuous efforts of improved quality control of concrete construction will have to be exerted to acheive appropriate concrete design strengths. The proposed new buildings will be designed so that the constructural systems (member and sizes and spans) will be in line with similar buildings in Guinea. A standard structural module will be used in the new multi-storied building so that similar member sizes can be used. This standardization will reduce overall material and forming costs. Specific requirements such as concrete and steel strengths were covered in the designs of the buildings. The NMG staff have installed a portable concrete strength test machine and other necessary test equipment to assure that the constructed facilities will meet the design standards. Construction supervision is also provided by NMG in the A & E contract to insure that the quality of the structural work meets U.S. standards.

The ground floors of the multi-storied structures will be concrete slabs in grade as is common with concrete floor construction in Guinea. The GOG conducted borings at Foulaya, Faranah and Tindo. The borings were conducted with a rotary bit, and soil bearing tests were performed by the Guineans.

Preliminary investigation at the site indicate that because of the light load involved, shallow spread footings can be used for foundations for the new buildings. Spread footings are common in Guinea.

The masonry that will be used for walls and partitions will not be expected to provide any structural integrity in the multi-storied buildings. The relatively poor workmanship in general was observed in masonry construction. It is unlikely that inprovements could be achieved without significantly increasing costs, which could serve no useful purpose since the masonry walls will not be assumed to assume any of the structural integrity of the buildings.

The electrical and mechanical systems in the new buildings will be constructed to conventional U.S. standards. No unusual requirements are needed; no unusual problems are anticipated. Expert supervision of electrical systems will be provided during construction.

SECTION 7

CONSTRUCTION MATERIALS AND ITEMS AVAILABLE OR FABRICATED IN GUINEA

Guinea is very rich in natural resources, but many minerals are not mined or processed in the country.

The following construction materials are produced, processed or fabricated in Guinea: The list is not inclusive but is a fair sample:

Sand

Gravel

Latente rock

Aluminum roofing,
(originating as

Fired hollow red bricks; fabricated in Kankan, Guinea about 175 miles by road to the northeast of Faranah

Wrought iron used for railings and grill work, the metal is imported; the forming and welding is done in Guinea

Nails for sheet roofing

Concrete blocks for infill walls are formed and fabricated in many instances on the construction site

Wood shutters, doors and trim are made in Guinea, but some finishing touches may have to be imported

Thatch for roofing is available and used throughout Guinea

All machine and hand tools

Data on pricing was unavailable at the time of writing; however, at official market prices, it can be assumed that all items are expensive.

SECTION 8

IMPORTATION OF CONSTRUCTION MATERIALS AND ITEMS NOT AVAILABLE IN GUINEA

The importation of construction materials into Guinea is very expensive, as is the case of importation of goods into all West African countries.

One of the reasons for the added expense of importation is the prolonged delay of off-loading ships at Conakry. Shipping companies will add a surcharge to goods which are transported by boat to Conakry, increasing the cost of goods by 20% to 35% over the original FOB value. The following is a representative list of imported construction materials used widely in construction work in Guinea:

Cement for mortar concrete and stucco

Fixtures for bathrooms and kitchens

Ceramic tile for walls and floor

Construction lumber for forming and forms

Finish lumber for trim, sash, shutters, doors, etc.

SECTION 9

CONSTRUCTION COMPANIES IN GUINEA

Construction companies known to be operating in Guinea are:

COFEL (Spanish), Road and Plant Construction

IMPRESA-ASTALDI-ESTERO(Italian), Road Construction

JEAN LEFEBVRE (French), Road Construction

LOUIS BERGER (American), Management Consultant, Road Maintenance

BROWN BOVERI (Swiss) Lighting and Electrification

FRANCE CABLE ET RADIO, Telephone and Telegraph Installation

ENERGOPROJECT (Yugolsav), General Construction

NIPPON KOEL CO. LTD (Japan), Construction, General Consulting

SATOM (French), General Construction

TOCSA (Spanish), General Construction

GTM (French), General Construction

Falkenberg & Braun (Swiss), General Construction

SECTION 10

CONTRACTORS AND CONSTRUCTION

In Guinea, there are a number of foreign based construction organizations that have offices in Guinea and employ about 95% Guinean labor force. By labor force is meant: carpenters, masons, plumbers, electricians, mechanical equipment workers, and other skilled workers in addition to common laborers. Supervisory personnel, in some specialty areas such as mecnanical equipment, electrical work, etc. are brought in from the home office for a particular project. These companies are considered as Guinean firms in light of their employment practices and resident status in Guinea.

