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# MALI RURAL-URBAN PROFILE

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# INTRODUCTION

This Rural-Urban Profile of Mali was produced during seven weeks of the author's consultancy to the West Africa Regional Housing and Urban Development Office of USAID. The consultancy included four weeks of field work in Mali from January 8 - February 6, 1984, followed by three weeks for review of documentation collected in the field, analysis, writing, and report production.

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# I. EXECUTIVE SUMMARY

Rural poverty, caused by low prices for agricultural production (State policies as well as world prices), and the declining yields and high risks faced by producers periodically during the low rainfall periods in the last decade, has strengthened internal and external migration in Mali. At least one-fifth of the country's population increase over this period has been absorbed by this predominantly male out-migration which is especially targeting the Ivory Coast. These migrants' cash remittances support an increasingly important share of food, clothing, and tax payments for their families back in Mali. Malian living standards and government revenues are becoming increasingly vulnerable to the external political policies of the coastal West African countries towards aliens' employment. If Ivory Coast were to eject migrant laborers suddenly, as Nigeria did recently, the impacts on Mali would be devastating, especially since migrant remittances are not being used for productive capital investments back in Mali.

External out-migration is accelerating in relation to internal rural-urban migration, but internal migration is accounting for 46%-70% of the population growth in individual Malian cities. Mali's urban population is growing at twice the rate of national population increase, and the number of urban-dwellers is expected to double by the year 2000 according to even the most conservative projections. One out of every five Malians is already urban-dwelling, and by the year 2000, the country is expected to be 30% urban. It is realistic to expect, however, that external migration will remain an important safety valve for population increase, and that remittances will remain an essential support for domestic revenues.

Recent surveys of Malian secondary cities indicate that they are important sources of dry season employment for rural people. Circular dry season migration is increasing in frequency and low rainfall conditions are lengthening migrants' stays. Rural women most frequently look for domestic work in secondary cities; rural men head mainly for Bamako or external destinations, and are increasingly staying away for longer periods of time. Since international migration is primarily male, and rural women are returning to their villages to cultivate in the rainy season, the female share of the agricultural workforce is constantly increasing. Strengthening urban job creation in Malian secondary cities, especially during the dry season, would decrease the "push" factors driving men outside the country.

Since the only other major international assistance organization with urban projects in Mali, the World Bank, will

be concentrating its future interventions on Bamako, and since USAID Mali has defined its major country objective as increasing national food self-sufficiency and rural income, this Rural-Urban Profile concentrates upon secondary cities - trends in their growth and their interaction with rural areas. Though residents of the capital currently comprise half of the national urban population, if secondary urban centers could increase their ability to retain and attract migrants who would otherwise move on to Bamako, primary agricultural production could be maintained at a higher level, through decentralized urban stimulation and servicing of peri-urban and rural cultivation. Major investments in secondary city infrastructure and job creation, including water, energy, and road systems as well as skill-training and credit institutions, will be required to stimulate decentralized urban economies and to improve secondary city living conditions and urban services to rural areas which will reduce Bamako-oriented and external migration.

A typology of Malian secondary cities is proposed which builds upon the Malian administrative hierarchy of urban places (regional capitals supervise circle capitals which in turn coordinate the services of arrondissement capitals) to differentiate urban functions. Rural needs for cash bring dry season peak demands for urban housing, employment, and services which are particularly strong in certain secondary cities like Mopti and Segou. These cities are centrally located, and are therefore accessible to the largest demographic concentrations in the most drought-affected Sudano-Sahelian belt. Because of their relatively diverse and dynamic urban economies, assisted by their accessibility to Bamako markets of supply and demand, their concentrations of development projects, and their favorable resource bases (created by Niger Delta environmental productivity), these cities have become inter-urban transport hubs, and they are seen by migrants as offering the best urban economic opportunities outside of Bamako.

In contrast, Kayes and Kita are increasingly becoming passed-over stops on a uni-linear transport axis and do not seem to have a potential, without expensive regional road investments, for obtaining the "crossroads" transport and commercial functions necessary to reverse their economic decline.

A review of national transport volume maps by commodity reveals the hierarchy of importance of secondary cities' markets in the collection of rural production, and the distribution of manufactured and imported household

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necessities to rural areas. Case material on origins and numbers of traders and the diversity of products sold in the circle of San in Segou Region is used to illustrate a five-step hierarchy in the subordination of urban markets to each other, which includes the national capital, regional capitals, circle capitals, town and weekly village markets.

Defined as residents of centers of over 5,000 population each, Malian urban dwellers are spread over 43 cities and market towns, totaling 1,040,856 persons at the time of the last census (1976). Infrastructure and services remain extremely under-developed in towns below the commune level. These cities are particularly disadvantaged, in their ability to provide services to rural producers, by (1) their lack of the fuel depots and gas stations necessary to support vehicle transport and small industries; (2) virtual absence of pharmacies to supply medications; and (3) the primitive level (or absence) of public water points, which contribute to residents' dissatisfaction to the extent of encouraging onward migration to larger cities. The absence of post offices in 75% of these towns increases communications difficulties, slowing service provision. These small centers, however, have markets, schools, and dispensaries which are relatively accessible to rural residents because of their dispersal over the network of small towns.

The typology of Malian secondary cities which emerges from administrative roles, economic functions, and infrastructural conditions, is further clarified by a more detailed study of rural-urban, and urban-urban displacement patterns.

The Malian government's policy of relocating regional and circle administrative functions from Bamako to Koulikoro and Kati respectively has been effective in re-directing a considerable amount of migration, which would otherwise have been Bamako-oriented, towards these satellite secondary cities. They are among the most rapidly growing secondary cities (about 8%/year); 90% of Kati residents, and 83% of Koulikoro's population were born outside these cities. Though economic motives play a strong role in generating in-migration to both cities (58% of migrants to Kati, and 90% of those entering Koulikoro), this motive is strongest among those aged 16-46. "Social needs" like education, health, and family relocation are important motives up to age 25 and for older people. These family-related and social service needs accounted for one third of Kati in-migrants, and within its own region Kati is actually attracting more migrants in search of services than employment.

If a secondary city is successful in generating employment for migrants, residential stability is attainable. For example, only 3% of Kati migrants hoped to move away during the next five years. Migration is definitely not a uni-directional process of displacement from rural to larger urban centers. Kati migrants reported a number of previous relocations from larger urban to more rural areas, almost equal to their number of movements from smaller to larger urban centers.

A contrasting pattern is observable in the more isolated city of Kita, 168 km from Bamako on the rail to Dakar. Almost half of its heads of households had been born in the city itself, and Kita has a more limited geographic range of attraction than the satellite cities in the greater Bamako area; 76% of its in-migrants are from Kita's own region, especially from its immediate rural areas. During the drought years in the past decade, there has actually been a steep reduction in the rate of "definitive" in-migration into the city, but the drought has increased the duration and frequency of dry season peak demands on secondary cities employment, infrastructure, housing, and services.

Almost as many migrants are coming to Kita from other urban as from rural areas. In-migration from other urban areas (predominantly from Kayes) is motivated mainly by the search for work, whereas rural migrants are evenly divided among those attracted to this city by the search for education, medical services, employment, and family obligations. Inter-urban migration tends to cover long distances, while rural-urban migration had a relatively short radius of influence. Migrants are primarily moving into the city in family groups, rather than as individuals, and a large number of married women and unmarried men in the age 16-35 group, who were born in Kita, have established a pattern of moving away from the city to Bamako for about six months at a time, an average, in search of work.

Djenné, an even more isolated and smaller city, is experiencing twice as much out-migration as in-migration, typical of economically stagnant urban areas. Most in-migrants are attracted to Djenné's institutions of Islamic studies; out-migrants are primarily looking for work. Though one-third engage in long distance migration to Bamako and Abidjan, about half have developed seasonal circular migration patterns either remaining in the region to perform agricultural work in the circle of Djenné (especially women), or working in Mopti. It will be important to strengthen Mopti's competitive economic advantages to keep circular migrants from engaging in longer distance displacements.

Small urban centers like Djenné comprise a large share of the seasonal rural agricultural workforce, also through circular migration, a finding which implies that secondary cities are excellent sites for training programs in improved agricultural methods which would be more cost-effective, and impact a larger share of the rural labor force than village programs. Work-oriented circular migration, for six months or less on an annual seasonal schedule is the dominant migration pattern in Djenné.

As a drought-driven economic survival strategy, unmarried girls in search of cash for their trousseaux, as well as married rural women (age 25-30) who are increasingly relied upon to feed their families through dry season employment, are engaging in circular seasonal migration to secondary cities like Segou, to work as domestic servants for urban families. Different compensation schemes are involved for each group including higher salaries for unmarried girls, versus larger payments in kind, (primarily cooked food) for married women, who in turn obtain regular male clients for meal services as a secondary cash-earning activity. Multi-generational links between rural and urban families facilitate job placement for these migrant women. These migration patterns, however, are increasingly creating a dry season strain on secondary cities' infrastructure, housing, services, and demand for employment.

Informal sector artisanal industries and services are a major source of employment in Malian cities, supplying all or part of the income of 50% of Bamako households in 1978. Though commercial, and to a lesser extent, traditional production activities (tailoring and weaving) predominate, a core of modern informal sector production exists: mechanical and electrical work, metal and wood fabrication, and the building trades. This modern sector has been assigned a priority for support to urban job creation which could be provided through: (1) R & D to reduce the cost and local availability of tools; (2) extension of urban electrical services to neighborhoods with modern informal sector industries; (3) provision of start-up capital and skills courses, and (4) analysis of the impact of import duties and official pricing policies on local artisans in order to recommend government policy changes in support of this sector.

Secondary city living conditions are difficult, even in a relatively advantaged city like Sikasso, which has benefitted from government and donor road investments, and which has good agricultural production, thanks to its location in the highest rainfall area in Mali. Economic diversity in Sikasso's economy is almost non-existent, since agriculture accounts for

92% of all activities. Compared to Bamako, the modern informal sector is extremely under-developed. Though the city's market (the most important in the region), transport vehicle parks, hospital, and schools are serving major numbers of rural people, public investment in these urban infrastructures has been virtually halted since Independence. There have been no extensions of urban water, electrical, or drainage systems over the past 25 years.

Though the Sikasso Master Plan provides some data on urban facilities as a point of departure for more through integrated urban investment planning, the recommendations prepared by the Direction Nationale de l'Urbanisme are not realistic, in view of the limited local financial and technical resources available for implementation. Donor-funded technical assistance which will collaborate with Malian urbanists to prioritize feasible secondary city investments is critically needed. Regional inequity in the distribution of 1974-78 National Plan expenditures was quite extreme, and reinforced the economic advantage of regions which already had relatively good infrastructure prior to that period. Urban investments were made almost exclusively in Bamako, to the neglect of secondary cities which have a higher potential for stimulating inter-regional equity and rural development. Though the current (1981-1985) National Plan has projected a number of employment generating and infrastructural upgrading investments in Malian secondary cities, it will be important to monitor actual expenditures to see whether this new more equitable approach is actually being implemented.

Case study material on Kayes, a city of 50,000 at the time of the 1976 census and the fifth largest city in Mali, was collected during a week of field reconnaissance. As the capital of the Malian region of focus for the multi-donor OMVS (Opération de Mise en Valeur du Fleuve Sénégal) project area, Kayes is the major secondary city of interest for USAID project development. Inadequate regional road investments have contributed greatly to economic decline in Kayes. The city no longer has the dynamic crossroads commercial and intermodal transport transfer functions it played in history. It is now primarily a passed-over transit stop for goods and passengers moving between the port of Dakar and Bamako.

At least 40-50% of Malian male international migration originates in the Soninké tribal areas in the vicinity of Kayes city. As much as 60% of external migrants come from Kayes Region as a whole. Though potentially creating a rural labor shortage, external migration is producing a high level of cash remittances back into the region which be tapped as a

development resource. The recent opening of a BIAO branch bank in Kayes, which is specifically interested in developing innovative credit programs designed to attract economically productive investments, offers an ideal institutional vehicle for re-orienting remittances from consumption towards development. Almost $12 million (US dollars) is remitted to Kayes Region each year, including $1,310 per year, on average, per migrant according to a BIAO survey. The bank plans to offer mobile banking services in major weekly markets and arrondissement capitals and to offer preferential credit terms for commercial, industrial, and shelter sector loans.

Commerce, transport, health, and secondary education are the major services in Kayes which are generating rural/urban interaction. In spite of the city's relatively well developed and efficiently run electrical services, which have benefited from recent Energie du Mali investments in a new diesel motor, no agricultural processing or conservation industry has been developed in Kayes. It will be essential to build Kayes-based transformational industries, supported by investments in water services and transportation systems, as part of an overall crop choice and marketing strategy for expansion of the irrigated perimeters and increase in their food production after Manantali dam construction is completed.

A number of local institutions which have been identified in Kayes can become USAID collaborators in this institution-building effort. High level commercial activities are concentrated in a small number of hands (four trading companies, and 14 individual businessmen). Most of these import-exporters are actively involved in the city's Chamber of Commerce, and their cereal imports are feeding the region through an elaborate distribution network which involves at least 1,000 retailers in Kayes circle alone. A network of "relay villages" separated by pedestrian daytrip distances, links the Kayes central market through this distribution chain, to the most isolated parts of the region.

Though the state-owned railroad dominates the Kayes transport sector, road transporters are competing for import-export trade with Senegal, and claim that they can offer faster service for half the price of rail transport during the dry season when the Falémé River on the border is passable. Organized into the Coopérative du Transport Routier (CTR), these entrepreneurs control the bulk of the region's vehicle fleet (250 vehicles) and a sizeable number of motorized dug-out boats as subsidiary investments. They concentrate their services upon collection of produce from weekly markets in Kayes circle, and from irrigated perimeters and truck farms

along the river, but hope to provide more regular service on extended networks. They have assigned a priority to donor investments in the upgrading of the Ségala-Yélimané road in the northern part of the region, and the Kidira (Senegal border) import-export path. USAID should consider providing credit to the CTR for the expansion of the region's vehicle fleet, and could contract with CTR to provide OMVS-related transport services (e.g. for salvaged and new building materials as part of Manantali dam resettlements). This type of mechanism would built up the local private service sector while meeting immediate development project needs. Though river transport is not seen as an economically competitive alternative to rail transport, given the amount of donor investment which would be required to construct a port in Kayes and to remove downriver channel obstructions, and road improvements are a much higher priority, the CTR would be the institutional point of departure for the building-up of a private river transport sector. Most village-city trips involve food purchases and sales, especially purchases, since rainfall has been so low over the past two years. Donkey carts and feet are the major means of rural-urban transport, since profits from market sales are slim, making vehicle transport difficult for villagers to afford.

Public sector employment constitutes the lion's share of the small number of salaried jobs in Kayes. The region has almost no industrial sector, and temporary construction jobs at the Manantali dam site account for 15% of the whole region's salaried employment. Given the importance of expansion of the irrigated perimeters, especially in the vicinity of Kayes, as a source of regional employment after Manantali dam construction, it is a matter of great concern that past donor investments in capital infrastructure have not been coordinated with expanded transportation and marketing systems. The Dutch-financed cold storage chamber in Kayes will become technically operational after a few dysfunctional parts are replaced and a turnkey ceremony is held to transfer the facility to Malian government management. This investment has not been supported by the economic feasibility and marketing studies which are required in order to program its use, and no local management or technical training in its operation has been given to OVSTM (the parastatal responsible for providing technical assistance and services to smallholders on the irrigated perimeters), though this agency will be expected to run the facility. No consideration was given to providing frigorific transport from the cold storage chamber to markets outside of Kayes. All of this follow-through will need to be provided by other donors, if the sunk investment in this facility is to be made productive.

The search for health services, focussed upon visits to the Kayes General Hospital, the only hospital in the region, generates a considerable amount of rural-urban interaction. The region's pharmacies (all State-owned) are concentrated in Kayes as well. Only rail-linked towns and villages have reasonably good access to these health facilities. Improving rural access to Kayes health services will require donor investment in emergency evacuation vehicles, which can be assigned to health centers in the region's smaller towns. There has been almost no investment in the Hospital's physical plant, over the past 100 years since its construction; its inadequate water and sewage systems have led to appallingly poor sanitation conditions.

Secondary education is one of the most important services provided by Kayes for its rural populations. In recognition of the competitive advantage provided by education in obtaining employment through external migration, Kayes residents have lobbied successfully to obtain secondary school investments. Over 25% of the population of Kayes is enrolled in the city's secondary schools, most of which offer only the first six years of secondary education. Two regional facilities, including the Lycée and the Institut Pédagogique d'Enseignement Général which trains primary school teachers, are both located in Kayes. Onward migration to Bamako is required for superior school education, though there is some government interest in decentralization of higher education from Bamako to the regional capitals, and this policy should be encouraged by USAID investments, since it would decelerate Bamako-oriented migration and create economic multiplier effects in secondary centers. Agricultural programs, especially training in vegetable gardening and reforestation have been included in secondary school curricula. USAID should evaluate these efforts, and strengthen the schools' curricula as part of the extension and training components of its First Region irrigated perimeters project. Nonformal education is extremely limited in Kayes, and apprenticeship opportunities in artisan crafts and trades are becoming fewer in number. The only urban artisan activity which remains strong is dry season weaving by rural migrants, but the export potential of this production has declined, along with quality, over the years. The best local artisans have migrated to Bamako or Dakar.

Though private voluntary organization activities are almost non-existent in Kayes, except for a diocesan rural well digging project, a number of government development agencies and ministries, which are headquartered in the city, should be supported since they are key collaborators for USAID

development activities in Kayes Region. Energie du Mali, the state-owned electrical and water utility, is run by technically competent and highly motivated leadership in Kayes. Locally initiated appropriate technology has been creatively used to maintain output from the city's hydroelectric facility farther into the dry season. Recent EDM investments in diesel motors have more than doubled the city's electrical capacity, but investments will be needed to extend existing networks into unserved urban neighborhoods, and to prepare serviced sites for agricultural processing industries. Water services are still at an extremely low standard in spite of World Bank financing which recently moved the system's intake point away from Senegal River sand bars to a location which would not dry up annually. The lack of water storage facilities, the small number of public fountains, the silting up of under-sized antiquated water mains, and the limited geographic extent of existing service lines are constraints to the water delivery system.

Deforestation in the vicinity of Kayes has been severe and fuel wood supply chains, which extend up to 67 km. from the city, involve urban investments in donkeys and carts, and the hiring of migrant rural male laborers to drive them, cut, and load the wood. In response to the fuel shortage and erosional problems created by this deforestation, the dynamic and well run branch of the Ministry of Water and Forests in Kayes has planted a 250 hectare "green belt" of fast-growing and drought-resistant "neem" trees in the southern portion of the city. German aid provided project assistance from 1980-82. In spite of the termination of external funding, the Ministry's nursery continues to produce neem seedlings at a rapid rate, and provision of free trees to peasants for rural reforestation has been proposed. USAID support for the Ministry's extension and transport of seedlings to rural areas, would complement the Mopti rural forestry project with an urban-based approach that capitalizes on Kayes' historical role of exporting sylvicultural innovation to its surrounding rural areas (e.g. mangoes). Ecologically appropriate tree crops which would provide dry season animal feed supplements (e.g. leucina) and fruit for human consumption (e.g. dates) could be identified by USAID technical assistance, and their propagation and dissemination by the Ministry could be supported as part of the reforestation program.

An example of an integrated approach to building up the service functions provided by Kayes to its region is proposed as a project to provide fuel for irrigation pumps on the expanded perimeters. The high cost and scarcity of imported petroleum fuel will be a major bottleneck to achievement of

food production goals after Manantali dam completion allows expansion of the acreage under irrigation. However, a large portion of the region's forest reserves will be wasted by flooding when the dam comes on line, unless an accelerated strategy is developped to harvest them beforehand. During post-survey analysis, the consultant has discovered that IPNETP (Institut Pédagogique National de l'Enseignement Technique et Professionnel) in Abidjan is currently fabricating two prototype "gazogène" wood-burning irrigation pumps, which will be tested by the Ivoirian government's Buildings and Public Works Laboratory over the next few months. IPNETP has confirmed that it could produce charcoal-burning prototypes, with the necessary minor modifications, which USAID could field test in Mali. If the pumps were found to be financially and technically feasible, USAID could support BIAO packaging of credit for the exploitation of the soon-to-be-flooded forest reserves for industrial charcoal production and for the local fabrication of the model pumps, assisted by USAID-supported technical training programs in fabrication techniques and maintenance, and investments in charcoal storage facilities on the perimeters. CTR could be contracted to provide charcoal delivery services from the production site to the perimeters. The USAID regional "Energy Initiatives for Africa" project is enthusiastic about contributing pilot funds and consulting services for this project.

Since marketing and production choices will be the key to success or failure of the OMVS irrigation projects, especially since success in marketing will determine whether local producers' incomes can attain a level which will discourage external migration, institutional development and redynamization of OVSTM, Kayes, will be essential. By its own admission, OVSTM is only able to keep 50 hectares under cultivation, out of the 267 hectares for which irrigation systems have already been constructed. Though legally mandated to provide a full range of services to smallholders' cooperatives on the perimeters, OVSTM has not had the resources to provide marketing assistance, inputs, or credit. Only eight agricultural producers' cooperatives are already registered with CAC (Centre Assistance Coopérative), and informants report that internal disagreements are threatening the existence of even these few relatively small groups. Major commitments of resources towards training and community organizing will be required in order to create new cooperatives, to service individuals who are not willing to work in cooperative settings, and to reinforce the effectiveness of URCAK (Union Régionale des Coopératives Agricoles de Kayes) which represents producer interests.

ODIPAK, the Malian agency in charge of stimulating rainfed agricultural production, is also based in Kayes, and seems to have much more dynamic and well informed leadership than OVSTM. ODIPAK's effectiveness is hampered by the poor quality of regional roads, blocked by marshes in the southern part of the region. More favorable rainfall conditions exist in the south, but production possibilities can not be realized, because the area's isolation provides no access to markets, and interferes with extension services.

A considerable number of the projects included in Italian bilateral aid's $32 million package for Kayes Region will begin to address the highest priority investment needs in Kayes, including: improvement of the Ségala-Yélimané road and other rural roads; modernization of the city's hydroelectric station; rehabilitation of existing perimeters and feasibility studies for expanded ones; credit for agricultural inputs and post-harvest storage facilities; training of forestry agents, restoration of forest reserves, and construction of a Kayes sawmill; support to animal health programs; and assistance to the fishing industry. Inadequate funding, however, is going towards agricultural marketing studies, processing industries, transport to markets, and producer training and organization.

The city itself has very few managerial or financial resources. Its annual budget is only $4 (US) per capita. Regional Urban and Economic Planning Ministries have inadequate skills and staff sizes, and lack the resources to develop data bases for development and investment planning. Technical assistance to the Regional Urban Direction is recommended for RHUDO consideration, as well as support through BIAO to the shelter sector. A surprisingly large amount of durable housing construction is underway, covering almost a fifth of the city's surface area, representing local traders' attempt to protect their savings from redistribution to extended family members. Because of inadequate municipal finances, equipment, and technical skills, these housing investments are not being supported by road construction or maintenance, or extension of public utilities.

In addition to this detailed consideration of Kayes pilot projects, which would play a key role in a USAID strategy for improving living conditions, incomes, and food self-sufficiency in Kayes Region, first steps are suggested towards a national strategy of support to secondary cities' stimulation of rural development. With the overall goal of strengthening the economic attractiveness of secondary cities, as an alternative to onward migration to Bamako, it is proposed that assistance be provided to encourage job creation

in the modern informal production sector. Decentralization of administrative services from Bamako to Kati and Koulikoro has already stimulated economic spin-offs and reverse migration from Bamako to these smaller cities. USAID should continue to support this type of administrative decentralization, augmented by the diffusion of technical and higher educational facilities among regional capitals.

Support for the construction of minimum essential infrastructure and social services in secondary cities below the commune level will be essential in order to provide rural access to pharmacies, dispensaries, schools, and transport. Projects should be designed in the light of dry season peak demands on secondary city infrastructure and labor absorption, caused by annual seasonal rural-urban migration, which will accelerate if low rainfall patterns continue. Particularly in secondary cities like Segou, which are attracting large numbers of female rural migrants, consideration should be given to the design of projects which target women's needs.

The role of rail-linked cities in providing transport to markets for rural producers can be made much more effective, with minimal capital outlay, by increased efficiency in programming faster turnaround times for railroad rolling stock. Several strategies for shortening delays in off-loading of rail imports shipments are suggested, which would reduce rail freight costs and make marketing of Kayes irrigated perimeter production more economically feasible, but this would require combined public and private commitment to respecting the improved operating practices recommended by more detailed technical studies.

RHUDO support for the training of urban planners is critically needed, and combined RHUDO/USAID assistance to the creation of a Mopti Region Development Plan, a project for which funds are currently being sought by the Ministry of Plan, could provide a model for integrated regional resource management. A RHUDO case study of Mopti's urban functions for rural development could be used to initiate the definition of a urban component for this regional plan. Since Mopti is one of the fastest growing, most economically diverse Malian secondary cities, and since its region is expected to become a USAID target area within the next 4-5 years, participation in the regional development plan would lay a solid groundwork for future USAID project development.

The role of urban centers in exporting technological innovations (including new tree crops like mangoes) to rural areas has already been citied earlier. Just as Kayes should

be developped as a service center for rural reforestation projects, Mopti city should also be integrated into USAID's regional village reforestation efforts. Urban-based extension is a more cost-effective way of reaching a larger number of rural areas, through migrants who are periodically or temporarily residing in the city.

In summary, there is no "typical" Malian secondary city. Each of the major Malian secondary cities offers particular project opportunities and constraints because of its unique mix of social, institutional, infrastructural, and ecological resources. In view of the high level of annual roundtrip rural-urban migration, however, Malian secondary cities are cost-effective and influential sites for USAID rural development projects. Enhancing their ability to serve their rural areas is a key component of a longterm strategy which will decrease Malian dependence upon external employment and food imports.

## II. URBAN POPULATION GROWTH TRENDS

Mali is second only to Upper Volta as the largest exporter of labor to other countries in West Africa. An estimated 7% of all Malians were living outside their country in 1976, with the Ivory Coast attracting far and away the largest share of these migrants (approximately 80% or 348,000) (See Fig. 1). Malian external migration is contributing a major share to the urban growth of Abidjan (See Fig. 2). Zachariah and Conde have estimated that as much as a fifth of Mali's national population increase during the decade from 1966-1976 was absorbed by this out-migration.

Overall, the level of out-migration has been increasing and now approaches the level of internal national rural-urban migration, though internal migration was formerly estimated to be twice the order of magnitude of external migration. There are important sex differences to note, however, since external migration is predominantly male, while internal urban migration (with the exception of those moving to Bamako) is predominantly female.

Table 1 shows significant differences in the percentage of migrants per urban commune. The most isolated secondary cities (Kayes, Nioro, and Tombouctou) with the least economic opportunities, had only 24%-35% migrants; Sikasso and San had intermediate attractiveness, since better economic opportunities were nearby (both are near Ivory Coast, and Mopti also compates with San). The receivers of the highest number of migrants were Bamako and seven secondary cities which can be seen as falling into the following categories:

- Mopti and Segou are centrally located to demographic concentrations and have the most diverse economies. Koutiala is similarly economically attractive because it is an active crossroads for transport.

- Koutiala and Kati are economically attractive sites in the Greater Bamako area.

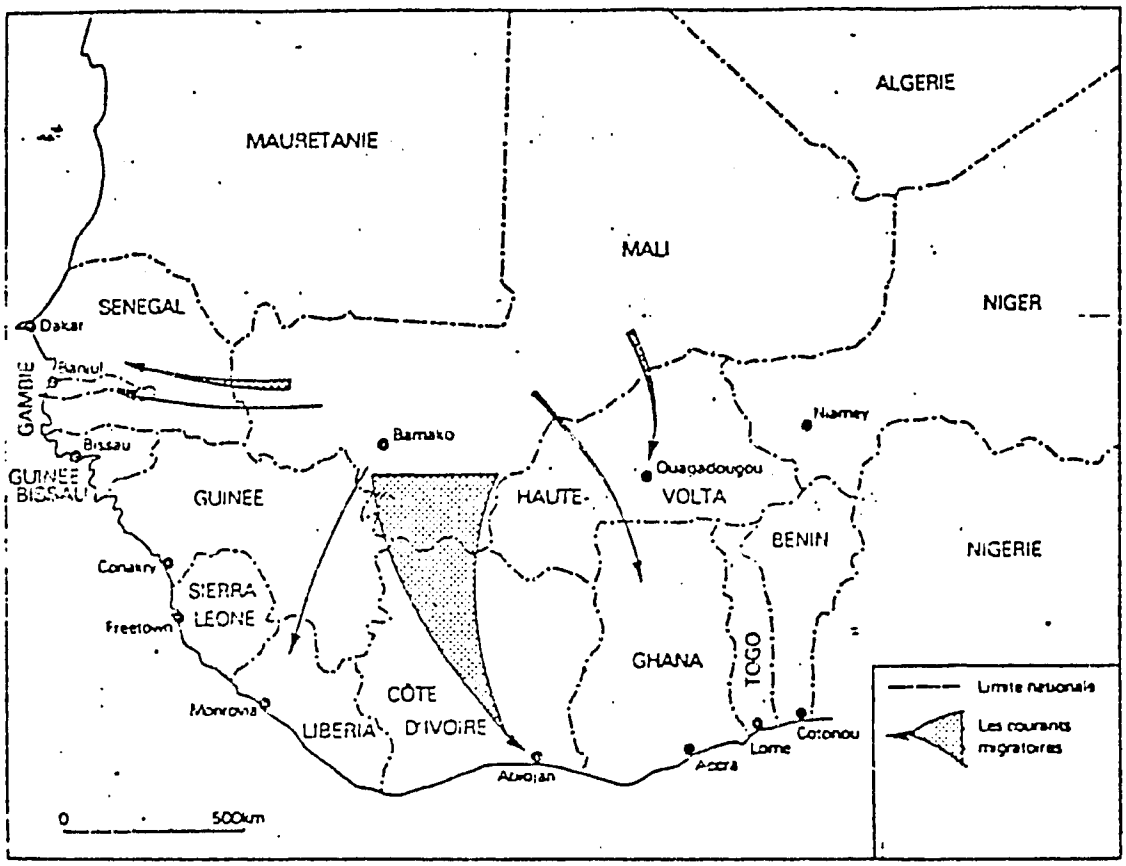
- Kita and Gao are oases of urban services in poorly equipped drought-affected areas.

These conditions, which affect these cities' relative attractiveness to migrants, are the basis for the typology of Malian secondary cities which will be developed in the next chapter.

Rural-urban migration has contributed from 46% to 70% of total urban population growth in Malian cities from 1966 to the present. The high end of the continuum applies especially to

FIGURE 1

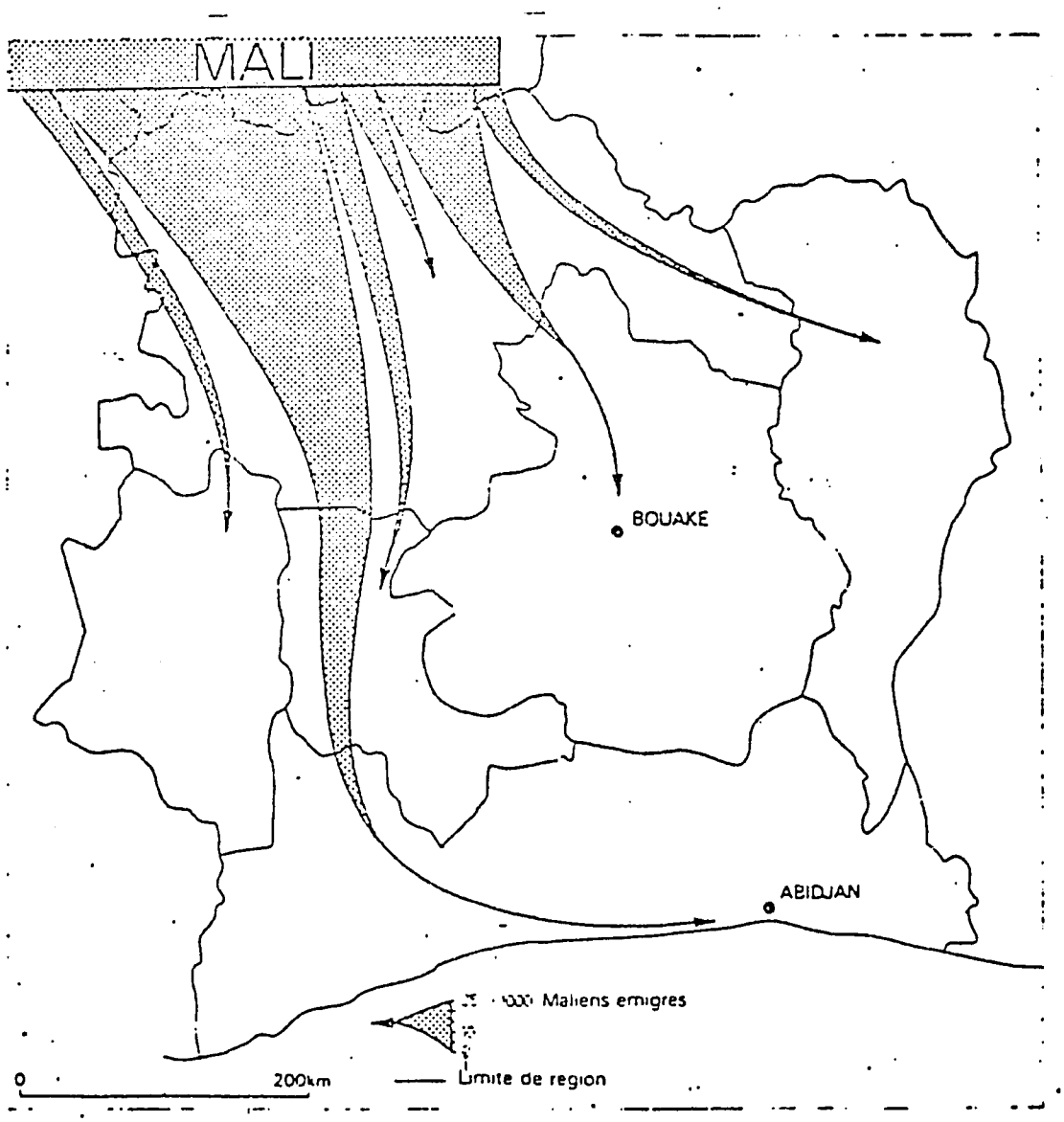
MAJOR MALIAN EXTERNAL MIGRATION FLOWS




Source: Zachariah and Conde, "Migration in West Africa: Demographic Aspects", a joint World Bank/OECD Study, N.Y., 1981, p. 35.

FIGURE 2

DESTINATIONS OF MALIAN MIGRANTS IN IVORY COAST




Source: Zachariah and Conde, op. cit., 1981

TABLE 1

RESIDENTS OF COMMUNES IN 1976: BY BIRTHPLACE

| | Same City in Mali | Same Region of Mali | Other Region of Mali | Other Part of West Africa | Other Country Outside West Africa | Unknown | Total | 1976 % Urban Pop. Born in Same City | Migrants' Share of Ur Population |
|---|---|---|---|---|---|---|---|---|---|
| Kayes | 32,143 | 10,600 | 4,337 | 2,038 | 85 | 228 | 49,431 | 65% | Low (35% or les |
| Kita | 8,807 | 5,391 | 2,449 | 780 | 33 | 31 | 17,491 | 50% | High (48% or mor |
| Nioro | 9,000 | 1,363 | 925 | 341 | 45 | 43 | 11,717 | 76% | Low |
| Koulikoro | 7,655 | 3,993 | 3,965 | 462 | 37 | 22 | 16,134 | 47% | High |
| Kati | 12,933 | 4,941 | 5,947 | 873 | 87 | 50 | 24,831 | 52% | High |
| Sikasso | 27,056 | 8,926 | 7,654 | 2,747 | 47 | 73 | 46,503 | 58% | Medium (35% - 48%) |
| Koutiala | 11,166 | 6,651 | 7,759 | 1,380 | 155 | 45 | 27,156 | 41% | High |
| Segou | 33,249 | 14,468 | 15,253 | 2,194 | 185 | 77 | 65,426 | 51% | High |
| San | 13,819 | 4,628 | 3,953 | 928 | 30 | 20 | 23,378 | 59% | Medium |
| Mopti | 23,234 | 12,142 | 15,834 | 1,926 | 147 | 39 | 53,322 | 43% | High |
| Tombouctou | 13,784 | 4,207 | 963 | 171 | 24 | 17 | 19,166 | 72% | Low |
| Gao | 15,033 | 13,154 | 1,869 | 666 | 96 | 45 | 30,863 | 48% | High |
| Bamako District | 210,147 | 61,276 | 116,397 | 26,120 | 4,217 | 1,082 | 419,239 | | |
| Bamako 1 | 21,862 | 12,752 | 14,302 | 2,253 | 322 | 97 | 51,588 | | |
| Bamako 2 | 49,865 | 10,263 | 24,742 | 4,950 | 843 | 232 | 90,895 | | |
| Bamako 3 | 49,627 | 10,244 | 25,484 | 6,088 | 1,331 | 318 | 93,092 | | |
| Bamako 4 | 46,123 | 14,191 | 23,811 | 7,745 | 728 | 269 | 92,867 | | |
| Bamako 5 | 27,305 | 7,935 | 18,948 | 3,525 | 817 | 78 | 58,608 | | |
| Bamako 6 | 15,365 | 5,891 | 9,110 | 1,559 | 176 | 88 | 32,189 | | |
| Bamako Totals | 420,294 | 122,552 | 232,794 | 52,240 | 8,434 | 2,164 | 838,478 | 50% | High |

Source: 1976 Malian Census data, and calculations by author.

Bamako, the most attractive destination for rural-urban migration. If one looks only at the percentages of urban residents aged 20-50 who were born in the same city, disparities in the attractiveness of Malian cities become even more apparent (only 22%-25% of Bamako, Segou and Mopti residents in this age group, versus up to 42% of residents in this age bracket in smaller 10,000-20,000 population cities). Since national urban population increase totalled about a half million persons from 1966-1976, therefore, about 250,000-350,000 internal rural-urban migrants were involved, using a static migration model and aggregate (certainly under-reported) population figures. In reality, a much more complex pattern of weekly, seasonal, life-cycle-related, and longer term rural-urban population movements is in fact taking place, and migration is not a one-directional street. "Reverse" migration, from larger to smaller urban areas and from urban back to rural areas, accounts for as much as half of all internal population movements. On the whole, only a small number of Malians will not have spent a significant and potentially influential portion of their total life in an urban area. So the distinction between "rural" and "urban" populations is relatively artificial, and a dangerous model to use in development planning. It becomes a definitional problem to determine the length of stay in an urban area which should be considered as a "migration decision" instead of a "rural-urban linkage" displacement.

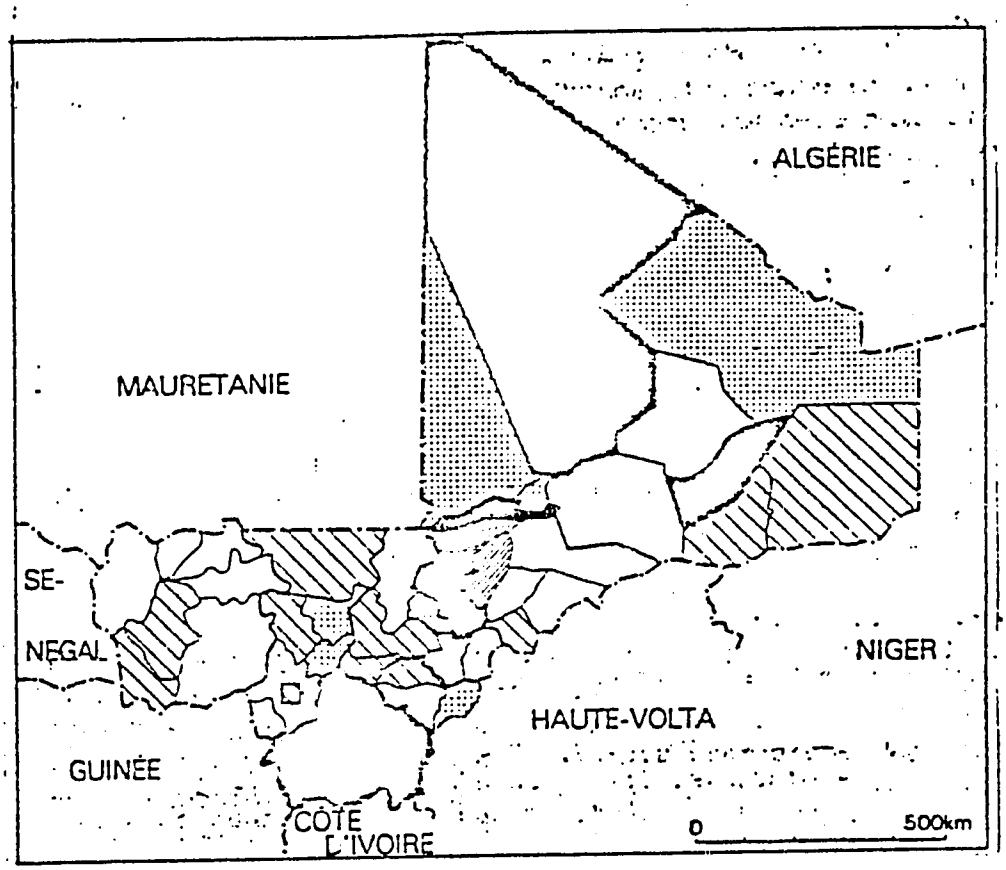
Current trends such as the decrease in the length of stay in rural areas between urban displacements, however, can be clearly seen, and traced to the impacts of drought, since decline in domestic cereals production is forcing both more frequent rural purchases of imported grain in urban markets, and longer dry season or multi-year periods of residence in urban areas, in search of cash remuneration to finance food purchases and social obligations (e.g. marriage ).

In the 1976 census, percentages of the resident population which had been absent for 6 months or less at the time of the census were collected, helping to identify the major circles[1] contributing to internal and external out-migration. Unfortunately, the whereabouts of "absent residents" were not identified by the census takers, so more detailed analysis of migrants' destinations, using this data, is not possible. (See Fig. 3).

1. Administratively, Mali is divided into seven regions which are subdivided into "circles".

FIGURE 3

PERCENTAGE OF RESIDENTS ABSENT IN 1976, BY CIRCLE




25% or more below national average
12 1/2% to 25% below national average
± 12 1/2% around national average
12 1/2% up to 25% above national average
greater than 25% above national average

Note: Darkest areas have experienced the most out-migration (i.e. have the largest % of "absent residents" within six months of 1976 census date).

Source: 1976 Malian Census

The Jeune Afrique Atlas (See Fig. 4) illustrates the major patterns of external migration as being: (1) towards Senegal and Europe (especially France), primarily through Kayes by rail to Senegal and the port of Dakar; (2) south through the Third Region and Sikasso into Ivory Coast; and (3) south from Mopti through Upper Volta into Ghana (a trend which has certainly been reduced considerably by the political disruptions and economic decline in Ghana). Internal Malian migration paths include the migration of drought-affected pastoralists into Gao and Tombouctou as initial receiving sites, and either secondarily from these first two cities or directly into Mopti, often en route to Bamako as a longer term destination. Some regional in-migration to Kayes and Sikasso is occurring, but stronger flows of emigrants from Kayes and more isolated southern parts of the First Region, southern, and northern Mali towards Bamako are predominant.

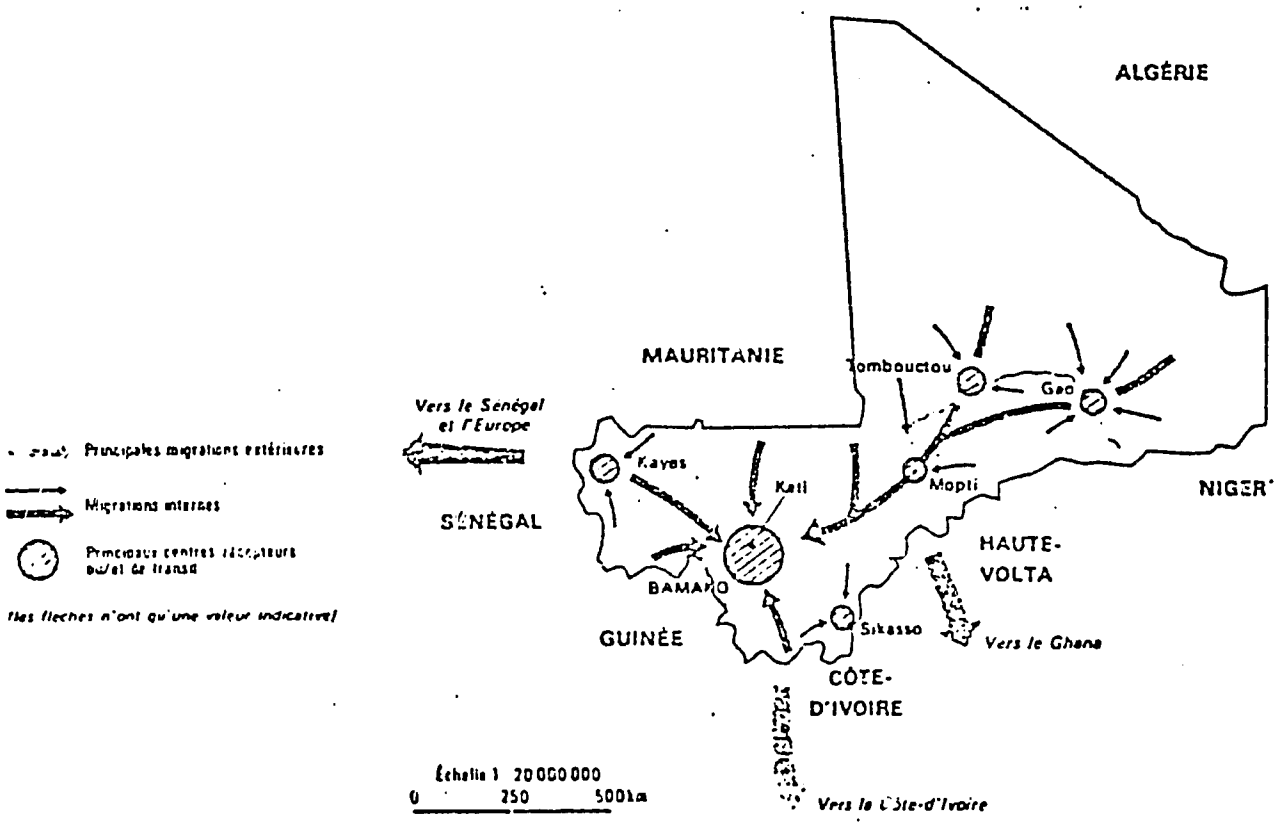
- Urban Population Growth Projections

The major source of population growth projections for Mali is the AID-financed RAPID Future Group Report of July 1983. This report uses a definition of "urban", as being centers of over 10,000 population in 1976, which is more conservative than the definition which is used by the Malian government. Mali considers all centers of over 5,000 population as well as all circle capitals (even if under 5,000) as urban, but since the 18 circle capitals have a population of only 60,098, they have a rather small share of the total urban population. According to the RAPID study, the 22 towns of 5,000 to 10,000 population have an average size of 6,650. Urban places of this size can properly be considered as market towns, which probably have economic activities similar to village life, and should be viewed differently from more economically diverse larger cities. Each country's urban patterns should be reviewed, however, in terms of its own size of human settlements, for which international city size categories are less meaningful. A review of Figures 5 and 6 shows that most Malian settlements in the Kayes Region are villages of 200 to 1,000 persons each, so that circle capitals of 6,650 (average size) probably provide a striking increase in commercial activity.

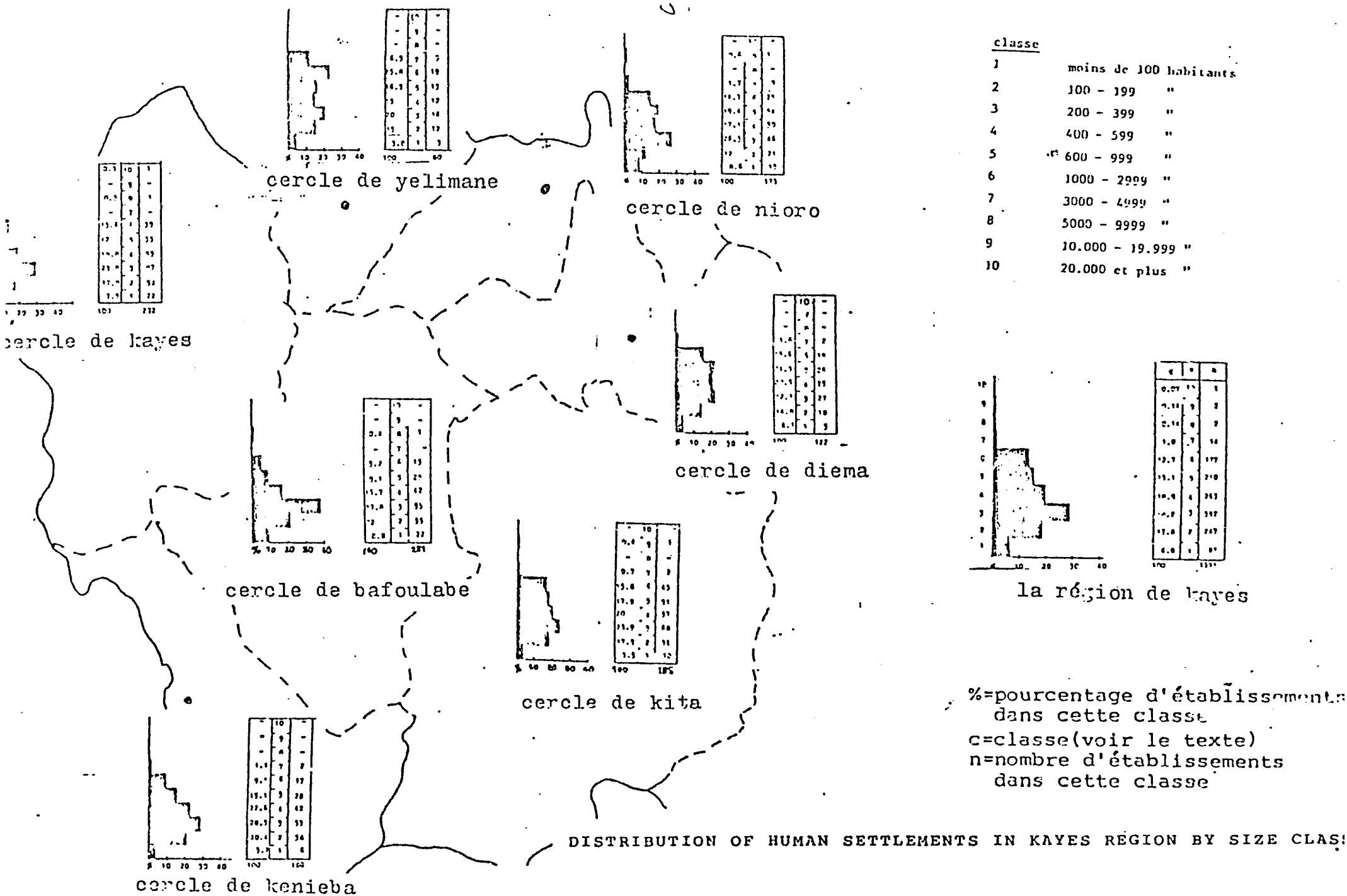
Overall, Malian urban population growth rates have been increasing since Independence from 5.4% per year in the 1960's, to 5.6% per year in the 1970's, more than twice the rate of national population increase (2.5% per year). Even with RAPID's more conservative definition of urban places, the urban-dwelling share of Mali's population has been increasing rapidly from 11% in 1960 to 18% in 1980 (totaling 1.1 million persons). Though RAPID states that at present, about 6% of

FIGURE 4

INTERNAL MIGRATION PATHS IN MALI




Source: Jeune Afrique, Atlas du Mali, Paris, 1980




DISTRIBUTION OF HUMAN SETTLEMENTS IN KAYES REGION BY SIZE CLASS

FIGURE 5

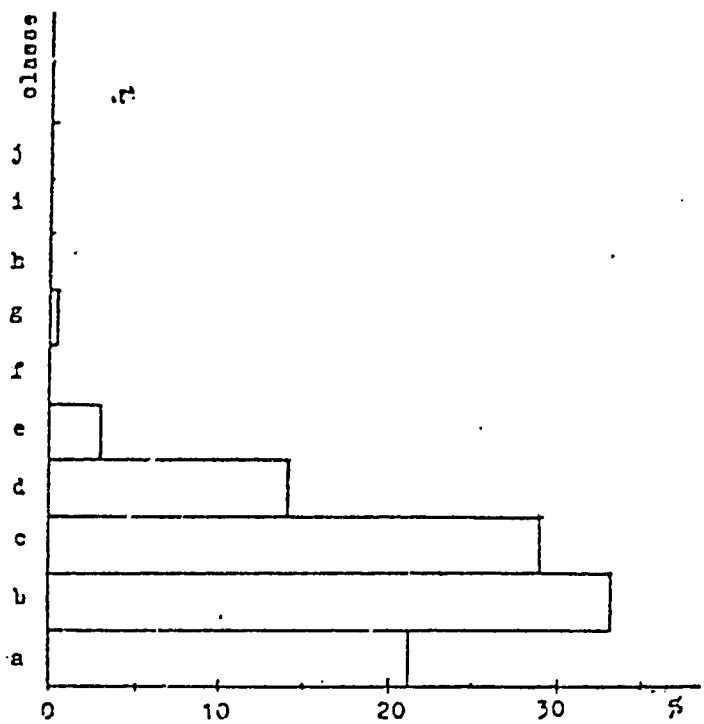
ource: Université Libre, Amsterdam, "La Région de Kayes: Premier Inventaire". Rapport de Base #1. - 16

FIGURE 6

DISTRIBUTION OF HUMAN SETTLEMENTS BY SIZE
IN THE CIRCLE OF KITA

Classification by Size (Number of Inhabitants):

a = less than 200 inhabitants
b = 200 - 499 "
c = 500 - 999 "
d = 1,000 - 1,999 "
e = 2,000 - 4,999 "
f = 5,000 - 9,999 "
g = more than 10,000 "




| % | classe | nombre |
|---|---|---|
| - | j | - |
| - | i | - |
| - | h | - |
| 0.4 | g | 1 |
| - | f | - |
| 2.8 | e | 8 |
| 13.7 | d | 39 |
| 28.8 | c | 82 |
| 33 | b | 94 |
| 21.4 | a | 61 |
| 100 | | 285 |

Source: Université Libre, Amsterdam, "La Région de Kayes: Premier Inventaire", Rapport de Base #1, p. 21.

the rural population migrates to urban areas each year, this is certainly an under-estimate in the context of the major seasonal and periodic long term patterns of rural migration to urban areas, which are described in more detail, based on existing surveys, in the chapter of this profile on migration. RAPID's estimates of total Malian urban population in the year 2000 range from 2.7 million to 3.2 million. Table 2 below shows the short period of time available to improve urban services and to generate jobs for this exponentially increasing urban population, even under the most conservative growth scenario (a more-than-doubling of the urban population from 1980 to 2000). Under any of these scenarios, RAPID expects the urban share of national population to be approaching 30% by the year 2,010.