SECTION 11

AGRICULTURAL MACHINERY ASSESSMENT, GUINEA

Four AGRIMA workshops in Middle Guinea, USOA in Mamou and the AGRIMA central parts depot in Conakry were visited by the team. Presumably there is a workshop located in each of the 33 regions of Guinea. Those visited represent 12% of the total workshops in country. The uniform conditions of the shops visited suggest the others are experiencing similar situations.

Conclusions

1. The servicing and maintenance of Universal 65 hp diesel tractors (Roumanian manufactured) represent 90% of the work load of the shops.

2. The uniformity of tractors serviced tends to mitigate against the parts procurement problem, as fewer diverse parts are required. Most shops are not experiencing spare parts procurement difficulties although some complaints were voiced about delayed deliveries. This is understandable in view of the disarray of the central parts depot.

3. The majority of shops lack protected overhaul and working areas; very few hand tools are evidenced. Only one shop is equipped with small machine tools and test equipment necessary to conduct good quality tractor repair. The shops had parts warehouses. Quality of operation ranged from good to poor. All lacked adequate storage space.

4. 700 Italian rice harvesters (12 hp diesel) were imported in '78/'79. 200 are stored in Conakry and about 100 stored in the shops, for a total of 300 which were observed. This equipment is not being utilized although it is in excellent condition; there is a problem with the binder feature and perhaps other operational problems.

5. Equipment serviced and maintained by the shops, except for a minuscule amount, is operating on state enterprises, i.e., FAPAs, FACs, state agro-industrial enterprises and experimental farms.

Recommendations

1. That a training program be initiated addressing the spare parts, maintenance and operation systems. This could be conducted by TA program.

2. Additional and adequate shop working space facilities should be constructed by the GOG.

3. Small machine tool, test equipment and hand tools should be acquired.

4. No additional tractor equipment should be imported until progress is achieved toward the aforementioned recommendations 1 through 3. Additional tractor equipment would only compound AGRIMA's operational difficulties.

SECTION 12

ASSESSMENT OF MINISTRY OF AGRICULTURE (MOA) AGRIMA EQUIPMENT OPERATION AND MAINTENANCE AND SPARE PARTS FACILITIES AND SMALL EQUIPMENT MANUFACTURE SHOPS (USOA)

The AGRIMA, agricultural workshops at Faranah, Mamou, Pita, Dalaba and Kindia were visited. Also, the USOA small machinery manufacture shop in Mamou and the AGRIMA central stores spare parts warehouse in Conakry were visited. Detailed observations of the facilities are presented in Annexes 1 through 7.

The workshops are conducting maintenance and repair services almost exclusively for Universal Roumanian diesel tractors. The average number of tractors under regular service by the five workshops was 108. If this figure is extrapolated over the 33 regions of Guinea, the total number of Universal tractors in Guinea would be about 3564 units.

The newspapers reported that 3250 tractors have been imported and allocated to the regions. There seems to be a fair distribution of these tractors across the country. This is a plus for the program, as standardization of equipment on one make and model reduces maintenance and spare parts difficulties.

A number of Universal 65 hp diesel tractors and occasionally a Setor 65 hp tractor were observed throughout the countryside. No Setors were observed in the shops and infrequently observed on the road. Universals were frequently observed in the workshops and on the road. It is assumed that the reported number of 3250 Universal 65 hp tractors imported is about the total number in Guinea. This is a limited number of farm tractors considering the size

and population of Guinea.

The workshop physical facilities ranged from fairly good with a good machine and repair buildings at Faranah to an open field for a repair shop in Pita. The workshops maintain a spare parts storage facility although it is too small and crowded.

There are trained mechanics at the workshops. No complaints were voiced concerning shortage of mechanics. There were about 16 deadlined tractors at Pita. No other shop had as large a number of deadlined machines. Some tractors were observed deadlined in the field. It would appear that the number of mechanics available could maintain the equipment, if the parts and physical shop facilities situations were improved. In this aspect, very few hand tools were evident in the shops. Mechanics simply can't do quality repair work without proper hand tools and adequate shop facilities. As the tractors begin to break down more rapidly and inevitably more new units are received, a mechanic shortage will develop. The shops conduct three month training courses for driver-mechanics. The drivers are trained to conduct minor repairs in the field. This provides a reservoir of trained mechanics as the driver-mechanics learn the business.