TABLE 2

1980-YEAR 2000 URBAN POPULATION ESTIMATES
(population in millions resident in cities of over 10,000)

| Growth Rate | Year | | | % total population |
|---|---|---|---|---|
| | 1980 | 2000 | 2010 | year 2010 |
| Low | 1.1 | 2.7 | 3.7 | 29.0% |
| Moderate | 1.1 | 3.0 | 4.3 | 28.6% |
| High | 1.1 | 3.2 | 5.4 | 28.4% |

Source: RAPID Future Group Report, July 1983

The low, moderate, and high Malian population growth scenarios in the RAPID model are generated by the following assumptions:

(1) life expectancy will increase from age 48 in 1980 to age 60 in 2,010

(2) continuation of the rate of migration outside the country (about 6.7% absentee population each year) which was reported in the 1976 census;

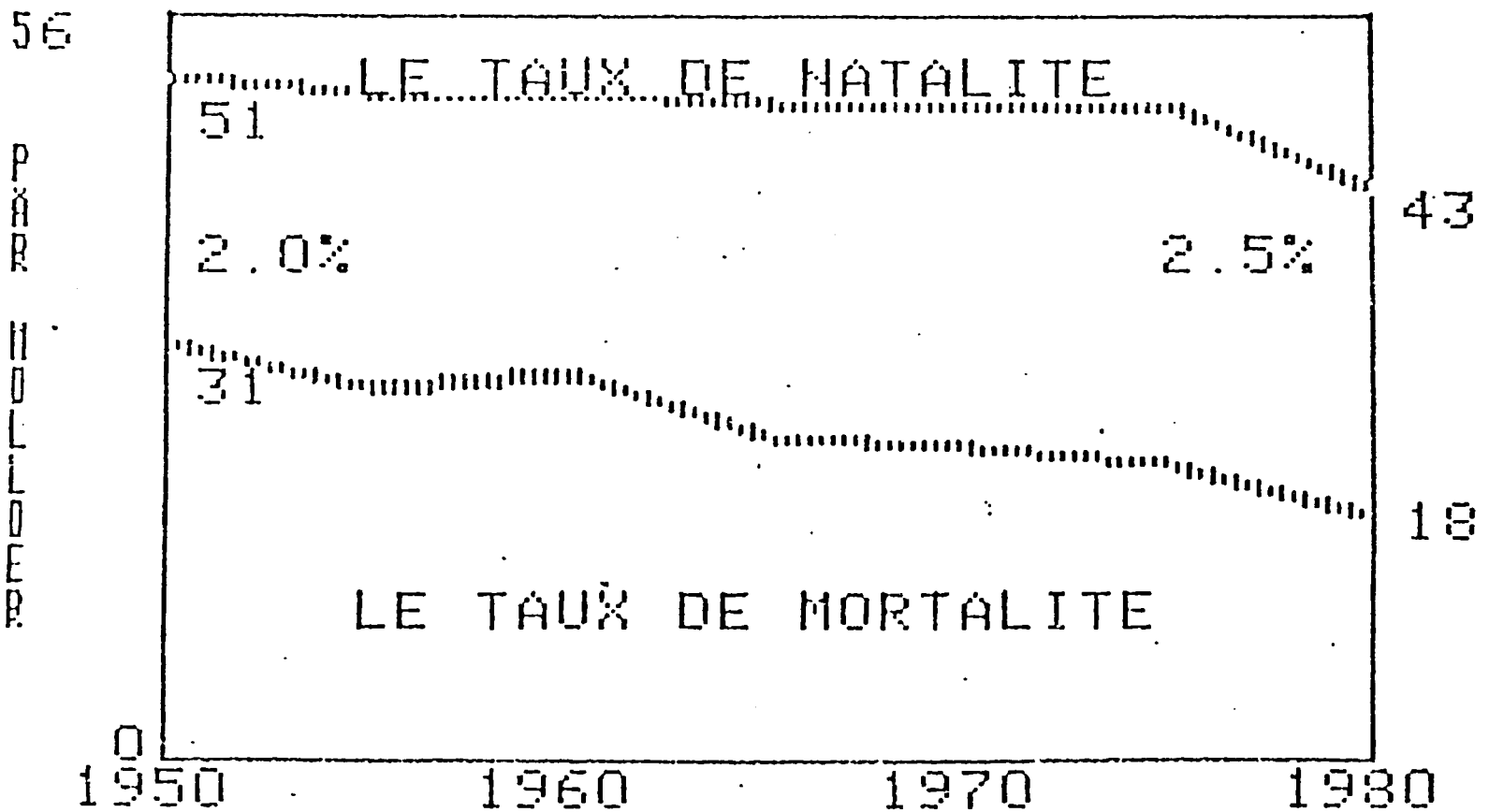
(3) three possible scenarios in the rate of female fertility:
   (a) low growth rate - 3 children per woman by year 2000;
   (b) moderate growth rate - 5 children per woman by year 2000;
   (c) high growth rate - maintenance of female fertility at its current rate of 6.7 children per woman up to year 2000;

As with all projections, there is disagreement over the validity of the generating assumptions. Bibi Diawara, the leading Malian demographer, has questioned RAPID's assumptions, which project the continuation of past mortality and fertility trends. (See Fig. 7). Diawara expects that mortality is stabilizing, not continuing to decline as expected by RAPID. He agrees with RAPID that fertility will decline, but expects it will do so more gradually as the effects of delayed age of marriage make themselves visible. All in all, the low and moderate growth projections are seen by Diawara as being rather optimistic.

According to the World Bank Projet Urbain, recent past Malian national urban growth was even higher than RAPID's highest estimate (7 to 8% annually from 1965 to 1976 according to the Bank). The order-of-magnitude result is the same: one out of every five Malians is urban-dwelling. Bamako has become the major focus of the Bank's urban projects in Mali, since the capital has been growing faster than overall national urban population (7.5% annually by the Bank's estimate; 10% per year according to RAPID). At this time, the capital has a population of about 600,000 including almost half of the country's urban population according to the Bank. Table 3 shows the range of projections for Bamako's growth within the next 20 to 30 years, under various scenarios. The Bank will be continuing its focus on Bamako for urban development activities (peripheral sites-and-services housing projects, socio-economic surveys, solid waste disposal, and institution-building in the urban administrative sphere). A focus on secondary cities would be more appropriate in order to address USAID's rural development priorities, as shown by the analysis of smaller urban centers' roles, and the patterns of rural use of these cities which are described in the remaining chapters of this Profile. World Bank investments in urban areas outside Bamako have so far been limited to minimal (but strategically important) financing of improvements to the Kayes water system. Though project explorations included Segou and Mopti, future Bank activities are expected to focus even more squarely on Bamako. Clearly, if secondary urban

FIGURE 7

RATES OF FERTILITY AND MORTALITY, 1950-1980




Source: RAPID, 1983

centers could accelerate their rate of urban growth, by increasing their relative attractiveness in comparison to Bamako, the capital's growth would be slowed

TABLE 3

BAMAKO POPULATION PROJECTIONS

| Growth Rates | 1980 | Years 2000 | 2010 |
|---|---|---|---|
| Low projection | 518,000 | 1.3 million | 1.8 million |
| Moderate projection | 518,000 | 1.4 million | 2.1 million |
| High projection | 518,000 | 1.5 million | 2.6 million |
| At current RAPID estimate of 10% per year | 518,000 | 4.1 million | 10.7 million |

Source: RAPID, 1983

Note: The low, moderate, and high projections assume Bamako retains 48% of national urban population and that Bamako will grow at same rate per year as total national urban population.

Public services, utilities, and urban job creation will be major concerns, with relatively little time available to strengthen existing institutions to meet the demand created by this rapid rate of urban growth. The 1976 census reported an urban unemployment rate of about 7%, six times higher than the rate of rural unemployment and ignoring the issue of urban under-employment. Even assuming only a 44% labor force participation rate among urban adults aged 15 to 64 (the 1976 census participation rate), the level of annual urban job creation, which would be required in order to keep urban unemployment from rising, is staggering given the past performance of the Malian economy.

TABLE 4

ANNUAL URBAN JOB CREATION REQUIRED IN ORDER
TO MAINTAIN STATUS QUO, 1980-2010
(7% Urban Unemployment Rate
at 44% Adult Labor Force Participation)

| | Number of New Jobs Required | | |
|---|---|---|---|
| Urban Growth Rate | 1980 | 2000 | 2010 |
| Slow | 14,000 | 24,000 | 31,000 |
| Moderate | 14,000 | 30,000 | 36,000 |
| High | 14,000 | 37,000 | 60,000 |

The following chapters will provide a more detailed view of the typology of Malian cities, and ways in which rural people are involved with these cities. Studies undertaken by the Université Libre's Département de Géographie Humaine des Pays en Voie de Développement in Amsterdam and the University of Utrecht's Institute of Geography, both in the Netherlands, have concentrated student field survey work upon several major secondary cities and large market towns in Mali, providing useful data for revealing causes of rural-urban migration, functions of secondary cities in rural development, and living conditions in secondary cities. Major findings of these projects' studies of Kati, Kita, Koulikoro, San, Djenné, and Mopti-Sevaré will be incorporated under each of these thematic headings. Though the Dutch field research on Kayes has just been completed, and survey analysis is only now beginning back in the Netherlands, the one field worker remaining in Kayes during the RHUDO mission was interviewed intensively, and his in-process insights into the transport system in Kayes have been incorporated in the case study material in this profile.

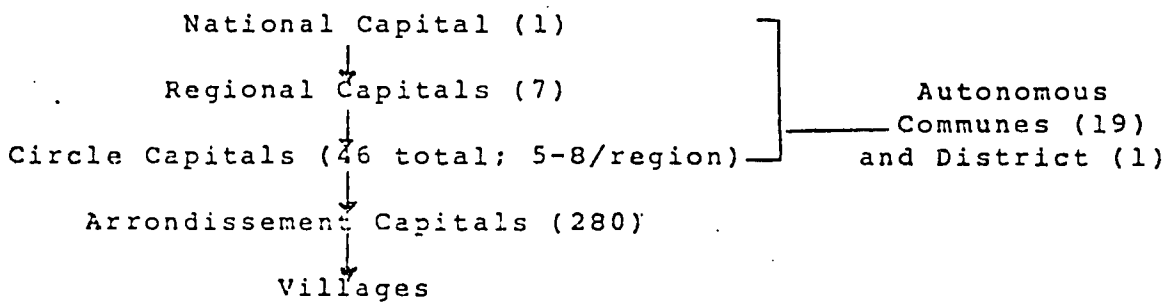
# III. TYPOLOGY OF SECONDARY CITIES: SIZES, ROLES, AND FUNCTIONS

- Sizes and Administrative Functions

The Malian administrative hierarchy, shown in the diagram below, assigns territorial administrative functions to the national, regional, circle, and arrondissement levels, and to autonomous urban communes above the village level. A city may have several administrative functions, with separate bureaucracies for each. For example, all of the regional capitals are also circle capitals and have communal administrative functions as well.

FIGURE 8

MALIAN TERRITORIAL ADMINISTRATION



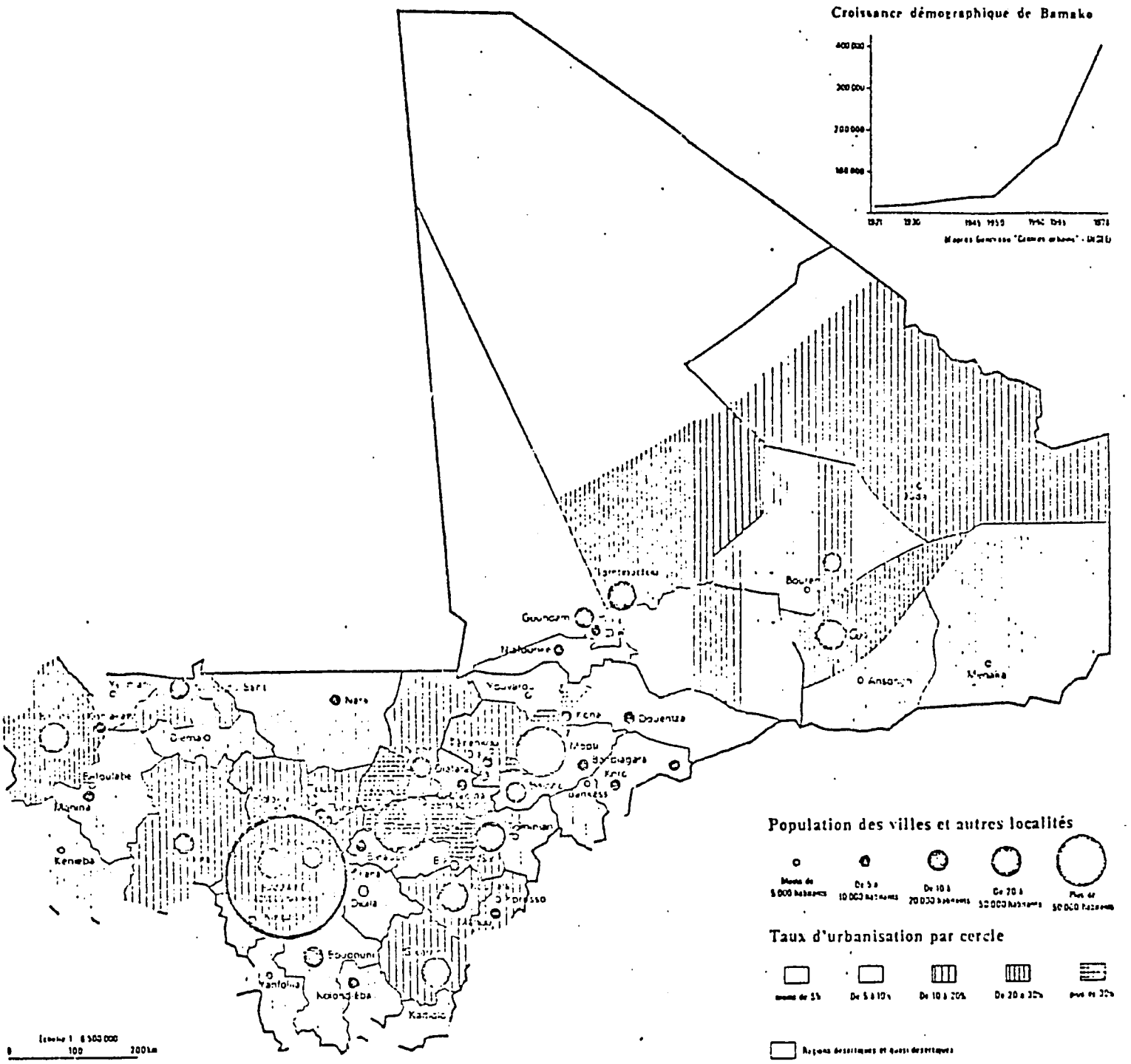

The most recent reliable data on the relative sizes of Malian cities is provided by the 1976 census which reveals the presence of 43 cities of over 5,000 population (see Fig. 9). Most of these cities have important roles in the governmental administrative structure: the national capital, all seven regional capitals, 21 of the circle capitals, and 9 of the largest arrondissement capitals. In fact, only 5 of these urban places of over 5,000 population did not have administrative roles (including, it is interesting to note, the largest city aside from the capital in Gao Region, Agambor, which was passed over by the government in preference to Bourem as circle capital). (See Table 5)

The Malian government defines its urban population, in its analyses of the 1976 census, in terms of the administrative roles of towns rather than the sheer size of human settlements. Therefore, aggregate national figures for the urban population theoretically included:

(1) all cities of over 5,000 population
(2) all circle capitals (even if under 5,000 population - See Fig. 10)

FIGURE 9

MALIAN CITIES OF OVER 5,000 POPULATION, 1976




Source: Adapted by the author from a Jeune Afrique Atlas base map, using data from Répertoire des Villages, Vol. III of the 1976 Census.

TABLE 5

URBAN PLACES OF OVER 5,000 POPULATION IN 1976
AND THEIR ADMINISTRATIVE ROLES

| | | |
|---|---|---|
| **National Capital** | | |
| Bamako | 419,239 | Includes District & six communes |
| **Regional Capitals** | | |
| Kayes | 49,431 | Commune |
| Koulikoro | 16,134 | Commune |
| Sikasso | 46,503 | Commune |
| Segou | 65,426 | Commune |
| Mopti | 53,322 | Commune |
| Tombouctou | 19,166 | Commune |
| Gao | 30,863 | Commune |
| **Capitals of Cercle** | | |
| Kayes Region: | | |
| Kita | 17,491 | Commune |
| Nioro | 11,717 | Commune |
| Koulikoro Region: | | |
| Banamba | 7,265 | |
| Kati | 24,831 | Commune |
| Kolokani | 9,219 | |
| Nara | 6,392 | |
| Sikasso Region: | | |
| Bougouni | 17,410 | Became Commune post-1976 |
| Kolondieba | 6,166 | |
| Koutiala | 27,156 | Commune |
| Segou Region: | | |
| Dioro | 7,334 | |
| Bla | 5,749 | |
| Macina | 5,445 | |
| Niono | 12,503 | |
| San | 23,378 | Commune |

| | | |
|---|---|---|
| Mopti Region: | | |
| Bandiagara | 9,303 | |
| Djenné | 10,275 | |
| Douentza | 7,044 | |
| Koro | 6,091 | |
| Tombouctou Region: | | |
| Diré | 9,426 | |
| Goundam | 10,468 | |
| Niafunke | 6,514 | |

Arrondissement Capitals of Over 5,000

| | | |
|---|---|---|
| Kayes Region: | | |
| Mahina | 5,870 | |
| Koulikoro Region: | | |
| Toubakoura | 5,145 | Not included in census as "urban" |
| Fana | 7,243 | Not included in census as "urban" |
| Sikasso Region: | | |
| Mahou | 6,239 | |
| Segou Region: | | |
| Markala | 15,103 | |
| Sansanding | 7,351 | |
| Baroueli | 6,825 | |
| Mopti Region: | | |
| Konna | 5,980 | |
| Dinangourou | 5,948 | |

Towns Without Administrative Roles, but Over 5,000 in 1976

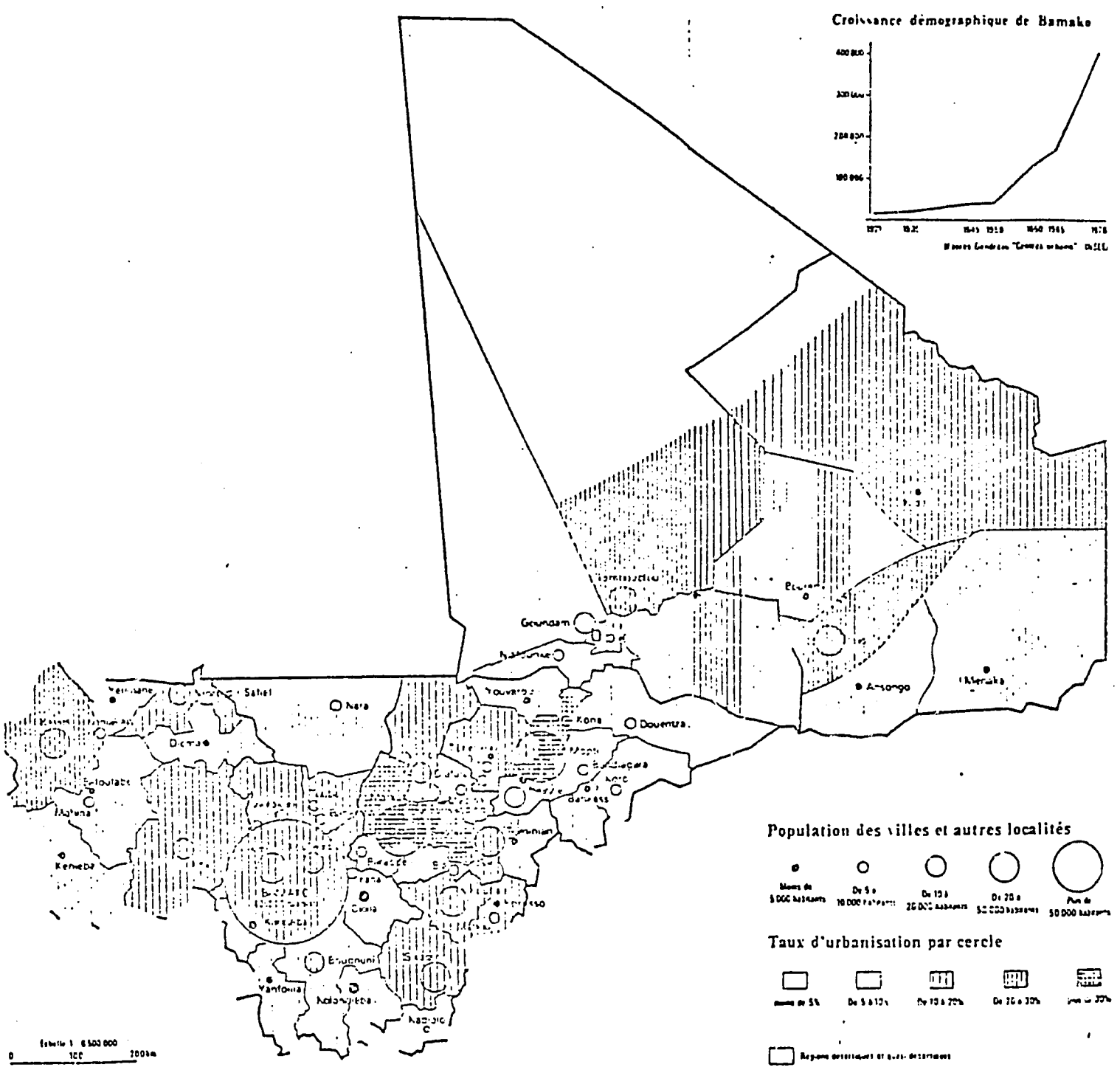
| | |
|---|---|
| Kayes Region: | |
| Koniakari | 5,145 |
| Segou Region: | |
| Dougabougou | 5,818 |
| Mopti Region: | |
| Dia | 5,202 |
| Diafarabe | 7,117 |

| | | |
|---|---|---|
| Gao Region: | | |
| Agamhor | 10,609 | Not included in census as "urban" |
| Total 1976 Urban Population in Centers Over 5,000: | | 1,040,856 |
| Total Communes 1983: | | 19 (includes six in Bamako |
| Total Urban Population in Centers Over 5,000 Which Were Omitted from "Total" Urban Population Reported in the 1976 Census: | | 22,997 |

Source: Compiled by the author using data from Répertoire des Villages, 1976 Census Volume III.

FIGURE 10

CITIES OF UNDER 5,000 POPULATION
LISTED AS URBAN PLACES IN 1976 CENSUS




Note: Most of these cities are circle capitals.

Source: Adapted by the author from a Jeune Afrique Atlas base map, using data from Répertoire des Villages, Vol. III of the 1976 Census.

As a result, 18 circle capitals of under 5,000 each, as well as (surprisingly) one arrondissement capital of under 5,000 were included in the national urban-dwelling population figures. (See Table 6). Three cities of over 5,000, on the other hand, were not even included in the urban population - the arrondissement capitals of Toubakoura and Fana, and the town of Agambor (See Table 7). As will be shown later in the transport section of this chapter, Fana has significant commercial, transport, and some industrial activities, and its omission from official figures of urbanization is an example of the pitfalls in using available data.

The overall urban population reported by the more functional/administrative government definition was 1,082,809 in 1976 versus the more accurate figure of 1,040,856 (the total of urban areas over 5,000), which does not involve a large order of magnitude difference, but would increase the number of urban places in Mali from 43 to 62.

- Public Facilities in Secondary Cities Below the Commune Level

No inventory of all commune facilities exists. The only overview of public facilities in the 49 smaller centers (below the status of commune) considered to be urban by Malian authorities or by having a + 5,000 population, is provided in the 1976 census (Volume III, Répertoire des Villages). Only 14% of these towns have even a single public water point. (See Table 7). This is an important problem, which contributes to stepwise migration to larger urban places. A recent survey of Kati residents by the Netherlands Free University revealed that access to a public water system was the single urban infrastructure characteristic most predictive of residents' satisfaction with their location. If the census reports on the presence or absence of gas stations in these small towns are accurate, this also raises a major concern, related to the role of these small market towns in serving rural producers. The presence or absence of sufficient fuel depots will determine whether market towns can provide the base for vehicles necessary to support rural-urban transport linkages for: distribution of imported cereals crucial to rural diets and basic household necessities, collection and marketing of rural production, and rural access to urban health services. Only 16% of these towns had even one gas station.

Health facilities, crucial to both town residents and rural service areas, varied widely. Of these towns, 31% had not even one pharmacy even though all but 3 had at least one dispensary.

TABLE 6

POPULATIONS COUNTED BY THE MALIAN CENSUS
AS URBAN-DWELLING,
BUT WHICH WERE WITHIN CENTERS UNDER 5,000 EACH IN 1976

| | |
|---|---|
| **Capitals of Cercle** | |
| Kayes Region: | |
| Bafoulabe | 2,012 |
| Diema | 2,260 |
| Keniéba | 4,471 |
| Yelimané | 747 |
| Koulikoro Region: | |
| Dioila | 4,126 |
| Kangaba | 4,946 |
| Sikasso Region: | |
| Kadiolo | 4,017 |
| Yanfolila | 3,837 |
| Yorosso | 2,536 |
| Segou Region: | |
| Tominian | 2,179 |
| Mopti Region: | |
| Bankas | 3,301 |
| Tenenkou | 4,998 |
| Youwarou | 2,435 |
| Tombouctou Region: | |
| Gourma | 4,521 |
| Gao Region: | |
| Menaka | 4,047 |
| Kidal | 2,230 |
| Ansongo | 3,483 |
| Bourem | 3,952 |
| **Arrondissement Capital of Under 5,000 Counted as Urban in 1976 Census:** | |
| Mopti Region: | |
| Sofara | 4,852 |
| Total Population in Under 5,000 Centers Counted as "Urban" in 1976 Census: | 64,950 |
| Total Urban According to 1976 Census: | 1,082,809 |
| Actual Urban (Over 5,000 Centers): | 1,040,856 |

Only four circle capitals did not have military camps. This is probably a factor of government national defense policy, which seems to be intentionally combining military installations with administrative headquarters. Two-thirds of the largest arrondissement capitals also had military camps, contributing to the salaried employment and demand for services in their economies. Almost all of the towns had at least one school and a market, indicating that they are probably providing important educational and marketing services for their rural areas. The range of geographic influence for their schools can not be predicted from this minimal data. Almost 25% did not even have a post office, undoubtedly hampering their ability to provide communications services to their rural hinterlands.

The capital of an arrondissement is often not the largest urban centre in this administrative subdivision, and the town chosen for this role is often peripheral to both the geographic and demographic centroids of the arrondissement (which do not always overlap).

The typical geographic concentration of social and public services in and around market towns and secondary cities is illustrated visually by comparing Fig. 11 which shows the road and rail network in the circle of Kita, with Fig. 12, a map of the socio-economic infrastructure in that circle. Most services and public facilities which are not on the outskirts of Kita itself are found in other towns along the rail line (which holds a virtual monopoly on regional transport and communications). This pattern would be even more striking if the 1976 census data, on which Fig. 12 is based, had inventoried facilities in the Kita urban commune itself. The transport system in Fig. 11 provides evidence of the importance of Kita as a rural service center, since it shows the radial road system which links other major centers with Kita, and the absence of other major paths which do not, in fact, converge on Kita. Unfortunately the seasonal impassability of much of this road infrastructure accounts for the relative inaccessibility of many of Kita's services to important demographic concentrations in its service area.

- Commercial and Transport Functions

A review of the 1977 transport volumes and product distribution network, presented by the following Office National du Transport maps, graphically shows the important role of key secondary cities in collecting, processing, transporting, and redistributing essential local production (such as foods), imports (such as fuels), and exports.

| | Military Camp | Dispensary | School | Market | Pharmacy | Post Office | Gas Station | Water System | |
|---|---|---|---|---|---|---|---|---|---|
| Segou Region: | | | | | | | | | |
| ** Dioro | 1 | 1 | 1 | 1 | 2 | 1 | 1 | | |
| ## Markala | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | |
| Dougabougou | 1 | 3 | 1 | 1 | 1 | | | | |
| ## Sansanding | | 1 | 1 | 1 | | | | | |
| ## Barcueli | 1 | 1 | 1 | 1 | 1 | 1 | | | |
| ** Bla | 1 | 2 | 1 | 1 | 1 | 1 | 3 | | |
| ** Macina | 1 | 7 | 1 | 1 | 1 | 1 | 1 | | |
| ** Niono | 1 | 7 | 1 | 1 | 1 | 1 | 2 | 1 | |
| * Tominian | 1 | 2 | 1 | 1 | 1 | 1 | | 1 | |
| Mopti Region: | | | | | | | | | |
| ## Konna | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | |
| ** Bandiagara | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 5 | |
| * Bankas | 1 | 2 | 1 | 1 | 2 | 1 | 1 | | |
| ** Djenné | 1 | 4 | 1 | 1 | 1 | 1 | | | |
| # Sofara | 1 | 1 | 1 | 1 | | | | | Census-marked "urban" |
| ** Douentza | 1 | 4 | 1 | 1 | 1 | 1 | | | |
| ** Koro | 1 | 4 | 1 | 1 | 1 | 1 | | | |
| ## Dinangourou | 1 | 1 | 1 | 1 | | | | | |
| Dia | | 1 | 1 | 1 | 1 | 1 | | | |
| * Tenenkou | 1 | 4 | 1 | 1 | 1 | 1 | | | |
| Diafarabe | | 2 | 1 | 1 | | 1 | | | |
| * Youwarou | 1 | 1 | 1 | 1 | | | | | |
| Tombouctou Region: | | | | | | | | | |
| ** Diré | | 5 | 1 | 1 | | 1 | | 1 | |
| ** Goundam | 1 | 4 | 1 | 1 | | 1 | | | |
| * Gourma | 1 | 4 | 1 | 1 | 1 | 1 | | | |
| ** Niafunke | 1 | 6 | 4 | 1 | 1 | 1 | | | |

TABLE 7

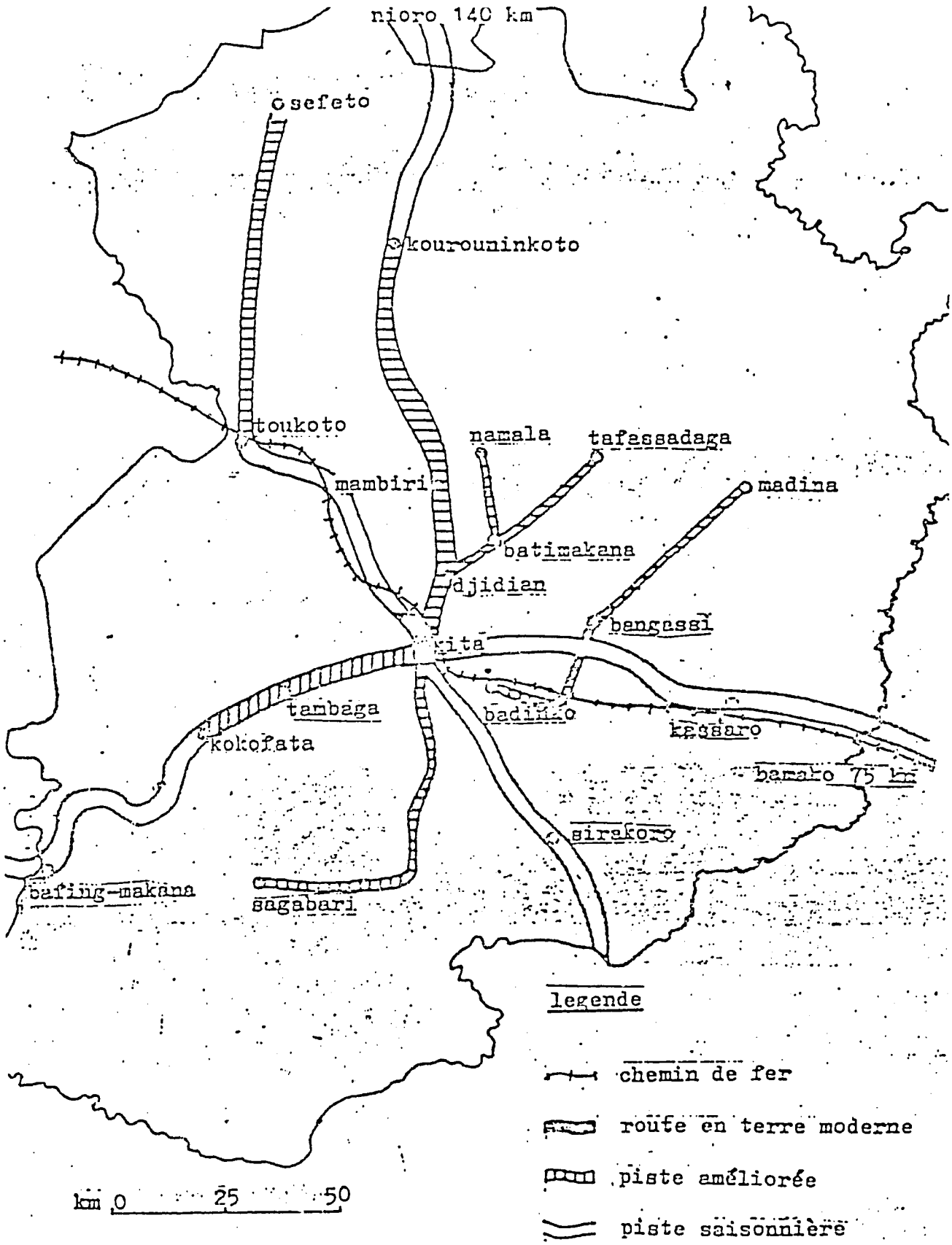
SECONDARY CITY INFRASTRUCTURE:
CITIES BELOW COMMUNE STATUS

| | Military Camp | Dispensary | School | Market | Pharmacy | Post Office | Gas Station | Water System | |
|---|---|---|---|---|---|---|---|---|---|
| Kayes Region: | | | | | | | | | |
| Koniakari | | | 1 | 1 | 1 | 1 | | | |
| * Bafoulabe | 1 | 3 | 1 | 1 | | 1 | | | |
| ## Mahina | 1 | 2 | 1 | 1 | 1 | 1 | 1 | | |
| * Diema | 1 | 1 | 1 | 1 | 1 | | | | |
| * Kéniéba | 1 | 3 | 1 | 1 | 1 | 1 | 1 | | |
| * Yelimané | 1 | 4 | 1 | 1 | 1 | 1 | | 3 | |
| Koulikoro Region: | | | | | | | | | |
| ** Banamba | 1 | 2 | 1 | 1 | 1 | 1 | 4 | | |
| ## Toubakoura | | 1 | 1 | 1 | | | | | |
| * Dioila | 1 | 3 | 1 | 1 | 1 | 1 | | | Not given "urb standing in ce |
| ## Fana | 1 | 2 | 1 | 1 | 1 | 1 | 1 | | |
| * Kangaba | 1 | 3 | 1 | 1 | 1 | 1 | | 1 | Not given "urb standing in ce |
| ** Kolokani | 1 | 4 | 1 | 1 | 2 | 1 | 2 | | |
| ** Nara | 1 | 3 | 1 | 1 | 1 | 1 | 1 | 1 | |
| Sikasso Region: | | | | | | | | | |
| * Kadiolo | 1 | 3 | 1 | 1 | 2 | 1 | | | |
| ** Kolondieba | 1 | 3 | 1 | 1 | 1 | 1 | | | |
| * Yanfolila | 1 | 4 | 1 | 1 | 1 | 1 | | | |
| * Yorosso | 1 | 4 | 1 | 1 | 1 | 1 | 1 | | |
| ## Mahou | | 2 | 1 | 1 | 1 | | | | |

| | Military Camp | Dispensary | School | Market | Pharmacy | Post Office | Gas Station | Water System |
|---|---|---|---|---|---|---|---|---|
| Gao Region: | | | | | | | | |
| * Ansongo | | 2 | 1 | 1 | | 1 | 1 | |
| * Bourm | 1 | 4 | 1 | 1 | | 1 | | |
| Agamhor | | | | no facilities | | | | not given "urb standing in ce |
| * Kidal | 1 | 2 | 1 | 1 | | 1 | | |
| * Menaka | | 2 | 1 | 1 | | 1 | | |

Key
- * circle capital less than 5,000
- ** circle capital 5,000+ but not a commune
- # arrondissement capitals less than 5,000
- ## arrondissement capitals 5,000+

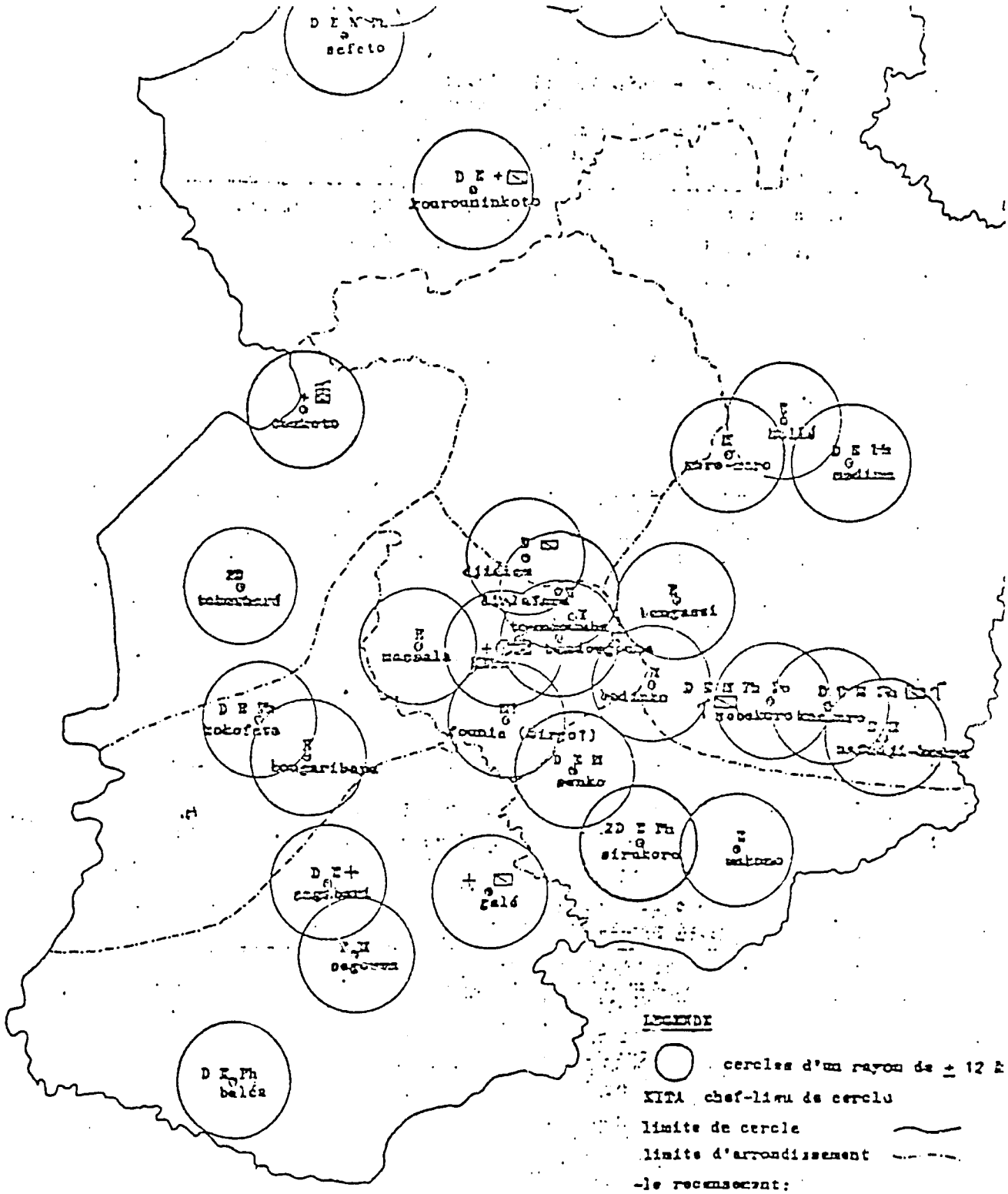
Source: 1976 Census, Volume III, "Répertoire des Villages"




Source: Plan de Transport du Mali 1980-1994, November 1979.

FIGURE 11

ROAD AND RAIL NETWORK IN THE CIRCLE OF KITA




Source: Université Libre, Amsterdam, "La Région de Kayes: Premier Inventaire", Rapport de Base #1, p. 34.

FIGURE 12

SOCIO-ECONOMIC INFRASTRUCTURE IN THE CIRCLE OF KITA

Commerce and transport activity levels can be used to identify five categories of Malian cities:

- economically diverse secondary cities accessible to drought affected areas, which are increasingly attractive to migrants (Mopti, Segou) and therefore growing rapidly because of their crossroads locations);

- rapidly growing satellite towns in the greater Bama' area which have benefitted from decentralization of administrative employment, and provide access to land ownership near Bamako economic opportunities (Kati, Koulikoro);

- slower growing cities which are hampered by lack of diversity since their economies are dominated by primary agricultural production, though favored by higher rainfall conditions (Sikasso);

- economically declining cities which are increasingly passed-over stops on a unilinear transport axis, without crossroads functions because of poor road development (Kita, Kayes);

- cities which are oases of urban services in isolated drought-affected areas, that lack the resource base to generate employment and finance infrastructure to meet the demands dispossessed in-migrants, who tend to move on to more economically advantaged cities (Gao, Tombouctou).

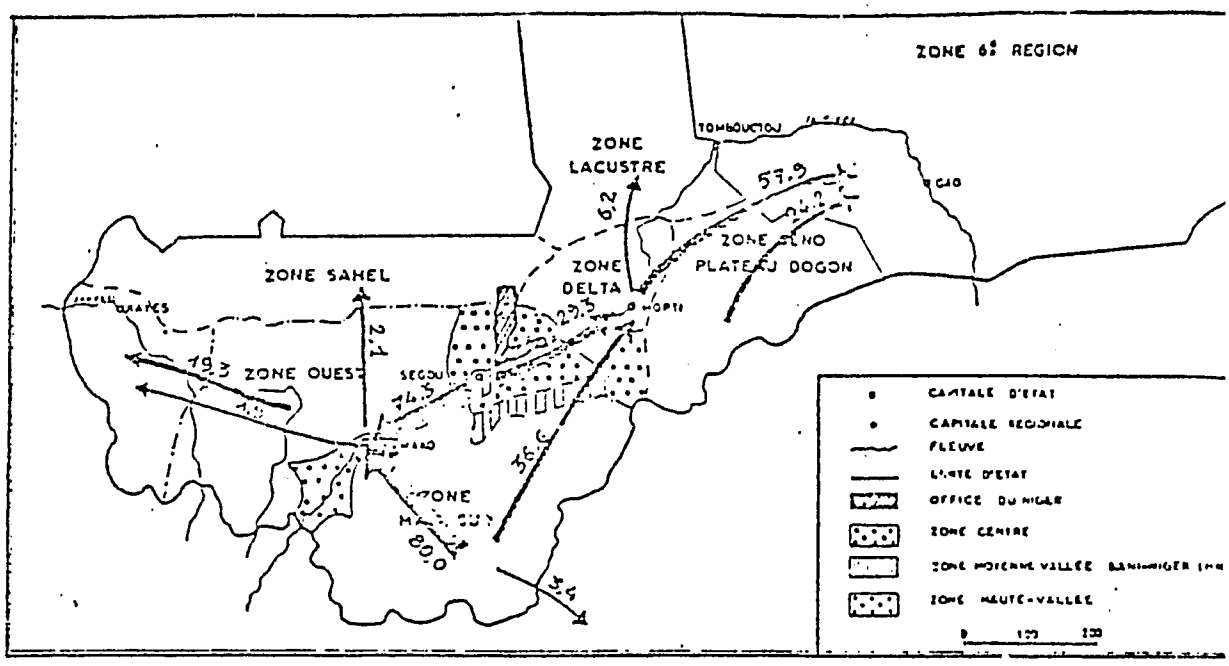
Annual change in actual transport volumes, and rural collection versus distribution patterns, is produced by low or high rainfall conditions, as can be seen in Fig. 13, which compares cereals transport in normal and low rainfall years. In drought years, like 1983, there is much greater handling of cereals imports via rail from Dakar, followed by their redistribution by market towns (Kayes, Bafoulabe, Kita) to each town's rural catchment areas. Road imports of cereals from Ivory Coast are also much higher during low rainfall years, though the directions of distribution and major marketing points' locations remain much the same in central and eastern Mali as they would be in a higher rainfall year. In dry years, a larger share of cereal imports is sent direct to Mopti for distribution and a significant quantity of these imported cereals is distributed to feed villages in the Dogon Plateau (whereas in rainier years, the Plateau exports cereal surpluses to eastern Mali). The major secondary cities and market towns which are important in the local distribution of

56

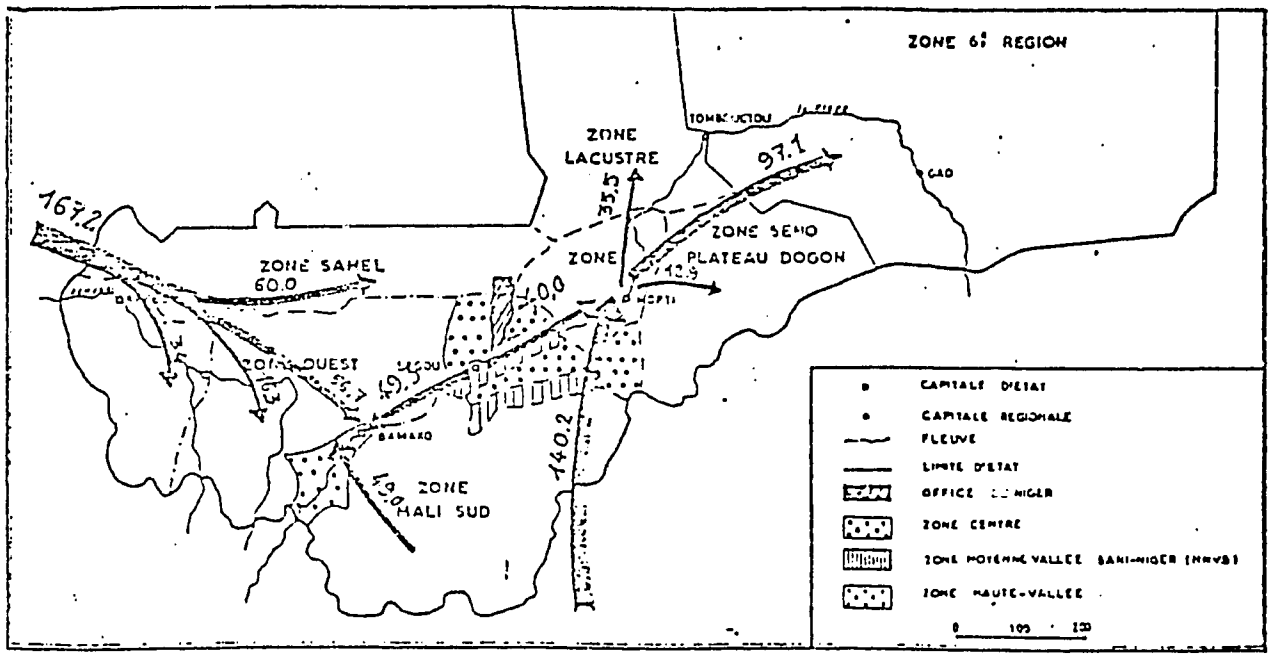
FIGURE 13

PROJECTED 1984 INTER-REGIONAL FLOWS OF CEREALS
UNDER NORMAL VERSUS LOW RAINFUALL SCENARIOS

1984 - ANNEE DE PLUVIOMETRIE NORMALE




1984 - ANNEE DE SECHERESSE




Source: Plan de Transport du Mali, January 1979

domestic cereal production can be identified in Fig. 14. Other secondary city production, marketing, and transport roles are shown by other commodity maps, and some of the findings will be discussed below.