It was reported that 700 Lombardini Bedagani, 12 hp diesel rice harvestors were imported about 1977-78, 200 units were observed stored in Conakry (AGRIMA) and from 4 to 20 observed in each of the workshops. All are in good shape, virtually unused. Workshop officials complained of a problem with the "binder tie feature" of the machines. These are a nice looking rice harvestor and binder. There are both riding and walking models. Although rubber tired, broad guage flotation steel padded wheels were available. These are necessary equipment to operate the machine in muddy and swampy conditions. It

would be interesting to investigate further to determine why the machines are not utilized.

The farm equipment serviced by the shops is utilized by GOG agro-enterprises, such as FAPAs, PRLs, and FACs. There is evidence that very few entrepeneurs or private farmers are permitted access to the shop facilities. This aspect needs more investigation to determine if private agro-industry have a channel for access to the shops. A minuscule amount of private equipment was observed being serviced.

Inputs necessary for modern agriculture i.e. fertilizers, seed, insecticides and pesticides were in short supply at the AGRIMA's and in some cases none had ever been delivered.

USOA small machinery manufacture shop in Mamou was impressive as to its layout and apparent productive capacity. The shop was shut down for a two month vacation. The general layout gives the impression of an ongoing concern. The shop should be observed during full operation. Production of hand and animal tractor equipment have declined by two-thirds from a total of 205,000 units in 1976 to 69,000 units in 1979. The cause of the production decline is not clear. It was stated, the lack of secondary parts caused the decline. A number of piles of animal traction narrow-tires manufactured by USOA was observed in the AGRIMA shops and in the villages. This could indicate over production of the units or that the equipment is not designed for local conditions. The hand tools and animal traction equipment manufactured by USOA is destined for small farmer use. No AID could assist this activity. It needs technical assistance and more investigation of design, production and marketing of equipment is required. The flaw in this is that it is totally state owned. USAID may find it difficult to justify assisting a state owned manufacturing entity.

The AGRIMA workshop institutions are in place and fairly well operating but there are several constraints to effective operation. Most importantly it needs management training, technical assistance in all aspects of operations. Also it lacks adequate physical shop repair facilities, hand tools and storeroom for spare parts. A requirement for additional training of workshop staff is indicated. No additional equipment delivered to the AGRIMA systems will relieve its problems. Rather additional equipment would exacerbate its existing problems. The first step would be to put the AGRIMA systems in better operating order by supply of technical assistance, some commodities and hand tools, adequate shop facilities and parts storerooms constructed were necessary. There is plenty of farm equipment on hand for the moment. There is no justification for increasing equipment numbers until the existing operation and maintenance and spare parts systems are put in better order.

SECTION 13

LITERATURE REVIEWED

1. Projet de Creation de Brigades de Puits, Republique de Guinee Domaine de la Promotion Rurale, Ministere des Amenagements, Peche et Elevage Direction General de L'Hydraulique (Rapport Preliminaire) by BURGEAP, Novembre 1978.
2. Project Eaux Souterraines, Republique Populaire Revolutionnaire de Guinee, Direction Generale de L'Hydraulique, Resultes des Travaux 1978-1979 by BURGEAP, Programme 1979-80, Aout 1979.
3. Mission D'Evaluation Pour la Constitution D'Une Unite de Forage D'Ean en Guinee, Republique Populaire et Revolutionnaire de Guinee, Rapport Final, by BURGEAP, Janvier, 1980.
4. Project Paper (PP) Guinea Agricultural Production and Training, by USAID, February 1976.
5. Project Authorization and Request for Allotment of Funds (PHF), by USAID, August 1977.