Mopti is clearly shown as a key road-river transport transfer center, and as a market relay provisioning the two more eastern regions. A considerable amount of the cereals produced in the Segou and Mopti regions is sent by river to feed the eastern regions (Tombouctou and Gao). Mopti's fish production is distributed locally to Segou and Bamako markets, and exported via Sikasso to southern Mali and on to the Ivory Coast (see Fig. 15). Mali's role in importing a socially important product like cola from Ivory Coast, almost half of which transits Mali and is re-exported by rail from Bamako to Senegal, is reminiscent of its earlier historical role in the era of trans-Saharan caravan trade. Fig. 16, which illustrates the cola transport system, shows the important role of markets and transport in Sikasso, Koutiala, Segou, Mopti, and Kayes in the domestic retailing and distribution of cola.

The economic decline in Kayes is predictable from these transport maps. Imports and exports between Mali and Senegal are by-and-large continuing by rail directly between Bamako and the port of Dakar. Kayes is a passed-over stop on a unilinear transport axis, and does not seem to have a potential, without expensive road investments, for the economic development generated by the crossroads activities in Mopti or Sikasso (see 1977 Transport Volume Map, Fig. 17 ). Updated projections for 1984 transport, in either normal or low rainfall conditions, Figures 18 and 19 respectively, show a continuation of this pattern. Kayes does, however, play a significant role in the export of cattle and small ruminants by rail, both to Senegal and Bamako, as shown in Fig. 20. Furthermore, the economic decline of Kayes in comparison to Mopti is also caused by the higher diversity and volume of production in the Mopti Region, which is possible largely because of the environmental resources of Mopti's inland delta.

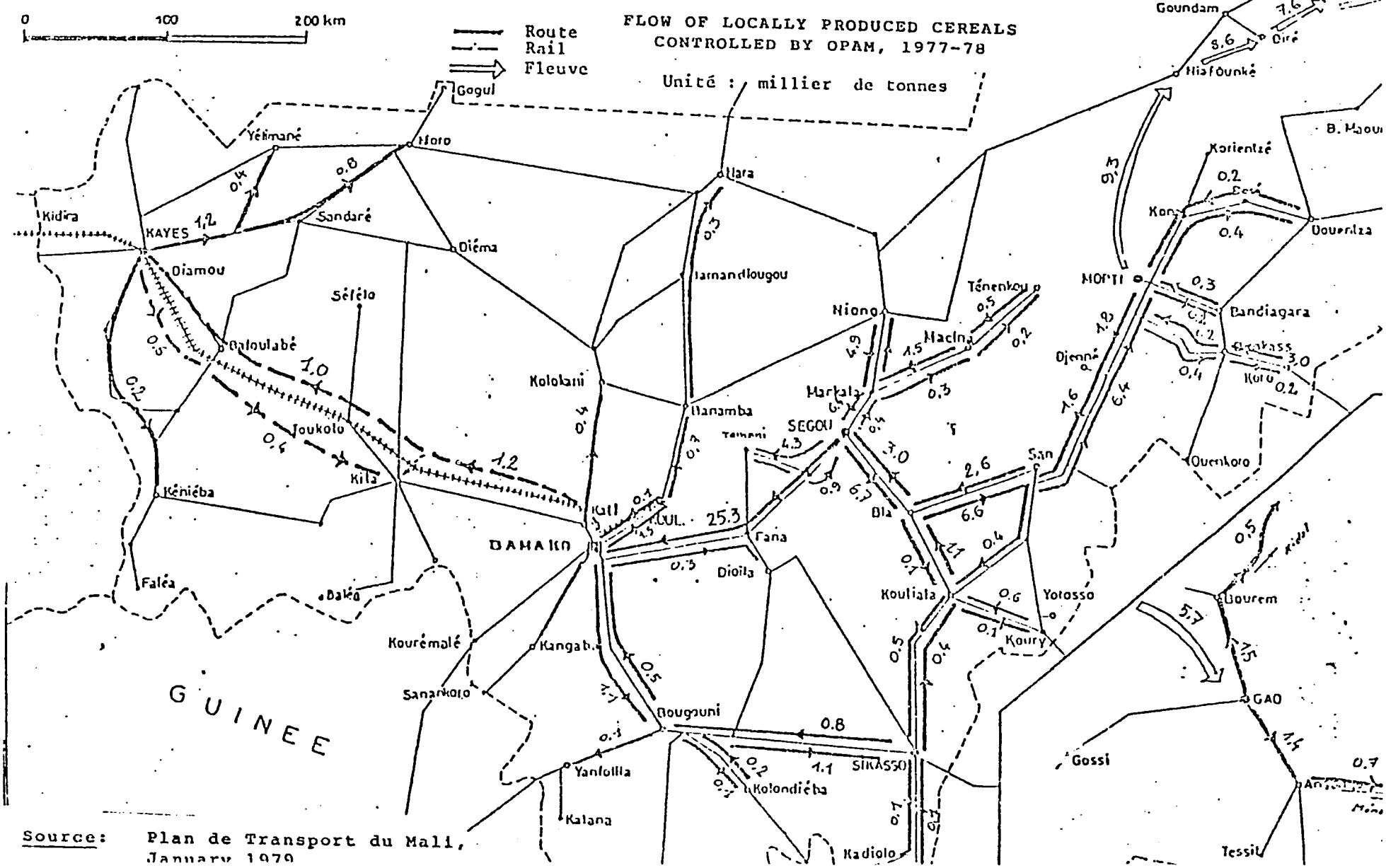
As a whole, there is a stability in the pattern of secondary cities and market towns which are shown to have important roles in handling large freight volumes in either wet or dry years, because of their key locations on the transportation system.

Sikasso is the crossroads transfer point for road traffic proceeding either to Bamako, Segou, or Mopti from the south. Bougouni, which has grown rapidly, and is the most recent

FIGURE 14

FLOW OF LOCALLY PRODUCED CEREALS CONTROLLED BY OPAM, 1977-78

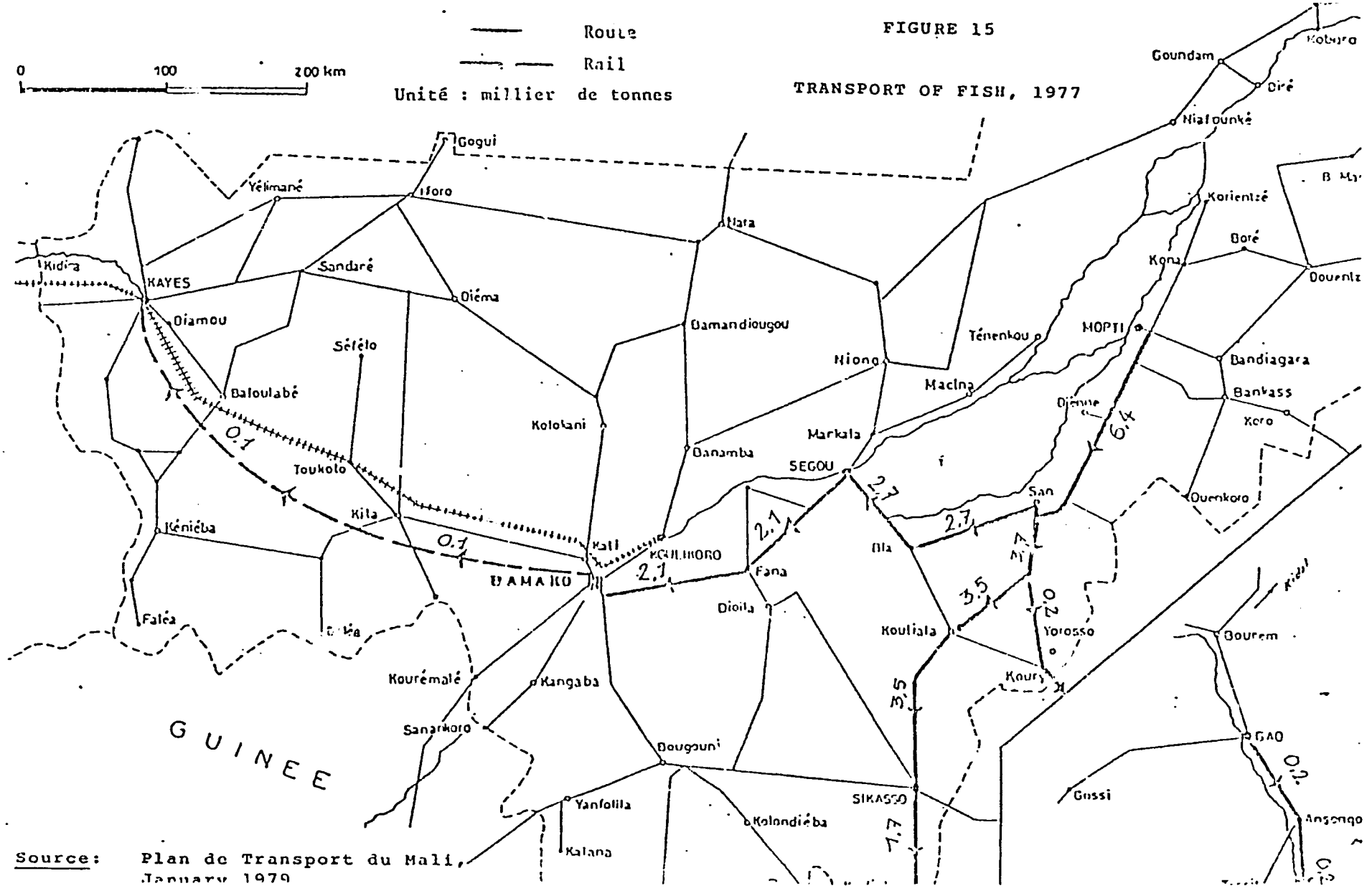
Unité : millier de tonnes




Source: Plan de Transport du Mali, January 1979

FIGURE 15

TRANSPORT OF FISH, 1977

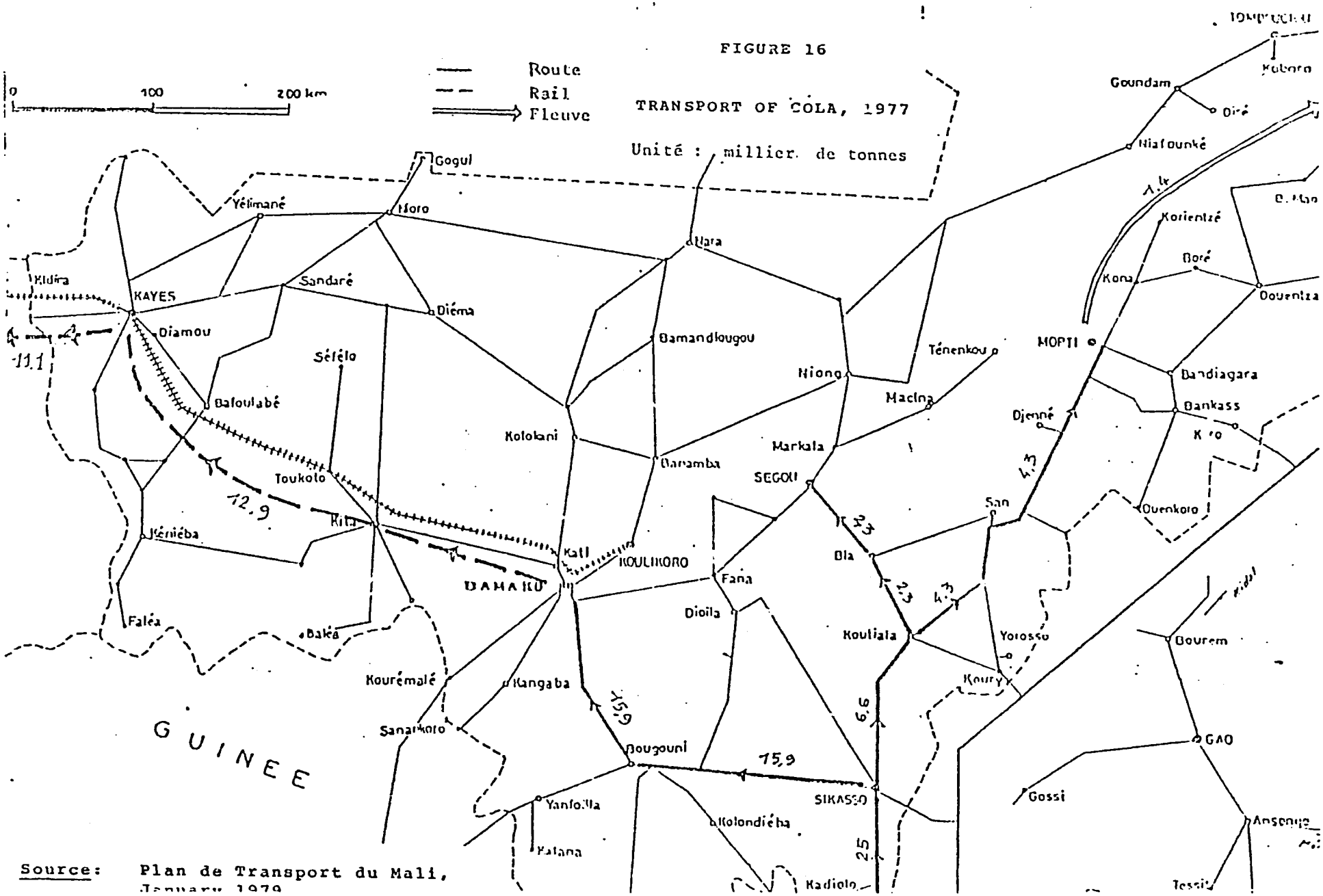



Source: Plan de Transport du Mali, January 1979

FIGURE 16

TRANSPORT OF COLA, 1977

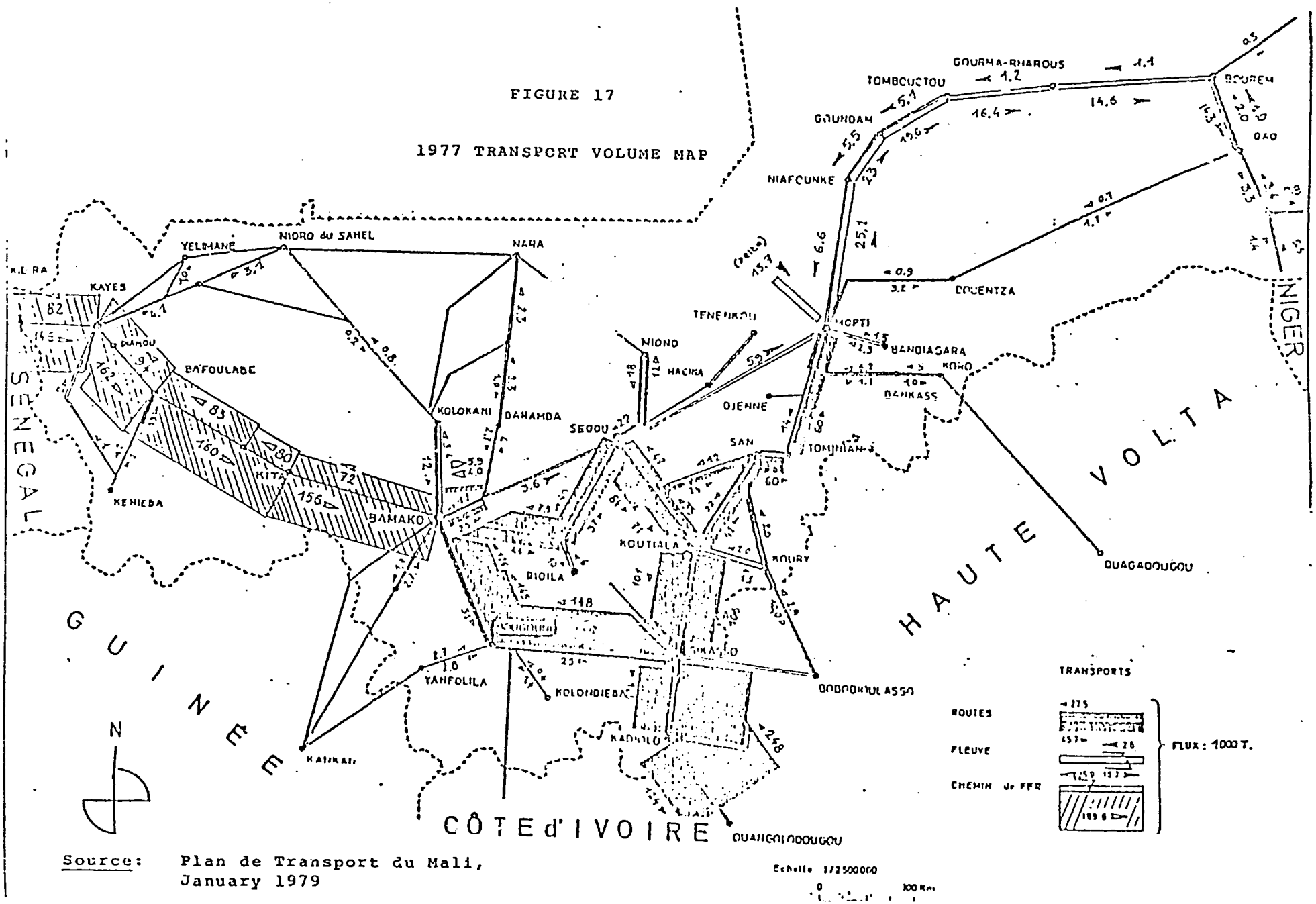
Unité : millier. de tonnes




Source: Plan de Transport du Mali, January 1979

FIGURE 17

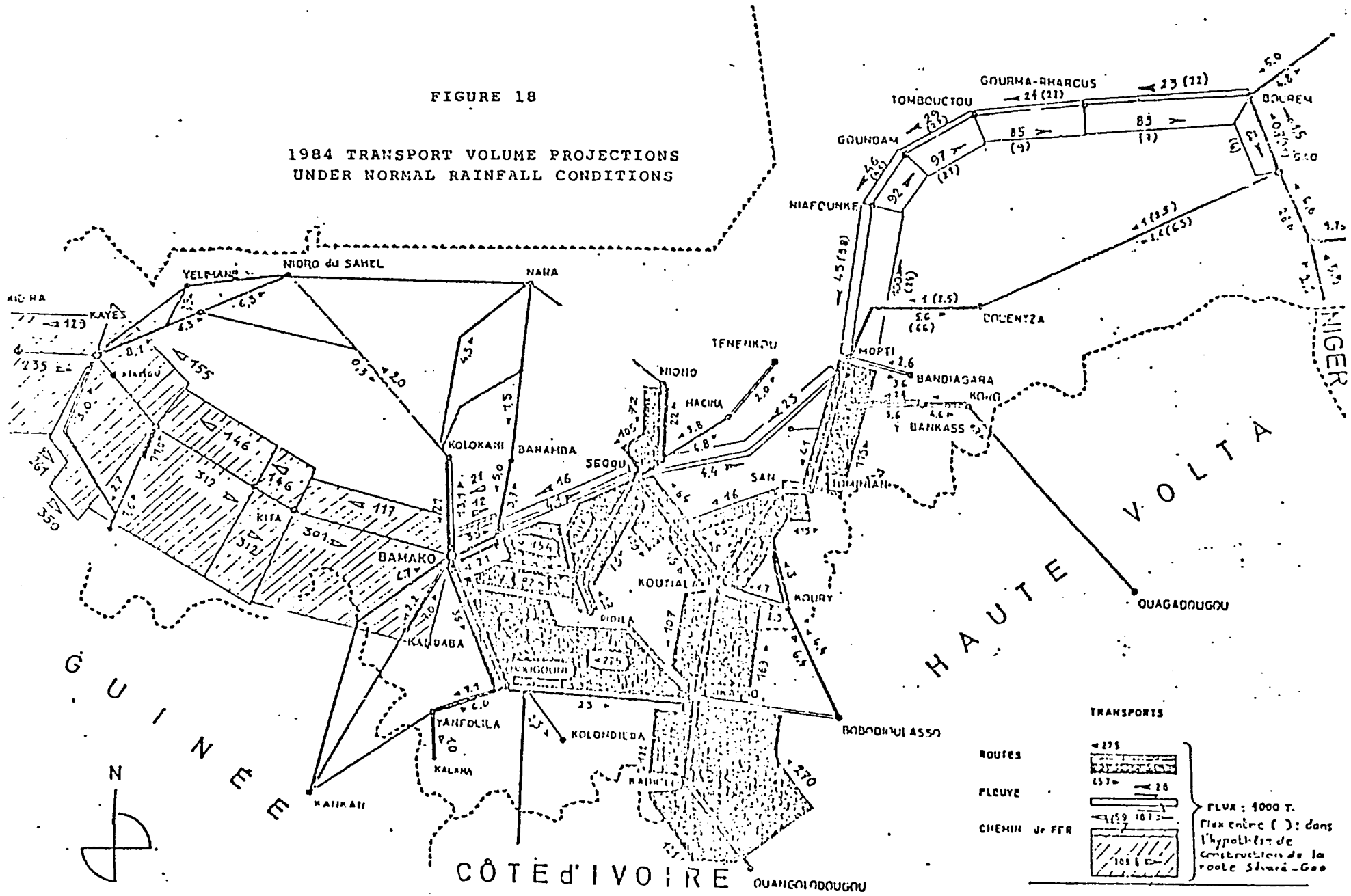
1977 TRANSPORT VOLUME MAP




Source: Plan de Transport du Mali, January 1979

FIGURE 18

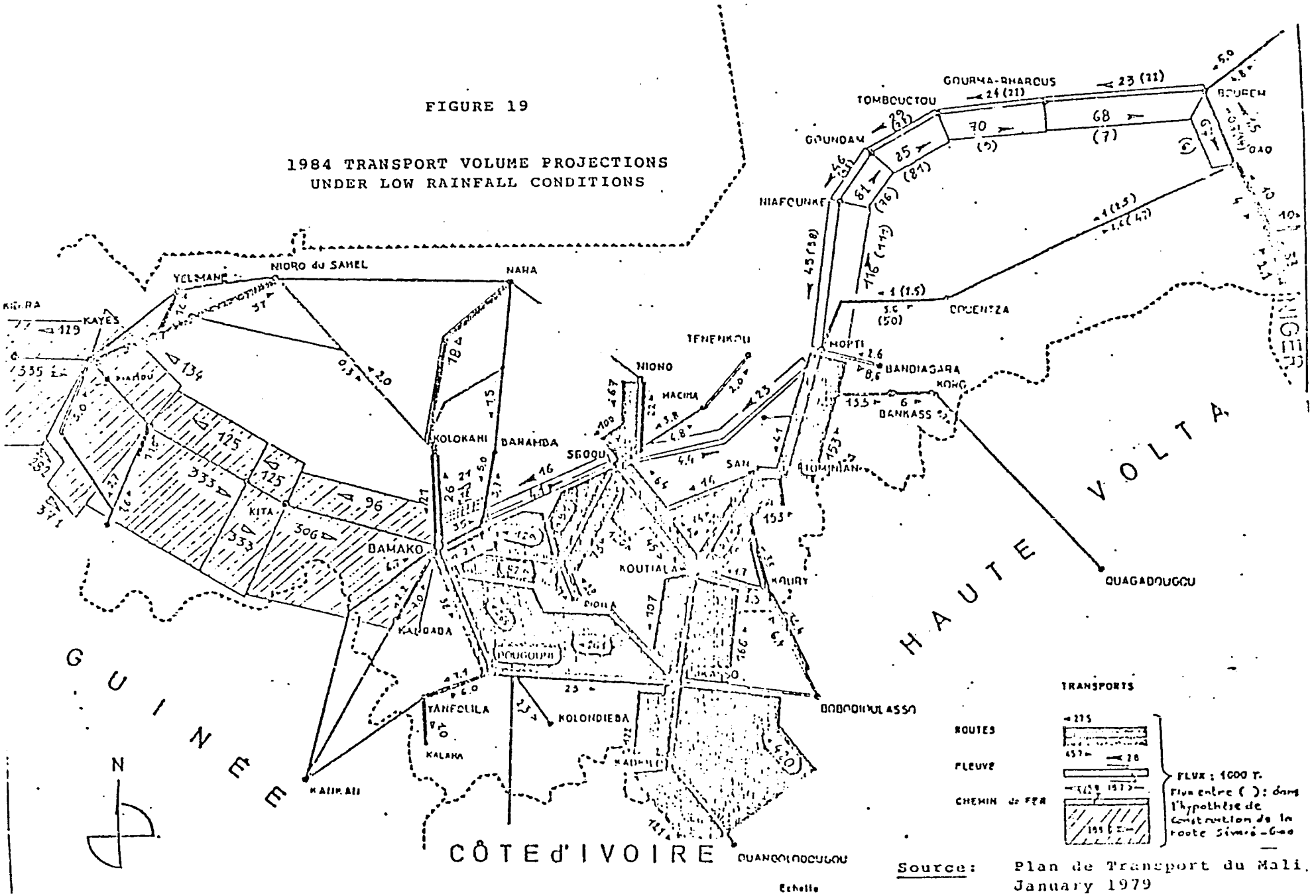
1984 TRANSPORT VOLUME PROJECTIONS
UNDER NORMAL RAINFALL CONDITIONS




Source: Plan de Transport du Mali. January 1979

FIGURE 19

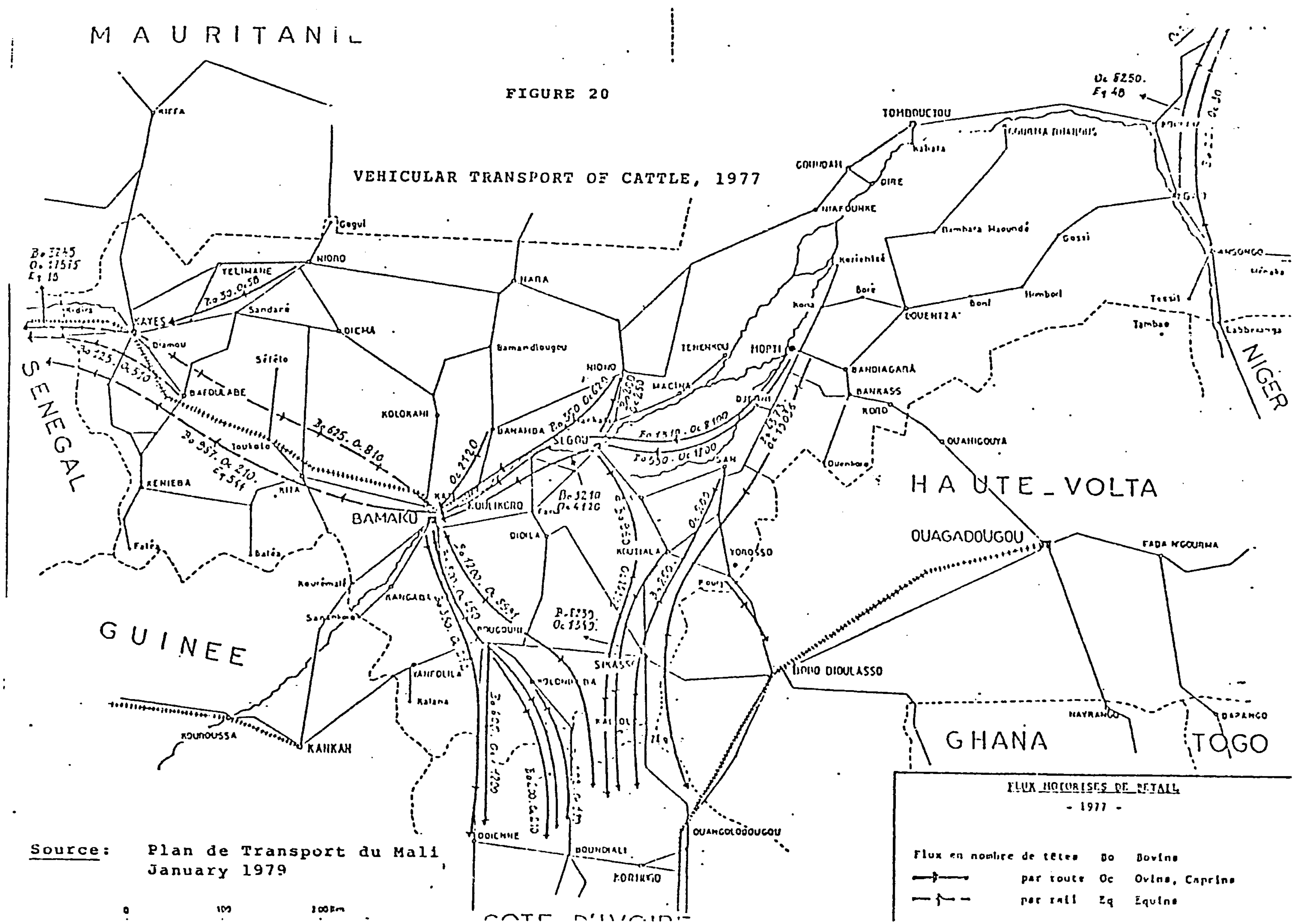
1984 TRANSPORT VOLUME PROJECTIONS
UNDER LOW RAINFALL CONDITIONS




Source: Plan de Transport du Mali, January 1979

FIGURE 20

VEHICULAR TRANSPORT OF CATTLE, 1977




Source: Plan de Transport du Mali
January 1979

urban area to be recognized as a commune, also undoubtedly owes much of its growth to its relay position for southern freight and passengers destined for Bamako via road. Fana is in a similar position for road traffic between Bamako and Segou, as are Koutiala, San, and Tominian for exchanges between Sikasso, Segou, and Mopti.

Though Bamako, Segou, and Mopti all form crossroads between road and river transport, Mopti has the most active port, since as stated earlier, almost all imports and exports for the two eastern regions must pass by river through Mopti. Important volumes of goods are handled by Segou for the Office du Niger and smaller urban and rural areas to the north. In comparison, the much reduced role of Kayes is striking. Though a critical link in supplying Yelimané, Nioro, and Keniéba, the city is redistributing relatively feeble volumes of goods in comparison with these other cities (Bamako, Segou, and Mopti). In the context of AID Mali's focus on the rehabilitation and expansion of irrigated perimeters in the Kayes area, Fig. 21 is particularly instructive since it shows the lack of export to Bamako of existing Kayes fruit and vegetable surpluses. The same pattern of relative importance of cities is illustrated by Fig. 22 and 23 which show the volume of road passengers in 1978 and in the 1984-1994 projections.

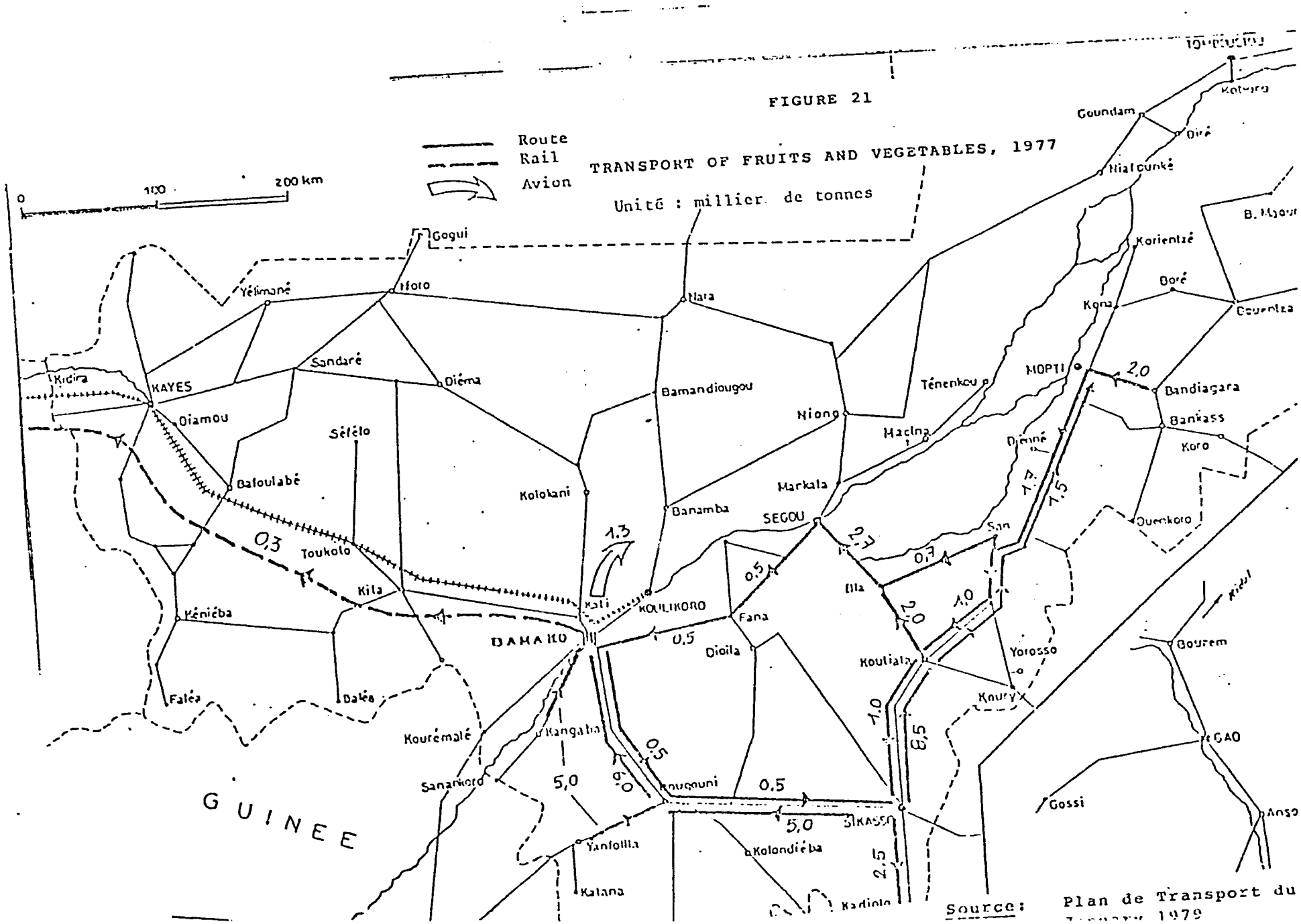
Sikasso has been shown to be the major crossroads for vehicular freight to and from Bamako, Segou, Mopti and the Ivory Coast. It is also known as an important center for the cotton production in southern Mali, almost the only agricultural sector in which production increases have been achieved during the past decade. Fig. 24 shows the secondary cities most active in cotton collection, ginning industries, and export through Dakar and Ivory Coast (Sikasso, Koutiala, Bougouni, Segou, Fana, and Bamako).

The impacts of volume of rainfall and pricing policies on agricultural production will create significant sectoral changes in the viability of agricultural transformation activities in secondary cities, on an annual and multi-year basis, dramatically and suddenly increasing industrial unemployment in low rainfall years. Fig. 25 shows the location of groundnut oil factories in Kita and Koulikoro in 1976-1977, and the collection networks for groundnuts processed by these two cities. Since then, the decrease in the groundnut crop in response to low prices and rainfall conditions has required the closing of Kita's oil factory, reducing modern sector employment available there.

FIGURE 21

TRANSPORT OF FRUITS AND VEGETABLES, 1977

Unité : millier de tonnes

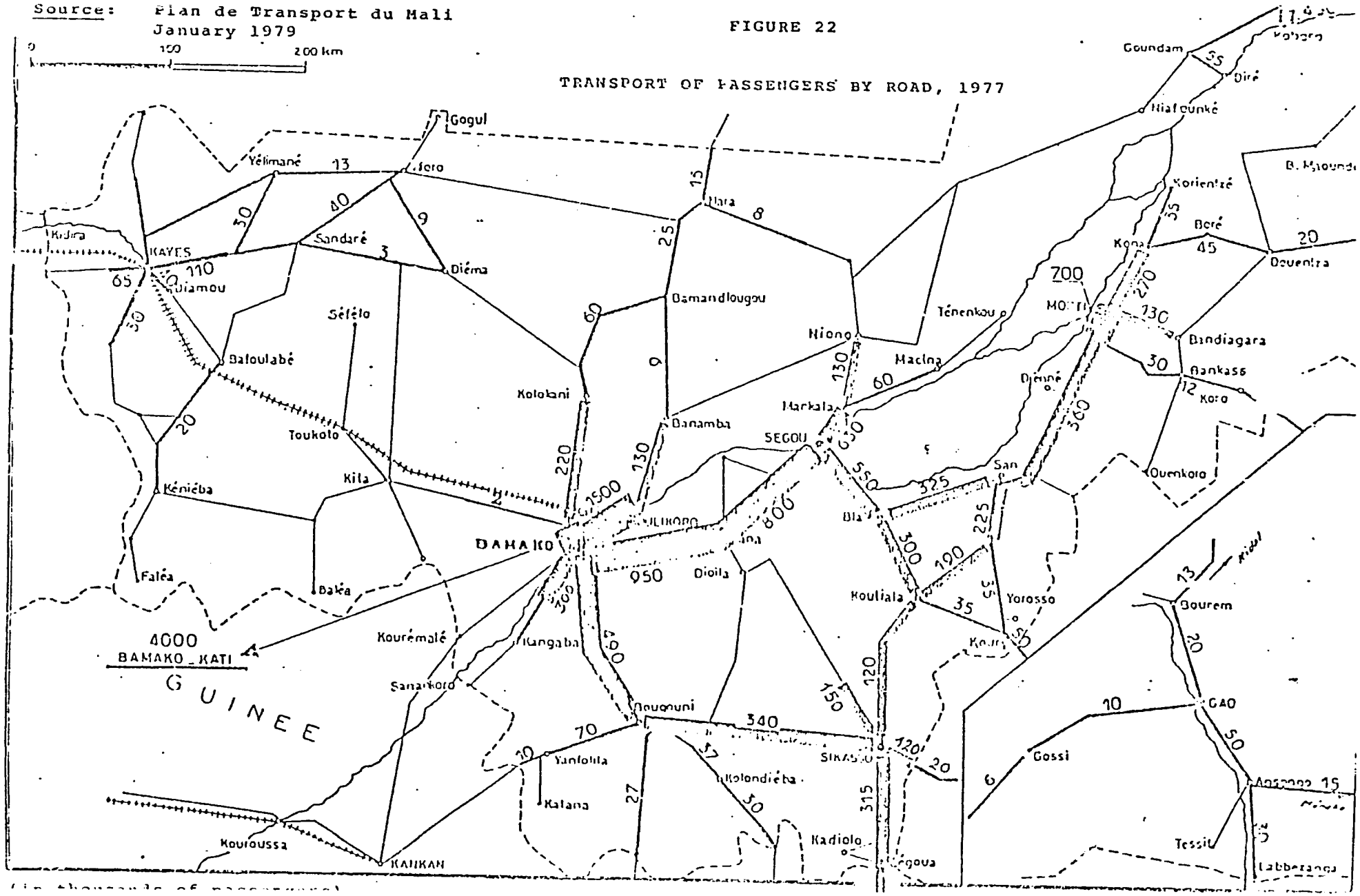



Source: Plan de Transport du Janvier 1979

Source: Plan de Transport du Mali
January 1979

FIGURE 22

TRANSPORT OF PASSENGERS BY ROAD, 1977



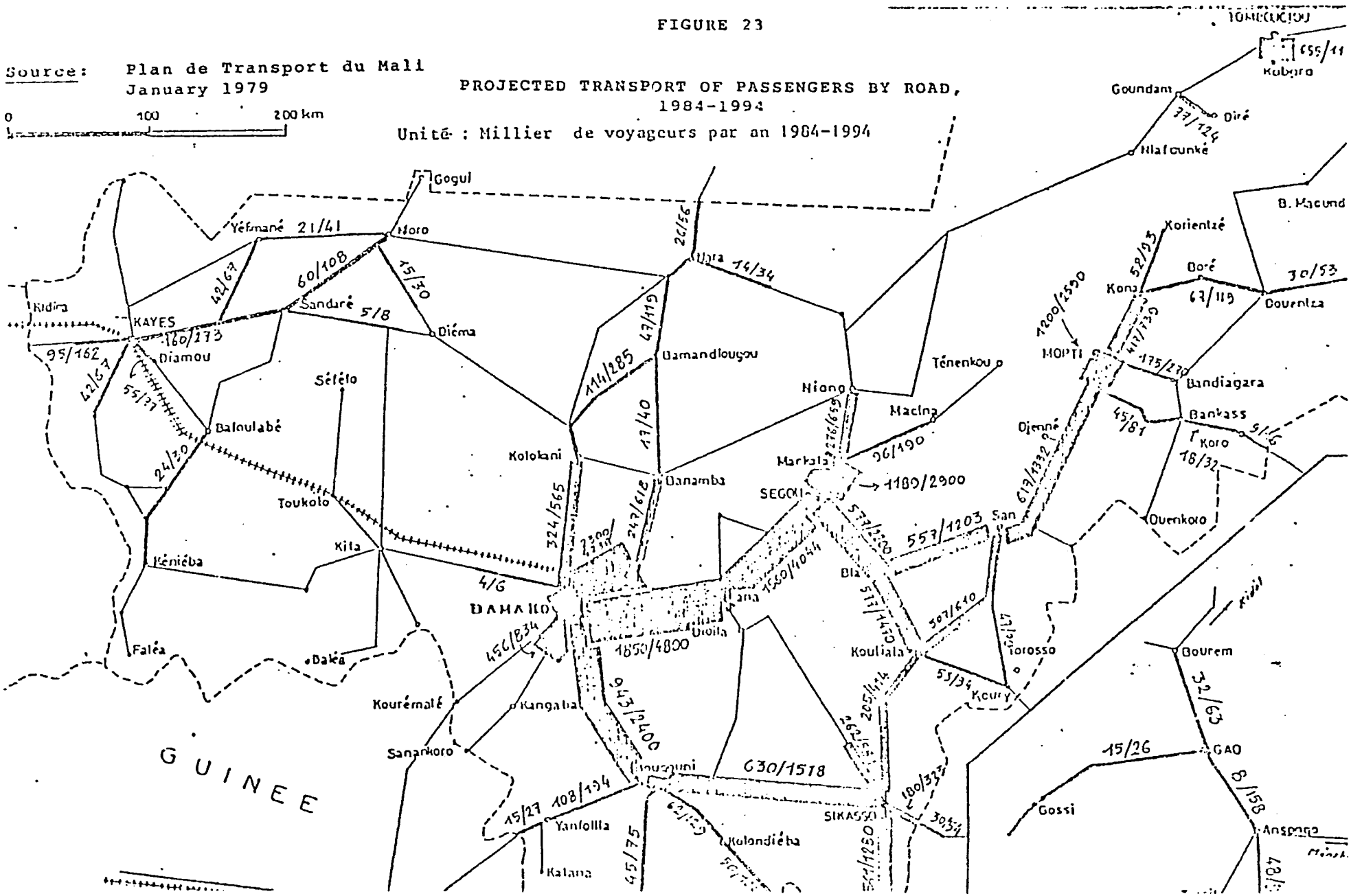

(in thousands of passengers)

FIGURE 23

Source: Plan de Transport du Mali
January 1979

PROJECTED TRANSPORT OF PASSENGERS BY ROAD, 1984-1994

Unité : Millier de voyageurs par an 1984-1994



Source: Plan de Transport du Mali
January 1979

COTON FIBRE -

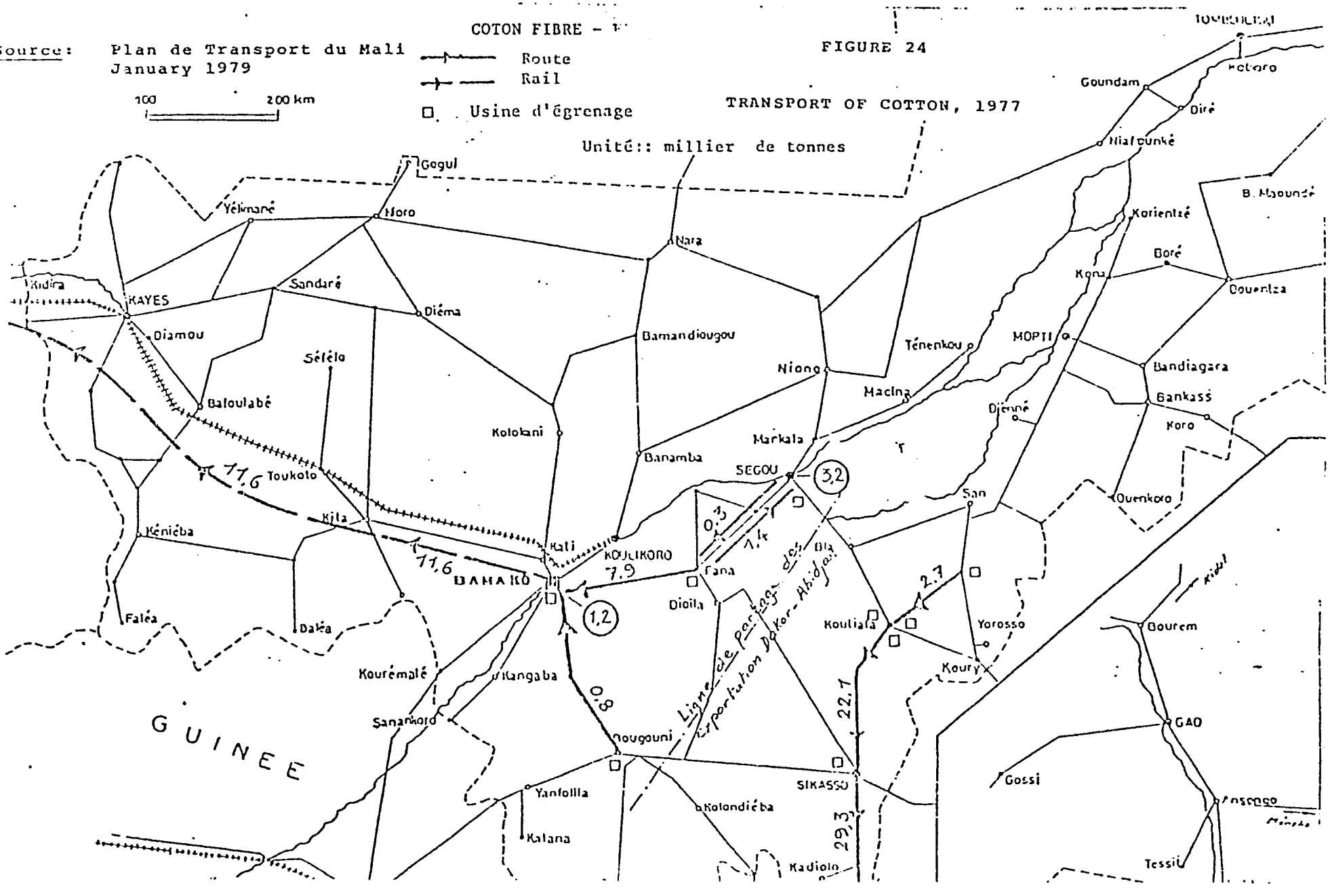
Route
Rail
Usine d'égrenage

100 200 km

FIGURE 24

TRANSPORT OF COTTON, 1977

Unité:: millier de tonnes



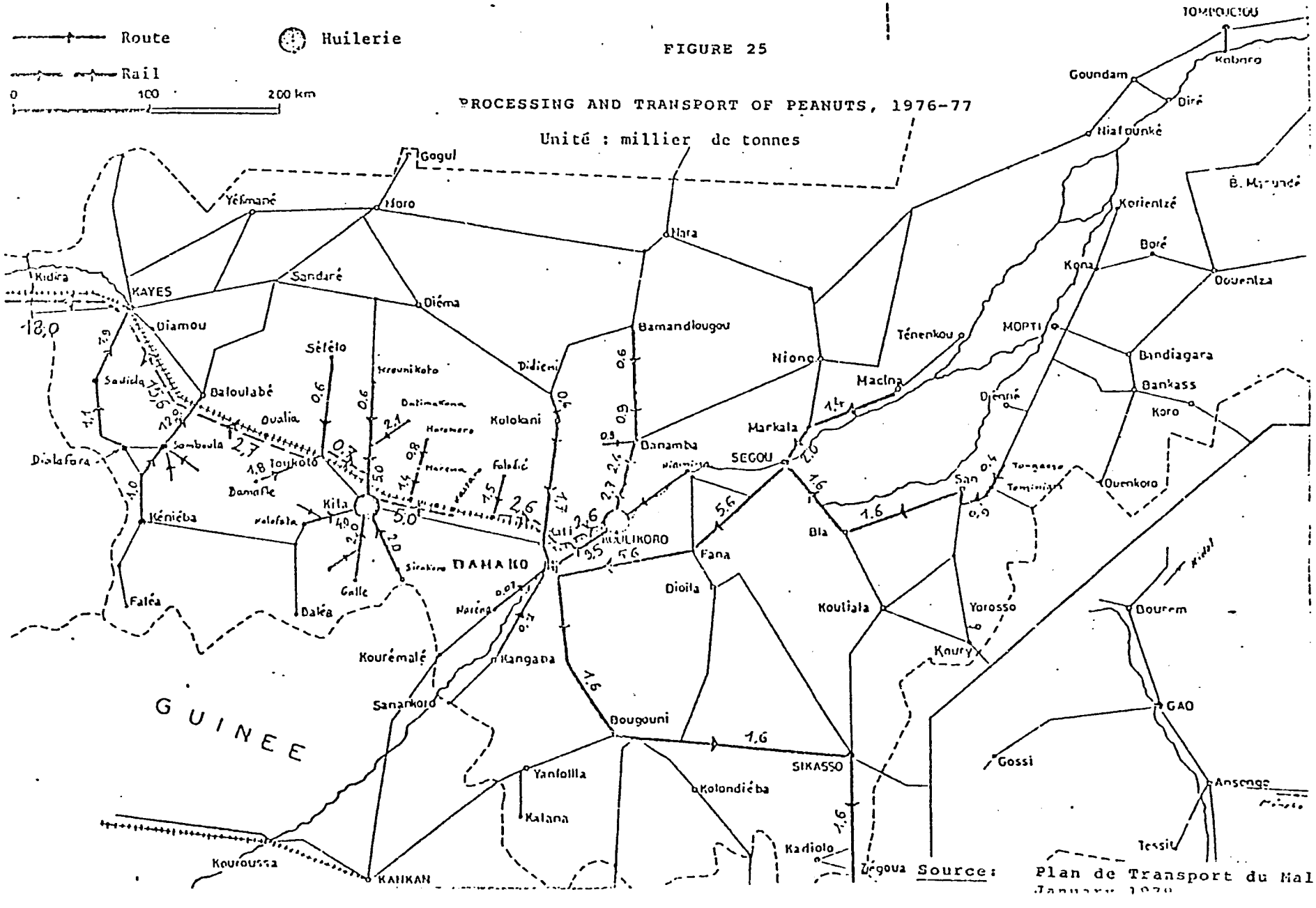



FIGURE 25

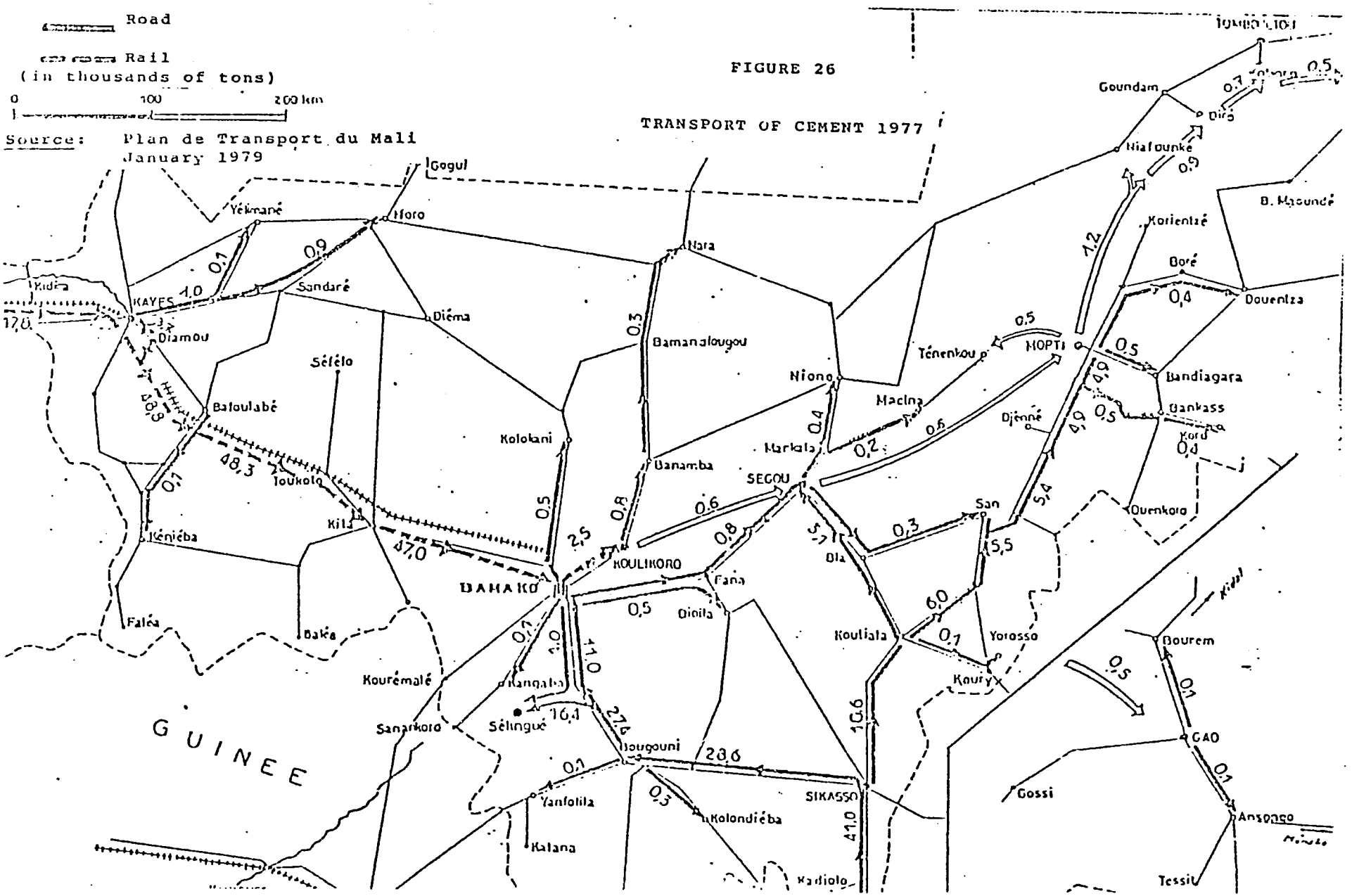
PROCESSING AND TRANSPORT OF PEANUTS, 1976-77