APPENDICES

APPENDIX 1

Agricultural Central Machinery Spare Parts Depot, Conakry

The Ministry of Agriculture central spare parts storage depot is located about 5km from Conakry along the road to the airport. The complex consists of an array of buildings, both open and closed warehouses, utilized to store agricultural equipment and spare parts, largely from overseas. Spare parts crates were observed from the U.S.A., USSR, Yougoslavia, France, and Italy. Scattered about the yard were 200 small motorized tractors, rice harvesters, Lombardini Bedogni-make 12 hp diesels from Italy. They are new equipment and it was said they have been laying in the yard for over two years. The trash surrounding them and weeds growing through the equipment indicates a prolonged storage period. There were ten motorized French manufacture pineapple cultivators, stored for about the same period. Although the equipment was stored in a disorderly fashion and the majority is exposed to the weather, (some are in the open sheds), it is in fairly good condition and with little maintenance would apparently be workable.

The spare parts storage warehouse is about a 40 x 40 meter covered enclosed building. There are a few metal shelves along the walls with spare parts arranged along the shelves. The center space of the building was occupied helter skelter by opened and unopened crates of parts from the various containers listed above. There was no particular order about anything in the warehouse. I was informed the value of parts in storage was about 1.5 mil sylis and that about 3.0 mil sylis annually of spare parts are received and processed by the department.

When the officials were queried about inventory control, searching produced an inventory card; when dusted off, there was a customary form for

maintaining inventory and control of shelved spare parts. The system is not being fully utilized. It is not known how spare parts are retrieved and dispensed. In the hour and a half mid-morning visit to the warehouse, not one part passed out the door. This is significant, as with a spare parts depot of this size, there should have been a variety of spare parts being dispensed.

There were at least 20 officials in and around the warehouse, apparently mostly visiting, and a little desultory work was observed. Spare parts procurement and dispensing is a critical element in operating and maintaining mechanized agricultural equipment. It has been reported by other donors that considerable mechanized farm equipment is deadlined. It is quite easy to see why, when a crucial element like expediting parts is not properly functioning as was observed. It can't be said that lack of spare parts processing is the only element inhibiting operation and maintenance of equipment, but this is a critical step that must function if a generalized mechanized agriculture is to be maintained.

The spare parts situation must be addressed to properly maintain equipment. One way is to provide long-term technical assistance in warehousing and storage activities and maintain that TA until machinery parts are moving smoothly through the system. That TA may not be enough. There may be an array of obstacles equally crucial in the spare parts delivery systems. They are: port clearances, transportation to work sites, lack of skilled mechanics to install the parts and skilled drivers and maintenance people for the equipment. All these elements operating smoothly are crucial to successful equipment operation and maintenance and it would serve no useful purpose to offer aid unless all obstacles in the chain of supply are addressed.

To sum up, Dr. Bronson in his memo of January 18, 1980 stated, "Given the lack of budget for continuing operations, maintenance and repair, and provision of machinery and equipment as requested by GOG would constitute gifts with short useful life and doubtful development effect." Thus, any equipment aid supplied to the GOG would only become an "equipment drop" and would serve no long-term development good.

APPENDIX 2

USOA MAMOU Small Machinery Manufacture Shop

This is a complex of six large buildings on the edge of Mamou, each about 70 x 15 meters in a compound. The building includes cast iron and supply stores, welding shop, foundry, forging and stamping, machines die manufacture, paint shop, assembly of farm tools and a materials test lab. The shops are equipped to manufacture dies for the stamp and forging presses. The machine tools were supplied by the Chinese in 1973. The Chinese left in the fall of 1979. Presumably they provided technical assistance during that period. The shop was closed due to a vacation period (April and May). No assessment could be made of the operations in the shops. The shops present an overall impression of being in order, were fairly ship-shape, clean and the machine tools displayed evidence of having been recently utilized. The entire complex reflected the appearance of good management. It would be interesting to observe the shops under operation to determine if the fabrication activities are as well managed as the static appearance of the shops would imply.

The shops had a large array of very sophisticated machine tool equipment, all about the same age. The equipment was received about 1973-74. With this type of machine tools and equipment, just about any tractor part short of ball bearings could be manufactured, if the basic steel materials, forging blanks and know-how skills are available. One lathe is large enough to turn railroad wheels. This is a very impressive array of fine machine tools. The manufactured items observed were small hand agricultural tools and bullock drawn plows and harrows. The shops were laid out in an assembly line fashion from basic stores, elemental cutting

and forging, to machining, final assembly and finish and painting, to packaging for shipment. A supply of wire bailed hand hoes were observed ready for shipment. For shops of this size and capacity, there was relatively little finished farm equipment at hand. The shops manufacture hand hoes, axes, sickles, machetes, bullock-drawn plows and harrows. The shop apparently only manufactures hand tools and small bullock-drawn equipment. The shop is equipped with the machine tools to manufacture larger farm equipment.