Unité : millier de tonnes

Source: Plan de Transport du Mal
January 1979

FIGURE 26

TRANSPORT OF CEMENT 1977



Source: Plan de Transport du Mali
January 1979

FIGURE 27

TRANSPORT OF HOUSEHOLD CONSUMER ITEMS, 1977

Unité : millier de tonnes

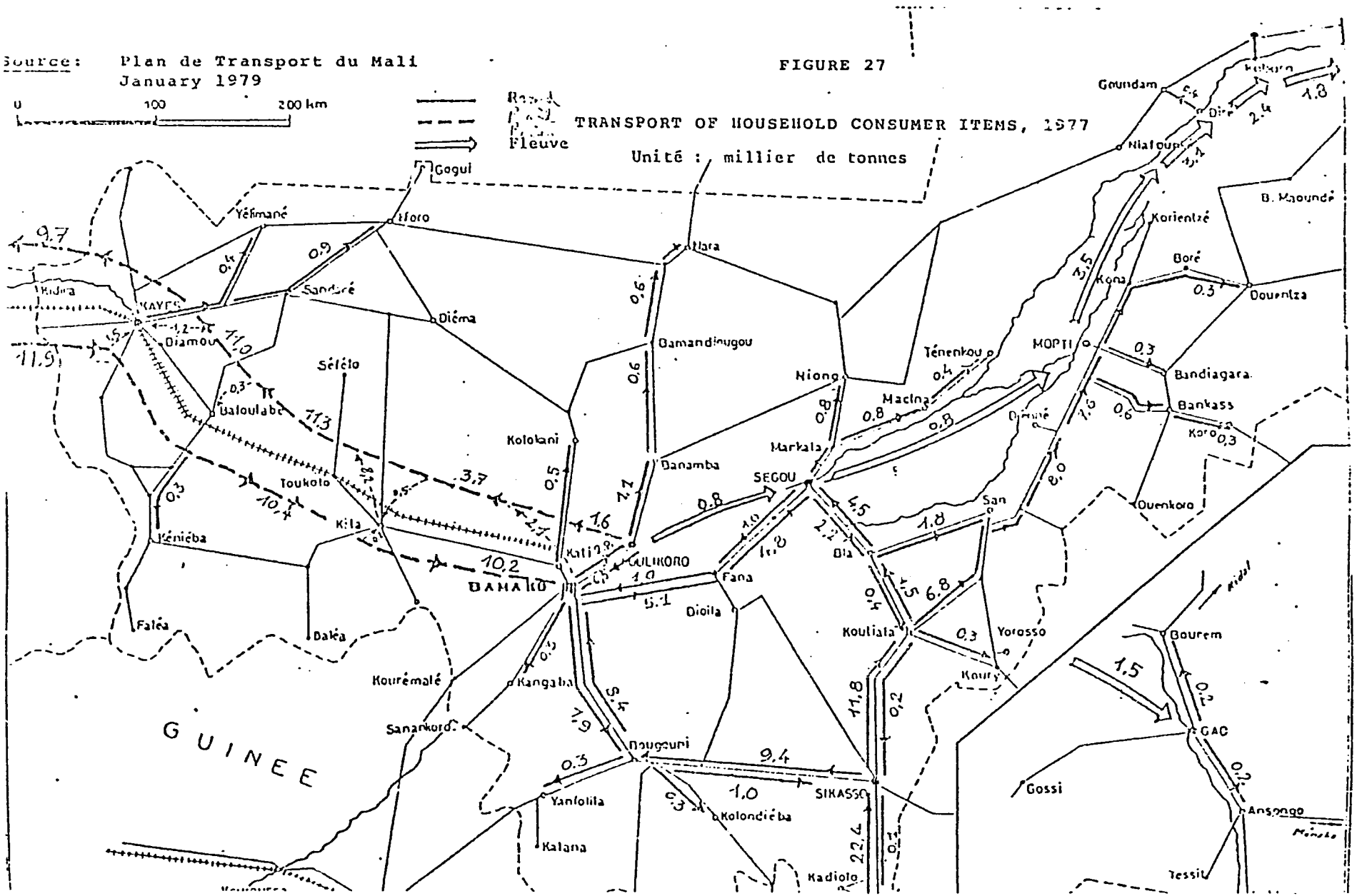


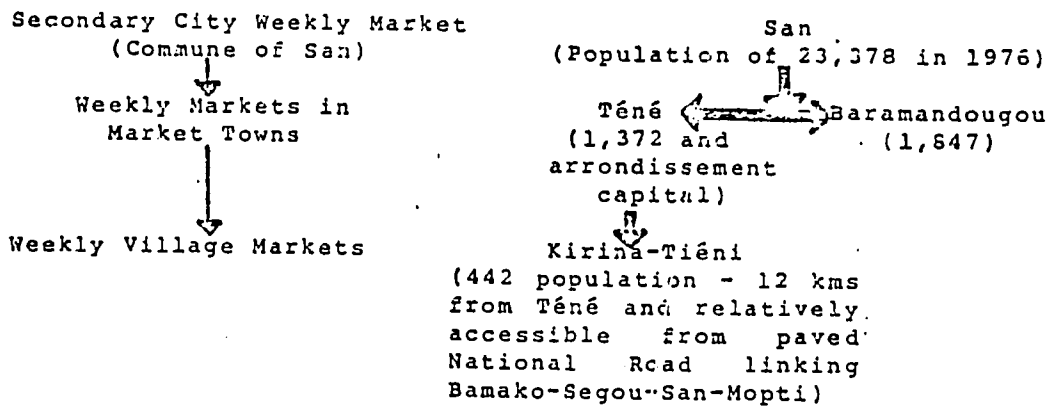
Fig. 26 and 27 graphically illustrate the network of secondary cities and market towns which are strategically important in the domestic distribution of basic industrial products and manufactured imports to rural areas. The first figure shows the retailing of cement, a fundamental building material, and the second applies to general household consumer items.

The commercial and transport roles of the hierarchy of small secondary cities and market towns can be determined from the University of Utrecht's 1983 study of the interactions of markets in the circle of San in the sale of agricultural surpluses and manufactured goods. The diagram in Fig. 28 shows the three step hierarchy of markets in that circle which can be defined by information collected during a student survey in the 1983 harvest season, based on numbers and origins of traders in each market, types of products traded, and relationships between the size and function of each market.

In all of the villages studied in San circle, male dry season out-migration, for the 25-45 age group, was a regular circular pattern. In Baramandougou, a large number of household members tended to emigrate for multi-year periods. In certain villages, emigrant cash remittances played an important role in the local economy (usually correlated with a high level of commercial activity, indicating that remittances are providing trading capital in this area). The major economic activity in

FIGURE 28

HIERARCHY OF MARKETS IN SAN CIRCLE, ARRONDISSEMENT DE TENE
(population figures from '76 Census)



all villages, however, was agricultural production with, secondarily, the fabrication of "dah" fibers into cord for sale in local markets (since the 1981 cessation of CMDT parastatal "dah" purchases). Livestock raising was also important in all villages and cattle, in particular, had been well integrated into agricultural activities (use of animal manure and animal traction). Only Téné and Baramandougou had schools and health centers. Villagers were obliged to travel to these larger towns for such services.

The difference in volumes of rural production traded in town versus village weekly markets during the 1983 harvest is indicated by the survey finding that 10 tons of millet a day changed hands at Téné, the arrondissement capital, versus only 1 ton a day at Kirina, a weekly village market The weekly (Monday) market in San is the commercial center-of-gravity for all marketing in its circle, attracting 2000 to 2600 traders. About 25% of these traders come from outside the city, including small village traders as well as a number of large-scale entrepreneurs who visit all of the most important weekly markets in the region from their bases in Bamako, Sikasso or Bobo Dioulasso (Upper Volta). The San market can, therefore, be considered as having an inter-regional stature, measured both by the participation of market intermediaries from outside the San circle, as well as by the diversity of industrial products sold.

The next lower market level, that of weekly markets in the towns of Téné and Baramandougou, attracts less than half as many traders (600 to 1000), who sell a less varied assortment of industrial products. Market agents selling industrial products include traders from San as well as from the market towns themselves, and virtually all obtained their products from the San market.

The lowest market level includes the large number of weekly village markets, of which the Kirina-Tiéni market is representative. This village-level market attracts only 1/5 as many merchants as the market town level (about 200); almost all traders are from local villages except for the few from market towns in the circle. The diversity of industrial products sold in these village markets is very limited, including only basic consumer items such as matches, sugar, and soap.

Though diversity of industrial products sold was used to distinguish the three levels of markets, about 70% of all products traded at each level were agricultural commodities, and at each level agricultural produce was both collected and

redistributed. Table 8 summarizes these comparative characteristics of town and village markets. The village market, as one would expect, is only of local importance; for example, a significant amount of "dah" is sold to other villagers who plan to make cords. Very few of the major entrepreneurs who assemble agricultural production attend these markets. This is the lowest collective market in the chain of retail distribution of industrial products and it substitutes for the lack of shops in rural areas, for those who do not want to travel longer distances to purchase basic imported household goods. Much of the agricultural trading in these markets is barter rather than cash sales.

TABLE 8

COMPARATIVE CHARACTERISTICS OF
SECOND AND THIRD LEVEL MARKETS
IN THE CIRCLE OF SAN

| | Town Markets (Téné, Baramandougou) | Village Markets (Kirina-Tiéni) |
|---|---|---|
| Number of Traders | 600 - 700 | 200 |
| Origin of Traders | Participation of trades from other circles and areas farther away. | Some village or other villages in some arrondissement |
| Origin of Products | Mainly non-local | Local |
| Differences in Nature of Products Traded | Transformed agricultural production, cattle industrial products | Local industrial agricultural production |

Source: Prepared by the author from information in: Tempelman, Harts-Broekhuis, and Verkoren. "Etude Socio-Economique de la Ville de San et de ses Environs: Cycle III".

Though both town markets are more dynamic and varied than a village market, comparing the two (Téné and Baramandougou)

with each other shows the substantial advantage which has been conferred on the Téné market by its location on the paved National Road which links Bamako and Mopti. As the most accessible market outside San in the circle, Téné attracts more traders (700 versus about 600 in Baramandougou). A larger number of San traders (40 on average) attend the Téné market accompanied by vehicules (small trucks), including traders active in the collection of millet surpluses for higher order markets. These market intermediaries include some women who travel directly to Mopti after the Téné market to resell their purchases, though most resell at San. The Téné market is also patronized by OPAM, the parastatal responsible for cereals marketing, which purchases about 10% of the millet sold at the market. At Téné, several dozen San distributors sell a variety of industrial products to the local traders who will resell at village markets. Téné also markets Mopti fish production.

The Baramandougou market, located on the Bani River which is the axis for river transport between San-Djenné-Mopti, was formerly more important than that of Téné, to which it has lost inter-regional Mopti and Upper Volta trade since the construction of the Bamako-Mopti road. Though the river continues to contribute somewhat to the importance of Baramandougou market, encouraging Djenné fish, millet, and rice to be brought by small boat for sale, most of the products traded are brought by truck from San. Several Téné merchants arrive by animal cart to assemble produce at Baramandougou for resale in their own market. As a whole, however, fewer large scale intermediaries visit Baramandougou market directly; it has become a subsidiary of Téné which, favored by its inter-regional road link, is the direct place of contact (outside of San commune) for large scale purchasers and transporters.

# IV. CAUSES AND PATTERNS OF RURAL-URBAN AND INTER-URBAN MIGRATION

Since Kati, Kita, and Koulikoro, are all secondary cities which have experienced considerable growth between 1960, when they were grouped with villages of 3,000 to 10,000 population, and 1976, when they were recognized as urban communes of over 10,000, and since detailed socio-economic surveys by the Dutch Free University have been done in each during the last 3 years, they can be used to establish an overview of patterns and trends. Kati and Koulikoro are under the influence of greater Bamako, while Kita is more distant, but favored by its location on the Bamako-Dakar rail line. Djenné, a small secondary city which has experienced less growth, is also used for comparison since it is even farther from Bamako (though in the more resource-rich Niger delta in contrast to Kita). Socio-economic data on Djenné were obtained from studies by students from the Dutch University of Utrecht.

Within the last few years, the Malian government has tried to stem the growth of Bamako by decentralizing lower level administrative functions (formerly based in the capital). The relocation of "circle" administrative functions from Bamako to Kati (15 km. to the northwest), and of regional administration to Koulikoro, have generated a higher rate of population increase and a diversification of employment and urban functions in both cities.

As a town of approximately 25,000 population in 1976, Kati performs administrative, economic, and national defense functions, and grew approximately 8% per year, according to census figures, from 1959-1976, with 4-5% of this annual growth attributed to in-migration. Kati has several economic advantages: proximity to Bamako markets, rail service, employment and the need for services generated by the presence of "circle" administrative functions and a military camp. If it continues, this growth rate will translate into a tripling of Kati's population (up to 75,000) by the year 2000. According to the Dutch survey sample, 90% of the town's population was born outside the city.

Of the in-migrants' share of the urban population, 34% come from Kati's own region (Koulikoro) including 14% from the Kati circle. (See Table 9). The next most important areas of origin for Kati migrants are its immediately adjacent regions, especially Kayes (a traditional place of out-migration) which has contributed 21%, and Sikasso Region with 10%. The other more distant regions of Mali had contributed much smaller and approximately equal shares (2-3%). About 6% were reverse migrants (those who move from larger to smaller urban or rural areas) from the district of Bamako, and 8% came from other countries.

TABLE 9

ORIGIN OF KATI RESIDENTS

| Région d'origine | abs. | % |
|---|---|---|
| Kayes (1ère région) | 20 | 21 |
| Koulikoro (2ème ") | 43 | 44 |
| Sikasso (3ème ") | 9 | 10 |
| Segou (4ème ") | 3 | 3 |
| Mopti (5ème ") | 3 | 3 |
| Tombouctou (6ème") | 3 | 3 |
| Gao (7ème ") | 2 | 2 |
| District de Bamako | 6 | 6 |
| L'étranger | 8 | 8 |
| Total | 97 | 100 |

| | | abs. | % |
|---|---|---|---|
| dont: | ville de Kati | 10 | 23 |
| | cercle de Kati | 14 | 33 |
| | reste 2ème région | 19 | 44 |
| | total 2ème région | 43 | 100 |

Source: Université Libre, Amsterdam, "La Migration Vers et Dans La Ville de Kati", Etude socio-géographique, December 1981, p. 18.

Table 10 shows that motives for migration to Kati, overall, were fairly evenly divided between: (1) the search for employment (32%); (2) employer-induced displacement caused by geographical reassignment (26%); and family-related or social service reasons such as the search for education and health care or marriage (35%).

TABLE 10

MOTIVES FOR MIGRATION TO KATI BY REGION OF ORIGIN

| région de naissance / motif de départ | 1ère région abs. | 2ème région abs. | 3ème région abs. | 4ème région abs. | district de Bamako abs. | l'étranger abs. | total abs. | % |
|---|---|---|---|---|---|---|---|---|
| motifs économiques | | | | | | | | |
| (gagner de l'argent chercher du travail) | 9 | 10 | 4 | 2 | 1 | 5 | 31 | 32 |
| motifs de service | | | | | | | | |
| (mutation, chantier, service militaire) | 9 | 6 | 2 | 4 | 2 | 2 | 25 | 26 |
| motifs sociaux | | | | | | | | |
| - famille<br>- formation<br>- santé<br>- mariage | 2 | 20 | 3 | 5 | 3 | 1 | 34 | 35 |
| motifs divers | | 7 | | | | | | 7 |
| Total | 20 | 43[1] | 9 | 11 | 6 | 8 | 97 | 100 |

[1] de ces 43 cas il y en a 10 qui ne peuvent pas parler de leur région d'origine au sens stricte du mot étant originaires de Kati

Source: Université Libre, Amsterdam, "La Migration Vers et Dans La Ville de Kati", Etude socio-géographique, December 1981, p. 20.

Cross-cutting the breakdown of migration motives by region of origin, one sees that the purely economic motives are the strongest determinants of the exodus from the Kayes region to Kati, while within its own region, Kati is attracting slightly more migrants for social services and family reasons than for more purely economic activities.

An important issue to consider is the "process" of migration - whether migration is direct or in stages. The Kati survey indicates that stepwise migration is the norm. On average,

migrants to Kati had previously moved three times. The ideal stepwise migration pattern would involve moving from village to circle capital, then to regional capital, and finally to national capital. Of particular interest is the survey finding that only 28% of migrants' displacements before reaching Kati had followed the ideal of movement from one of these lower levels of urbanization or a village to the next highest order urban center. (See Table 11). The next largest share of movements (22%) had been reverse migration to an urban center two orders of magnitude smaller, followed closely by movements (20%) which represented essentially lateral displacements from other urban centers of the same size. In all, 44% of migrants' previous movements had been from smaller to larger urban centers, of which only 6% were jumps directly to much higher order urban centers, and this trend was counter-balanced by the 36% of urban to more rural reverse movements. Only 2% of movements, however, were from large urban centers directly back to villages.

The locational choice of Kati as a destination in the migration process, for those surveyed, was predominantly economic (43%), though social motives remained significant (22%) and a large share of migrants (20%) were attracted by a combination of public service factors (education, health care) and the accessibility of land ownership. (See Table 12).

An analysis by age group of reasons for the choice of Kati, as current residence (see Table 13) reveals, as one would expect, that economic interests prevail among those aged 16 to 46, while "social" needs (education, health and family relocation) predominate for younger and older people (and are relatively important even up to age 25). It is unfortunate that educational, health, and family-induced moves were not reported separately since this would help to detect the relative importance of these factors in the migration process.

Table 14 shows that among the economically motivated, most (43%) of the employed migrants were engaged in service occupations, with industry (probably artisan trades and railroad employment) occupying the next largest share. Even migrants who had reported social or diverse motives for their relocation to Kati were almost evenly divided between services and agricultural employment. Only a surprisingly low 13% of all migrants reported total lack of economic activity, again counter to what one would have expected from the overall lag between urban job creation in the face of rapid urban growth. Kati's locational and economic advantages seem to be allowing the urban economy to absorb most of its migrants.

TABLE 11

HIERARCHY OF PREVIOUS RESIDENTIAL DISPLACEMENTS
REPORTED BY KATI MIGRANTS

R = capitale régionale

M = capitale nationale (= Bamako)

E = tout lieu de résidence antérieur à l'étranger

I = lieu de résidence antérieur inconnu ou non-fixe

L'ordre idéal produisant la tendance générale décrite ci-dessus serait V→C→R→M ou une partie de cet itinéraire

L'ensemble de la population a effectué 225 déménagements au total, qui sont structurés de la manière suivante.

Tableau 5-5 La population suivant itinéraire parcouru (en termes d'une hiérarchie urbaine)

| allant de | V | C | R | M | E | I | total abs. | % |
|---|---|---|---|---|---|---|---|---|
| V | 8 | 32 | 4 | 9 | 4 | 6 | 63 | 28.0 |
| C | 4 | 21 | 5 | 11 | 1 | 8 | 50 | 22.2 |
| R | 3 | 11 | 2 | 5 | 2 | 3 | 26 | 11.6 |
| M | 5 | 31 | 3 | 0 | 1 | 2 | 42 | 18.7 |
| E | 1 | 13 | 1 | 6 | 2 | 1 | 24 | 10.7 |
| I | 2 | 6 | 1 | 5 | 6 | 0 | 20 | 8.9 |
| Total | 23 | 114 | 16 | 36 | 16 | 20 | 225 | 100.0% |
| en % | 10.2 | 50.7 | 7.1 | 16.0 | 7.1 | 8.9 | 100 | |

Pour l'interprétation du tableau nous analysons les mouvements en termes d'une hiérarchie ascendante ou descendante (sans les catégories E + I).

| Niveau ascendant/ descendant | nombre de mouvements abs. | % |
|---|---|---|
| 1 niveau plus haut | 42 | 28 |
| 2 " " " | 15 | 10 |
| 3 " " " | 9 | 6 |
| même niveau | 31 | 20 |
| 1 niveau plus bas | 18 | 12 |
| 2 " " " | 34 | 22 |
| 3 " " " | 5 | 2 |
| Total | 154 | 100 |

Source: Université Libre, Amsterdam, "La Migration Vers et Dans La Ville de Kati", Etude socio-géographique, December 1981, p. 24.

TABLE 12

PRINCIPAL MOTIVES REPORTED BY MIGRANTS TO KATI

| motif principal | abs. | % |
|---|---|---|
| motifs économiques | 43 | 43 |
| motifs sociaux | 22 | 22 |
| motifs divers | 20 | 20 |
| inconnu | 8 | 8 |
| pas applicable | 6 | 6 |
| | 99 | 99 |

TABLE 13

MIGRANTS' MOTIVES FOR CHOICE OF KATI BY AGE GROUP

| Motif d'installation / Age | | 0-15 ans | 16-20 ans | 21-25 ans | 26-30 ans | 31-35 ans | 36-40 ans | 41-45 ans | 48-50 ans | 51 et >ans | total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Motifs économiques | | | | | | | | | | | |
| | abs. | | 3 | 8 | 12 | 6 | 5 | 6 | 2 | 1 | 43 |
| Motifs sociaux | | | | | | | | | | | |
| | abs. | 8 | 2 | 2 | 2 | 1 | 1 | 1 | 3 | 2 | 22 |
| Motifs divers | | | | | | | | | | | |
| | abs. | 1 | 1 | 2 | 8 | 1 | | 1 | 3 | 3 | 20 |
| Inconnu | abs. | 6 | | | 2 | 2 | 2 | | | | 12 |
| Total | abs. | 15 | 6 | 12 | 24 | 10 | 8 | 8 | 8 | 6 | 97 |
| | | | | | | | | | | | 100% |

Source: Université Libre, Amsterdam, "La Migration Vers et Dans La Ville de Kati", Etude socio-géographique, December 1981, pp. 12 and 27.

TABLE 14

PROFESSIONS OF KATI MIGRANTS CROSS-CUT
BY ORIGINAL MOTIVE FOR MIGRATION

| profession / motif d'installation | | agri-culture | industrie | services | autres | sans profession | total |
|---|---|---|---|---|---|---|---|
| Motifs économiques | abs. | 2 | 11 | 28 | 6 | 1 | 43 |
| Motifs sociaux | abs. | 7 | 3 | 6 | - | 6 | 22 |
| Motifs divers | abs. | 7 | 5 | 6 | - | - | 20 |
| Inconnu | abs. | 2 | 2 | 2 | - | 6 | 12 |
| Total | abs. | 18 | 21 | 42 | 6 | 13 | 97 |
| | | | | | | | 100% |

Source: Université Libre, Amsterdam, "La Migration Vers et Dans La Ville de Kati", Etude socio-géographique, December 1981, p. 28.

For planning purposes, future migration decisions are of the greatest importance. Not too surprisingly, given their relative success in finding employment, only 3% of the migrants surveyed hoped to leave Kati within the next five years. Of all urban infrastructure which could affect satisfaction (or lack thereof) with current residence in Kati, access to water was the most overwhelmingly important consideration (see Table 15), but probably the city's capacity for the economic absorption of migrants is a major factor which accounts for this level of satisfaction.