The production record for all pieces of farm equipment are:

Year	Total Pieces
1976	204,583
1977	186,055
1978	140,983
1979	68,791

These figures are interesting as this was the period of Chinese assistance (if indeed they were providing TA). A steady decline of production is displayed from 1976. When officials were queried on this point, they stated lack of secondary parts was the cause of decline in production. This is interesting, as the observed equipment produced by the shops requires no special parts that couldn't be manufactured by the shop. This activity could be an interesting project for AID to pursue. Small farm hand and bullock drawn equipment tools will be utilized by the small farmer. The issues to be addressed are:

1. The shop needs to be evaluated by a small equipment industrial specialist (I'm not one). The claim that there is a secondary parts lack needs assessment to determine what that is. Is there a problem of supply of

basic iron materials?

2. Are there marketing problems? Do the goods flow smoothly to market? What is the market? Is it small farmers and are prices of products fair to small farmers? Are the tools properly designed for small farmer use? In a shop of this size and capacity, is there a possibility of over-production?

3. What other small implements and/or farm tools could the shop manufacture that would be needed by the small farmers? For example, could manual water pumps be produced for the village water supply program?

APPENDIX 3

AGRIMA Agricultural Workshop - Faranah

The workshop lies near the west bank of the Niger River north of the highway bridge crossing. The shop building is about 50 x 25 meters where the machine tool and tractor repair work is conducted. The compound also includes an open shed 50 x 20 meters and other ancillary storage buildings. There is plenty of room to move equipment about. The yard is not crowded.

The workshop building includes an array of machine tools as follows:

3 milling machines
2 boing mills
3 lathes
3 drill presses
1 cylinder grinder and hone
1 crank shaft alignment machine
1 diesel pump test setup
1 crank shaft regrinder
1 engine tester
1 valve grinder

The machine tools were observed to be North Korean, Russian or Czechoslovakian manufacture. All appeared to be in working condition and fairly new; not more than 3-4 years old. The accumulation of grease and debris on the machines indicates prolonged non-usage. The machines provide the capability of a major overhaul and manufacture of some parts of most farm tractors. It was observed that one of the machines was

an aluminum piston that had been cast in a foundry in Faranah. With this array of machine tools, many parts could be manufactured provided raw materials, forging blanks and technical skills are available.

The shop staff includes a workshop superintendent, nine mechanics and three helpers. The staff did not appear too busy and there is a singular batch of small hand tools usually found in a shop of this size. As to skills, the workshop superintendent was personally working on a tractor. This could indicate a lack of necessary skills among the mechanics. The shop maintains 200 Universal tractors (65 hp diesel) in the Faranah region both for FAPAs and other GOG agricultural activities. There were 6 tractors deadlined in the shop. The official would not state the deadline rate. Spare parts are received in annual deliveries from the central stores in Canakry. Additional parts may be procured on special order.

Twenty Lombardini Bedagoni-make Italian rice harvestors (2 hp diesel) are stored in the workshop for over a year and a half. The harvestors are new and unutilized. We were told that the farmers do not know how to use them so they remain in storage.

APPENDIX 4

AGRIMA - Agricultural Workshop, Mamou

The workshop is located in Mamou and consists of a relatively small compound with a small spare parts store building and two open front sheds where tractor repairs can be conducted.

It was reported that 75 wheel tractors(65 hp Universal diesel)were repaired during 1978-79. Of these, 5 were privately owned, 4 were state organization machines. Three motor pumps were repaired. In the service region there are 76 Universal 65 hp diesel tractors and 7 Setor tractors, all about 45 hp diesel. Those tractors observed in the workshops in Faranah and in Mamou and on the road show a standardization on the 65 hp size diesel.

In one of the open covered sheds were six Italian rice harvesters (Lombardini Bedogni manufacture 12 hp diesel), similar to those observed stored in Conakry and Faranah shops. We were told that each FAPA is to have one Italian machine for demonstration purposes. The machines are new and have been in the shop for two years. There seems to be some sort of a problem with the bundle tier feature of the machine.

There were 18 large new disk plows in the compound. They are not required as those in service are not giving too much trouble so these are apparently reserves. There were at least 50 bullock harrows stacked in the yard. Type manufactured by USOA.

The spare parts store is fairly haphazard. About 1/3 of the parts had been bined and shelved. A shipment of parts had recently been received and a number of crates and boxes were strewn around making it difficult to move around the parts storeroom. The parts warehouse was in about the same

condition as central parts stores in Conakry but smaller in size. The shelves were full. Where the new additional parts could be stored or shelved was not apparent. There were also inventory cards but not correlated to shelved parts. It would be interesting to know how parts are retrieved for dispersal. The officials stated there is no spare parts supply problem.

There is no machine shop for necessary small work on the tractors. It was stated that machine work would be done in the shops of the small farm implement factory (USOA). This is reasonable as USOA has plenty of capability for machine work.

The shop is staffed with one chief and four mechanics and helpers. There were three tractors deadlined in the yard. One had been there a year. No money had been provided to repair it. Like the Faranah shop, there is a dearth of hand tools. One could almost say the shop is a "sledge hammer crow bar" operation. Somehow, repair work and spare parts get put on the machines.

Considerable good junk, abandoned tractors, automotive and construction equipment, may be observed in Faranah and Mamou and along the road. This indicated a lack of spare parts and/or skills to return the equipment to service. Likely both aspects account for the "down" equipment. Much of the staff is good only for foundry supply.

If AID were to involve itself in any farm equipment program, technical assistance and training would be required from port clearances in all steps and aspects down to the tractor drivers on the farm. The majority of the equipment is utilized in the FAPA systems and even if an AID equipment program were devised, it would not impact on the small farmer. The program would enhance the GOG effort to engage in state farming. The small farmer would benefit little if at all.

APPENDIX 5

AGRIMA - Agricultural Workshop, Pita

The workshop is located in Pita and is really not a compound. Tractor repairs are conducted in an open lot. Nearby is a relatively small storeroom stocked with largely fast moving small parts. There is no machine shop nor test equipment to support repair work and there are very few hand tools. The chief workshop officer reported that they were able to only install or replace parts. Even minor parts repair or manufacture cannot be done. The machines were conducting a major engine overhaul out in the open on the ground. It is difficult to maintain clean conditions necessary for an adequate tractor overhaul. There were 32 Universal tractors in the lot. About half were deadlined for repair and the other half on standby for use.

The workshop maintains and repairs:

- 87 - Universal 65 hp tractors diesel
  A few are Sector #450 tractors diesel
- 10 - Lambardini Bedogni make, Italian rice harvestor 12 hp diesel; one-half of the Italian machines were equipped with flotation wheels
- 8 - Disc plows
- 15 - Tandem harrows awaiting repairs
- 4 - Piles of bullock drawn harrows

It is interesting to note that in and around every AGRIMA, that haphazard piles of bullock drawn harrows can be observed. This is the type manufactured by USOA, Mamou. It is not known whether these piles of equipment are the result of surplus manufacture or possibly a design not suitable for local conditions.

APPENDIX 6

AGRIMA - Agricultural Workshop, Dalaba

The workshop is located in Dalaba and is not really a compound but a space in a vacant area occupied by deadlined, standby and tractors under repair, all in the open. The parts are stored in a warehouse room in another part of town in an orderly manner, although the storage quarters are cramped. The warehouse man demonstrated he could readily retrieve desired parts when a parts file card was pulled at random. The officials state there is no spare parts problem and parts suppliesare coming in. The chief parts stores has all the parts required. There is no protected repair work space nor even concrete platforms for a work space. A tractor motor overhaul was observed underway on the bare earth with attendent difficulties of maintaining clean conditions of the unit being overhauled. A set of French mechanic hand tools were available to the mechanics. It is a limited set of tools, but would be enough to conduct a light engine overhaul.

There is no machine workshop nor test equipment available. We were told there are three machine and tool workshops in 1) Faranah (noted in AGRIMA, Faranah report) 2) Conakry and 3) Rice project.

The workshop maintains and repairs:

59 - Universal 65 hp tractors diesel
4 - Setor #450 tractor diesel
4 - Lombardini Bedogni-make Italian rice harvestor 12 hp diesel

The staff consists of:

1 - chief mechanic
4 - mechanics
6 - assistants

The workshop conducts a driver training program over a three month period. The drivers are capable of conducting light repairs in the field.

APPENDIX 7

AGRIMA - Agricultural Workshop, Kindia

The workshop is located in Kindia. It is located in a relatively small compound and the parts storehouse is in a building nearby. There is a small repair workshop building, but one-third of the roof of the shop is gone. The shop officials cited the lack of protected work space as the number one problem. The only improvement over being totally outside is that there is a concrete floor workspace. There is no machine shop but it was stated that the Kindia shop is in a program to get one. There were very few hand tools evident. A motor overhaul was observed in progress which was a bar and hammer operation. It constantly amazes me what local mechanics can accomplish without appropriate hand tools and precision gaging equipment. Of course the quality of such engine overhauling procedures is poor and markedly results in a shortened life of engine and tractor.

The spare parts store was the best I observed and was run by an individual who appeared to know parts. From a parts index card pulled at random, he was quickly able to draw the part and the recorded number in stock were correct. I cannot fault that system. Additional shelving is required to properly store the parts. The officials stated there is a problem with getting enough spare parts.

The shop maintains and repairs:

119 Universal 65 hp tractors diesel

5 Setor #450 tractor diesel

14 Italian rice harvestors 12 hp diesel - Lombardini Bedogni make

It is interesting to note that the Italian rice harvestors were observed in varying numbers in all AGRIMA's yards. They have been on hand about two years and exhibit little use. The officials have consistently pointed out a problem with the string binder.

In the yard were four Universals repaired and standby for service. Four were deadlined in various stages of repair.

The staff consisted of:

1 chief mechanic

8 mechanics

2 engineers

1 general repair mechanic

4 helpers

ANNEX V

PROGRAMMING OF COUNTERPART FUNDS

Local currnecy counterpart, generated over the years largely from the sale of PL 480 Title I food stuffs and deposited in GOG accounts, now totals 744 million sylis. This is equivalent to approximately $39 million at the official rate of exchange and about $9 million at the parallel rate. The annual Title I agreements have specified that the funds were to be used for agricultural and rural development. However, they are being drawn down to a very slow pace, causing concern to AAO/Conakry and AID/Washington.

Rapid drawdown would be difficult to achieve: it takes time to develop and implement projects, and use of the funds is effectively limited to financing local costs since the GOG is unlikely to allow conversion of the sylis into scarce foreign exchange. Moreover, in view of the size of the account, rapid expenditure of the entire amount would be inadvisable from the standpoint of inflation. With concerted effort by GOG, AID and other doners, however, it should be possible to achieve a steady and more speedy rate of utilization.

Nearly a quarter of the funds have been programmed or earmarked, as noted in paragraph 1 below. The team has identified a number of additional possible uses, cited in paragraph 3. Further uses will beed to be explored with the GOG and other doners.

1. Approximately 170 million sylis--23 percent of the total--are to be expended over the next two to three years for the following Guinea-USAID projects:

- Agricultural Production Capacity and Training - 130 million sylis
- Maternal-Child Health pilot project.....est. 9 million sylis
- Community Forestry pilot project.....est. 15 million sylis
- Water Supply/Irrigated Gardening pilot project (preliminary PID prepared by the Agricultural Assessment Team).....est. 16 milion sylis

2. The GOG and AAO are currently discussing the use of counterpart to pay the local costs of renovating rural health centers. Cost estimates are not yet available.

3. The team recommends that the following possibilities be explored for use of sylis in conjunction with EEC projects:

- Village self-help program--development of small agricultural and social infrastructure.
- Water and land management rural brigades.
- Rural water supply, including construction of a base at Labe for SNAPE, the National Service for Water Point Development which will play a major part in the AID Water Supply/Irrigated Gardening project.
- Cotton development (Siguiri-Kankan region) -- Under this project, the government has agreed to subsidize by 20 sylis per kg. the official price of 5 sylis paid to the producer. However, the GOG needs funds to help pay the subsidy.

It is estimated that the financing of these projects would absorb another 25 percent of the account.

4. Further projects, to be identified with GOG, FAO and other doners, might absorb an additional 20-25 percent over the next two or three years.

5. The larger scale follow-on projects to the pilor efforts cited in paragraph 1 above will begin in 1982-83 and require substantial amounts of local currency support.

6. The GOG proposes to use the funds not needed for other projects to help manage the FAPAs, one of the possible uses cited in the PL 480 Title I agreements.