Koulikoro, 60 km. from Bamako and terminus of the domestic railroad, is the intermodal freight transfer point for Niger River traffic. A Dutch Free University research team was able to complete a 2/5 sample survey of Koulikoro residents in 1980 of which 10% of the responses were randomly selected for analysis (i.e. 4% of total urban residents).

Shown in the 1976 census as a city of 16,375 population, (see Table 16), Koulikoro appears to have experienced its highest

TABLE 15

ORDER OF IMPORTANCE TO RESIDENTS
OF URBAN INFRASTRUCTURAL ELEMENTS

| CONCESSION | | |
|---|---|---|
| Elément d'aménagement et d'organisation | nombre abs. | % |
| - volet physique | | |
| o l'eau | 39 | 40 |
| o espace dans les concessions pour chambres etc. | 17 | 18 |
| o équipement sanitaire (toilette) | 9 | 9 |
| o verdure pour abri au soleil | 5 | 5 |
| o parc à betail | 2 | 2 |
| o electricité | 1 | 1 |
| | 73 | 75 |
| - volet social | | |
| o nourriture pour la population | 11 | 12 |
| o une bonne entente | 3 | 3 |
| o propreté de la concession | 2 | 2 |
| | 16 | 17 |
| - volet divers | 8 | 8 |
| Total | 97 | 100 |

| QUARTIER | | |
|---|---|---|
| Elément d'aménagement et d'organisation | nombre abs. | % |
| - volet physique | | |
| o l'eau - bornes fontaines | 16 | 17 |
| o logements bien construits | 11 | 11 |
| o routes bien entretenues | 9 | 9 |
| o electricité | 7 | 7 |
| o caniveaux au bord de la route et leur curétage régulier | 5 | 5 |
| o verdure pour abri au soleil | 4 | 4 |
| o lotissement du quartier | 3 | 3 |
| o boutiques | 3 | 3 |
| | 58 | 59 |
| - volet social | | |
| o de bont rapports parmi les citoyens entr'eux et avec les autorités | 14 | 15 |
| o propreté du quartier | 11 | 11 |
| | 25 | 26 |
| - volet divers | 14 | 15 |
| Total | 97 | 100 |

Source: Université Libre, Amsterdam, "La Migration Vers et Dans La Ville de Kati", Etude socio-géographique, December 1981, p. 42.

TABLE 16

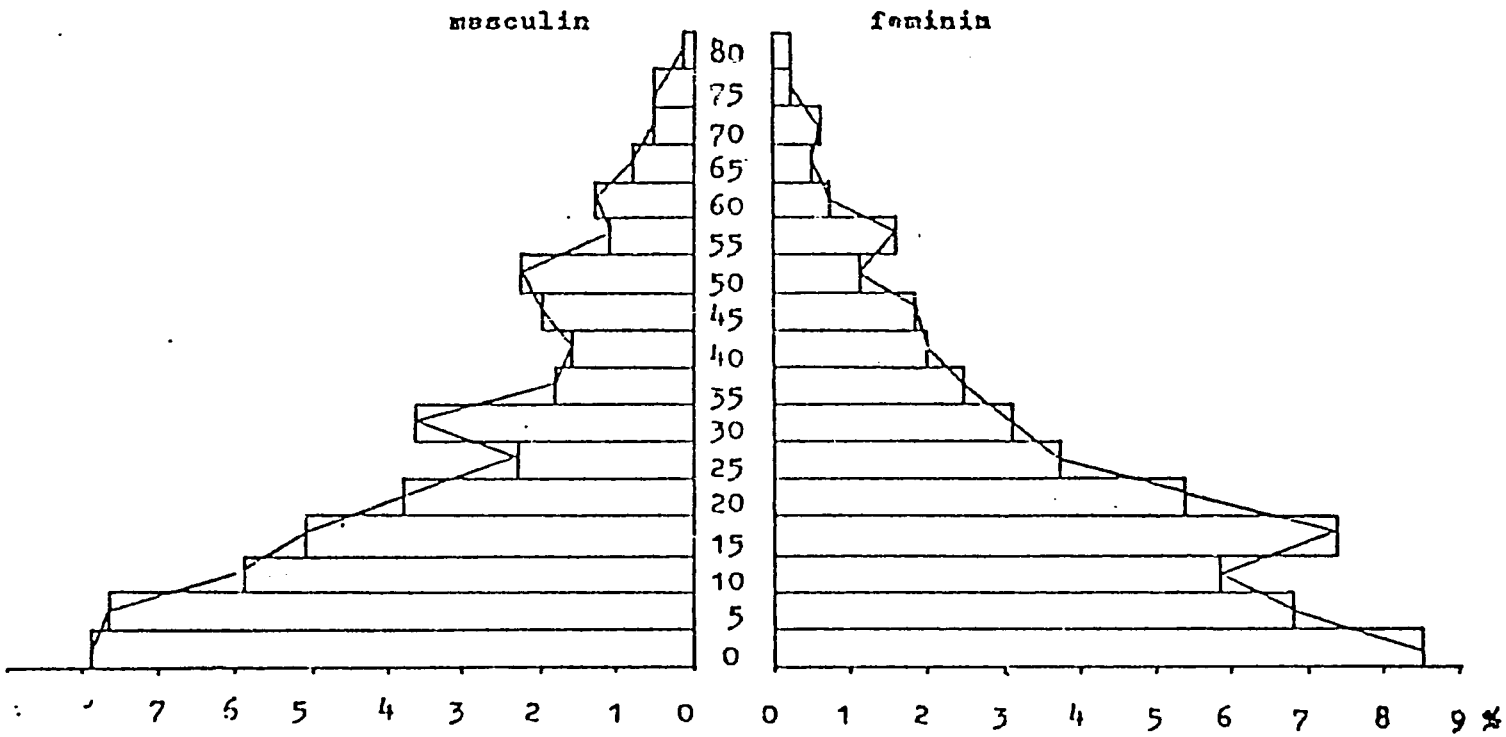
EVOLUTION OF KOULIKORO POPULATION AND GROWTH RATES 1966-1986

| année | nombre d'habitants | taux de croissance |
|---|---|---|
| 1966 (1) | 9.600 | - |
| 1969 (1) | 10.600 | 3.5 |
| 1973 (2) | 13.600 | 5.6 |
| 1976 (3) | 16.375 | 8.6 |
| 1988 (2) | 26.000 | 4.8 |

sources:
(1) informations de la Marie de Koulikoro.
(2) Publication de la Banque Mondiale sur La Croissance Urbaine et le Développement économique au Sahel (no.315), 1979.
(3) Recensement général au Mali, 1976.

FIGURE 29

1976 AGE AND SEX PYRAMID OF KOULIKORO




pourcentages des tranches quinquennales.

| | M | F | T |
|---|---|---|---|
| | 0.1 | 0.2 | 0.3 |
| | 0.5 | 0.2 | 0.7 |
| | 0.5 | 0.6 | 1.1 |
| | 0.8 | 0.5 | 1.3 |
| | 1.3 | 0.7 | 2.0 |
| | 1.1 | 1.6 | 2.7 |
| | 2.3 | 1.1 | 3.4 |
| | 2.0 | 1.9 | 3.9 |
| | 1.6 | 2.0 | 3.6 |
| | 1.8 | 2.5 | 4.3 |
| | 3.7 | 3.1 | 6.8 |
| | 2.3 | 3.7 | 6.0 |
| | 3.8 | 5.4 | 9.2 |
| | 5.1 | 7.4 | 12.5 |
| | 5.9 | 5.8 | 11.7 |
| | 7.7 | 6.8 | 14.5 |
| | 7.9 | 8.5 | 16.4 |
| | 48.1 | 51.8 | 100 |

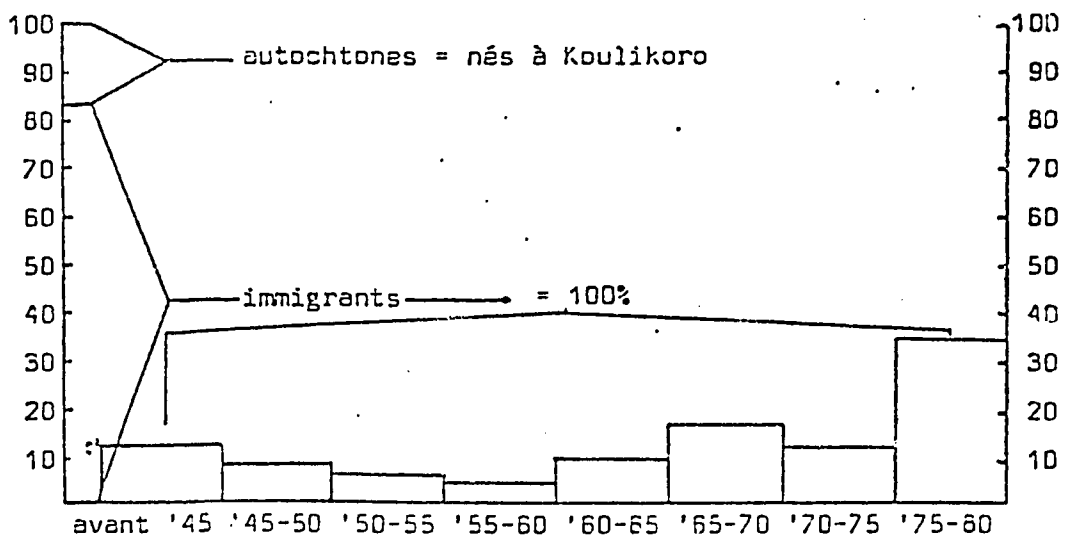
Source: Université Libre, Amsterdam, "Koulikoro", Rapport de synthèse de quatre études sectorielles sur la ville régionale de Koulikoro au Mali, 1980, p. 14.

rate of growth, 8.6%, in the post-drought period from 1973-1976. Though the World Bank had estimated a 4.8% growth rate for 1973-1988 for the city, the administrative changes which have since taken place, as well as the 1982-83 droughts, are likely to have generated a continuation of the higher rate of increase observed before 1976. At the conservative rate of 5% annual growth, the city would have had a population of 19,900 at the time of the 1980 survey.

The sex and age pyramid of Koulikoro (Fig. 29) reveals a striking out-migration of males 25-30, contrasted with an in-migration of males 30-35. As shown in Figure 30, only about 17% of those surveyed had been born in the city, and the rate of in-migration had increased radically in the post-drought period from 1975-1980 in comparison with earlier periods. Over 90% of the motives reported by in-migrants were economic, especially the lack of work in their area of origin. Typical of other Malian secondary cities, which are attracting mainly migrants from their nearest rural areas, the largest share of in-migrants were from the Koulikoro's own region (52%), and the adjacent regions of Kayes (9.5%), and Sikasso (11%). The District of Bamako had contributed almost 8%; many of these reverse migrants were probably relocated

FIGURE 30

DATES OF ARRIVAL IN KOULIKORO OF IN-MIGRANTS SURVEYED IN 1980




Source: Université Libre, Amsterdam, "Koulikoro", Rapport de synthèse de quatre études sectorielles sur la ville régionale de Koulikoro au Mali, 1980, p. 17.

TABLE 17 A

ORIGIN OF MIGRANT POPULATION

City of Koulikoro

| | code | abs. | frequence relative | fréquence adaptée | fréquen cumulat |
|---|---|---|---|---|---|
| hors du Mali | 0 | 8 | 3.7 | 4.5 | 4.5 |
| Kayes | 1 | 17 | 7.9 | 9.5 | 14.0 |
| Koulikoro | 2 | 93 | 43.5 | 52.0 | 65.9 |
| Sikasso | 3 | 20 | 9.3 | 11.2 | 77.1 |
| Segou | 4 | 8 | 3.7 | 4.5 | 81.6 |
| Mopti | 5 | 9 | 4.2 | 5.0 | 86.6 |
| Tombouctou | 6 | 5 | 2.3 | 2.8 | 89.4 |
| Gao | 7 | 5 | 2.3 | 2.8 | 92.2 |
| District de Bamako | 8 | 14 | 6.5 | 7.6 | 100.0 |
| Pas répondu | 9 | 35 | 16.4 | - | |
| Total | | 214 | 100.0 | 100.0 | |

Source: Université Libre, Amsterdam, "Koulikoro", Rapport de synthèse de quatre études sectorielles sur la ville régionale de Koulikoro au Mali, 1980, p. 18.

TABLE 17 B

ORIGIN OF MIGRANT POPULATION

City of Kita

| quartier | cercle de Kita | région de Kayes | Mali | étranger | total | |
|---|---|---|---|---|---|---|
| | abs. | abs. | abs. | abs. | abs. | % |
| Samedougou | 3 | 3 | - | 1 | 7 | 9 |
| Toungarala | 7 | - | - | - | 7 | 9 |
| Makandiambougou | 1 | 2 | 3 | - | 6 | 8 |
| Moribougou | 7 | 6 | 1 | - | 14 | 19 |
| St. Félix | 5 | 1 | - | - | 6 | 8 |
| Segoubougouni | 2 | 2 | 5 | 1 | 10 | 14 |
| Kita-Gare | 4 | 6 | 2 | - | 12 | 16 |
| Dar Salaam | 4 | 3 | 5 | - | 12 | 16 |
| Total: | 33 (45%) | 23 (31%) | 16 (21%) | 2 (3%) | 74 | 100% |

Source: Université Libre, Amsterdam, "Kita: Pôle de Croissance Ou Centre Urbain Dans Une Economie Territoriale?", Rapport de base - 2, September 1983, p. 50.

government officials and their dependents. (See Table 17 A).

Kita was a city of 17,500 at the time of the 1976 census. Since Kita is more distant from Bamako, 186 km along the rail line toward Kayes, it is less under the influence of greater Bamako than Kati or Koulikoro. Extrapolating from Kita's 1960-1976 growth rate, the city had reached a 21,400 population level by 1980, and has been growing 5% per year since then. Comparison of migration to and from Kita, with the Kati experience observed above, should enable us to isolate the influence of Bamako on its satellite towns, and to proceed with an analysis of Djenné, an even more isolated small town, in which a third type of rural-urban migration pattern will be categorizable. According to a 1981 household survey of Kita by the Amsterdam Free University, 52% of the city's heads of households had been born outside the city. As seen in Kati and Koulikoro, Kita's immediate rural area and its own region are the largest contributors of urban in-migrants. In this case, 45% of Kita migrants come from villages in the circle of Kita, and an additional 31% come from Kita's own region (Kayes). Only 21 % of in-migrants come from more distant parts of Mali and a negligible 3% from other countries. (See Table 17 B). This spatial pattern is shown even more forcefully by the maps in Fig. 31 which illustrate the strong influx to Kita from the cities of Kayes and Nioro.

In order to help USAID Mali predict future trends in rural-urban population movements, particular attention has been given to all data which would isolate drought-related influences on past changes in patterns. For this reason, it is interesting to note in Table 18 that "definitive" in-migration to Kita, as seen by rate of installation of heads

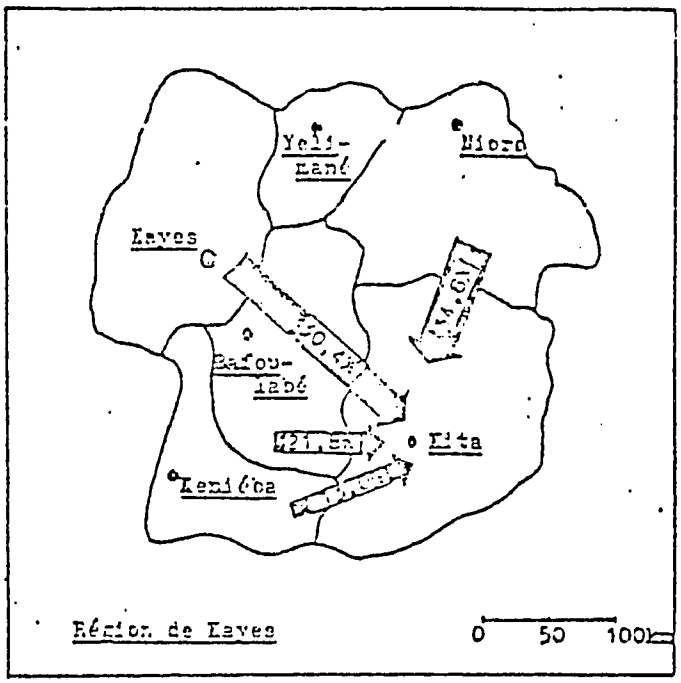
TABLE 18

DATE OF ARRIVAL OF KITA MIGRANTS SURVEYED IN 1981

| période d'arrivée | nombre de chefs de famille | |
|---|---|---|
| | abs. | % |
| avant 1960 | 32 | 43 |
| 1960-1970 | 25 | 34 |
| 1971-1981 | 17 | 23 |
| | 74 | 100 |

Source: Université Libre, Amsterdam, "Kita: Pôle de Croissance Ou Centre Urbain Dans Une Economie Territoriale?", Rapport de base - 2, September 1983, p. 53.

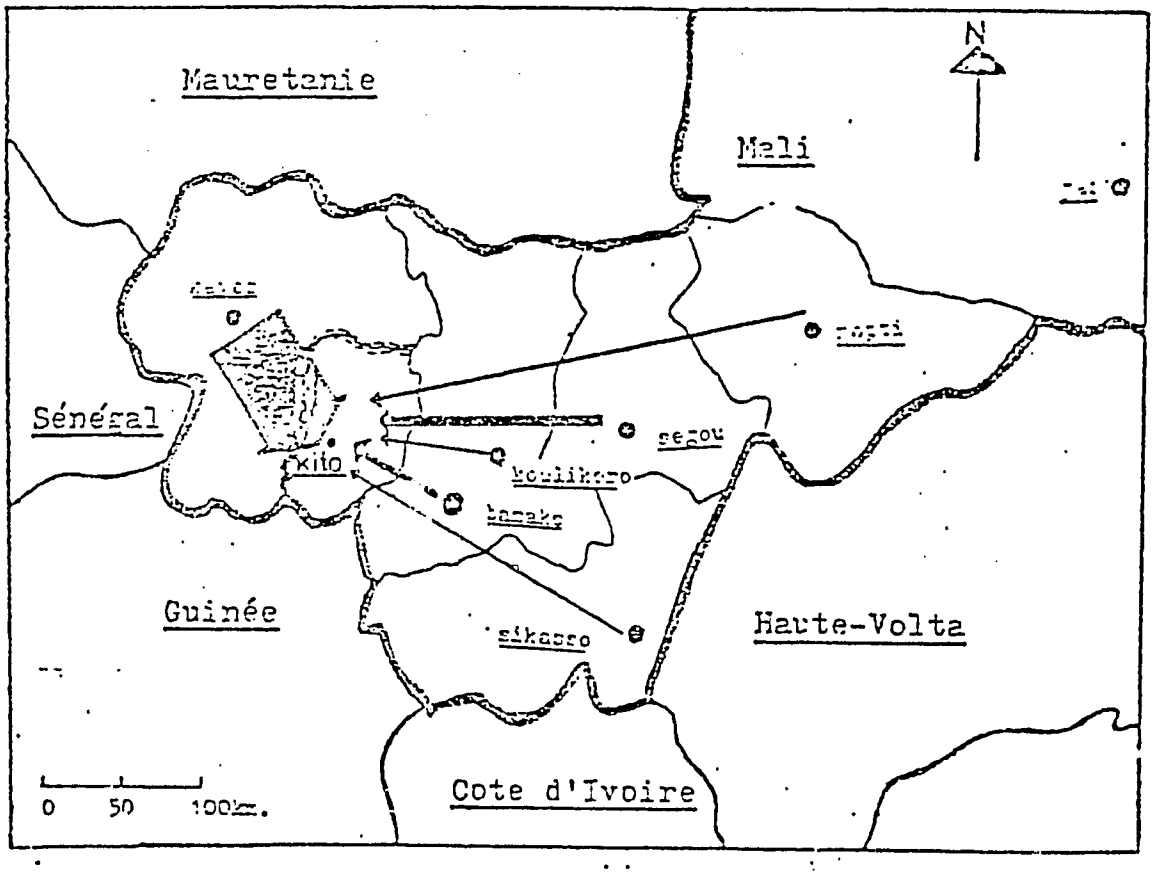
ORIGIN OF MIGRANTS TO KITA:
SHARES FROM CIRCLES IN THE FIRST REGION
IN COMPARISON WITH MALI AS A WHOLE




Remarques:

- les cercles de Nioro et de Diéma sont pris ensemble,
- le cercle de Yelimané n'est pas représenté comme région d'origine

Carte 5-2: apport à l'immigration de Kita-ville de la région de Kayes et le reste du Mali




Source: Université Libre, Amsterdam, "Kita: Pôle de Croissance Ou Centre Urbain Dans Une Economie Territoriale?", September 1983, p. 51.

of households, seems to have been declining, since 43% arrived before 1960, 34% in the 60's, and only 23% in the drought-affected 70's. The "floating" population of the city, created by seasonal short term influxes from the rural areas may, however, be increasing in drought years.

As shown in Table 19, in increasing our understanding of the differences in migration motivation between in-migrants from rural versus other urban areas, the Kita survey material is particularly useful. Migrants to Kita from other urban areas are primarily seeking work (50%), and are rarely motivated by the relative level of urban services in Kita versus other cities. In-migrants of rural origin, however, are more likely to be seeking improved medical services (22%), schools (20%), or fulfilling family obligations (16%), since only 22% are explicitly looking for work. This is an important finding, and counters the myth that most rural people are permanently leaving the villages for economic reasons. Though 61% of all migrants were economically motivated, a large share (24%) were already employed, and were merely responding to employer-induced relocations.

TABLE 19

MOTIVATIONS OF KITA MIGRANTS
BY RURAL VERSUS URBAN AREA OF ORIGIN

| motifs de migration | migrants d'origine rurale | migrants d'origine urbaine | tous les migrants | |
|---|---|---|---|---|
| | % | % | abs. | % |
| .chercher du travail | 22 | 50 | 27 | 37 |
| .mutation de service | 12 | 41 | 18 | 24 |
| .soins médicaux | 22 | - | 9 | 12 |
| .école pour enfants | 20 | - | 8 | 11 |
| .raisons familiales | 16 | 3 | 7 | 9 |
| .motifs divers | 8 | 6 | 5 | 7 |
| | 100 (40) | 100 (34) | 74 | 100 |

Source: Université Libre, Amsterdam, "Kita: Pôle de Croissance Ou Centre Urbain Dans Une Economie Territoriale?", Rapport de base - 2, September 1983, p. 54.

Rural in-migrants to Kita (53%) outweigh in-migrants from other urban areas (47%) slightly (see Fig. 32) with Fig. 33 showing that Kayes city is clearly the major prior urban residence for Kita inhabitants. Smaller flows from Kéniéba and Nioro (isolated cities where economic opportunities are low) and modest reverse migration from the larger cities of Segou and Bamako are also observable. Most rural in-migrants are coming from the lowest rainfall rural areas adjacent to Kita (the immediately northern circles).

This demonstrates that rural-urban migration is taking place over relatively short distances, while urban-urban migration paths cover longer distances. Even indirect migration, in which intermediate stops are made between birth place and Kita as a destination, shows this same pattern. In spite of Kita's greater distance from Bamako than Kati, and its more disadvantaged employment structure (Kati has a military camp, etc.), lateral or reverse migration (from larger cities back to smaller towns and rural areas) can be seen, contradicting the unidirectional model of village to smaller city to larger city to national metropole migration. Table 20 shows that as was seen in Kati, a large share of Kita residents' past moves were lateral displacements (26%) from cities of approximately equal size, and the rest were almost evenly divided between moves from villages or smaller cities to larger urban places (39%) and reverse migration back to villages or smaller cities (35%).

TABLE 20

PREVIOUS DISPLACEMENTS OF MIGRANTS BEFORE INSTALLATION IN KITA: SEPARATION OF LATERAL AND REVERSE MIGRATION FROM MOVEMENTS TO HIGHER ORDER CITIES

| l'ordre du lieu d'établissement/ sens du mouvement | nombre de mouvements | |
|---|---|---|
| | abs. | % |
| . ordre ascendant | 22 | 39 |
| . même ordre | 15 | 26 |
| . ordre descendant | 20 | 35 |
| | 57 | 100 |

Source: Université Libre, Amsterdam, "Kita: Pôle de Croissance Ou Centre Urbain Dans Une Economie Territoriale?", Rapport de base - 2, September 1983, p. 57.

FIGURE 32

RURAL VERSUS URBAN ORIGINS OF INDIRECT MIGRANTS TO KITA

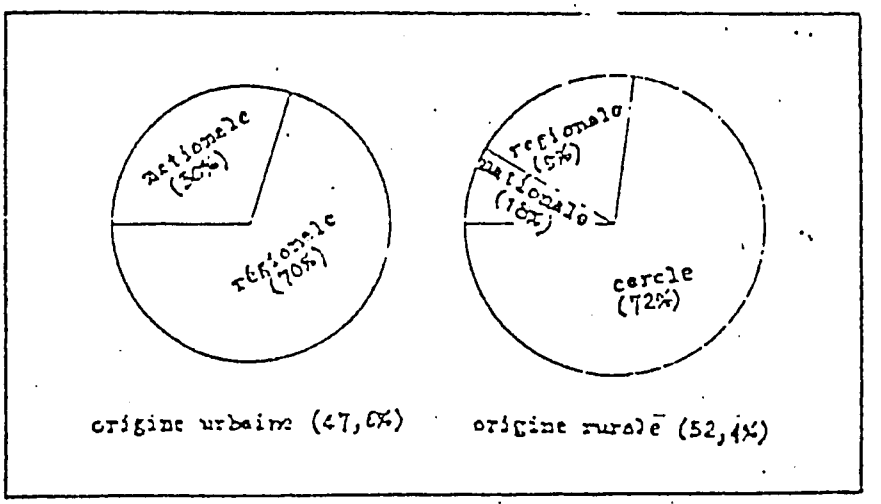
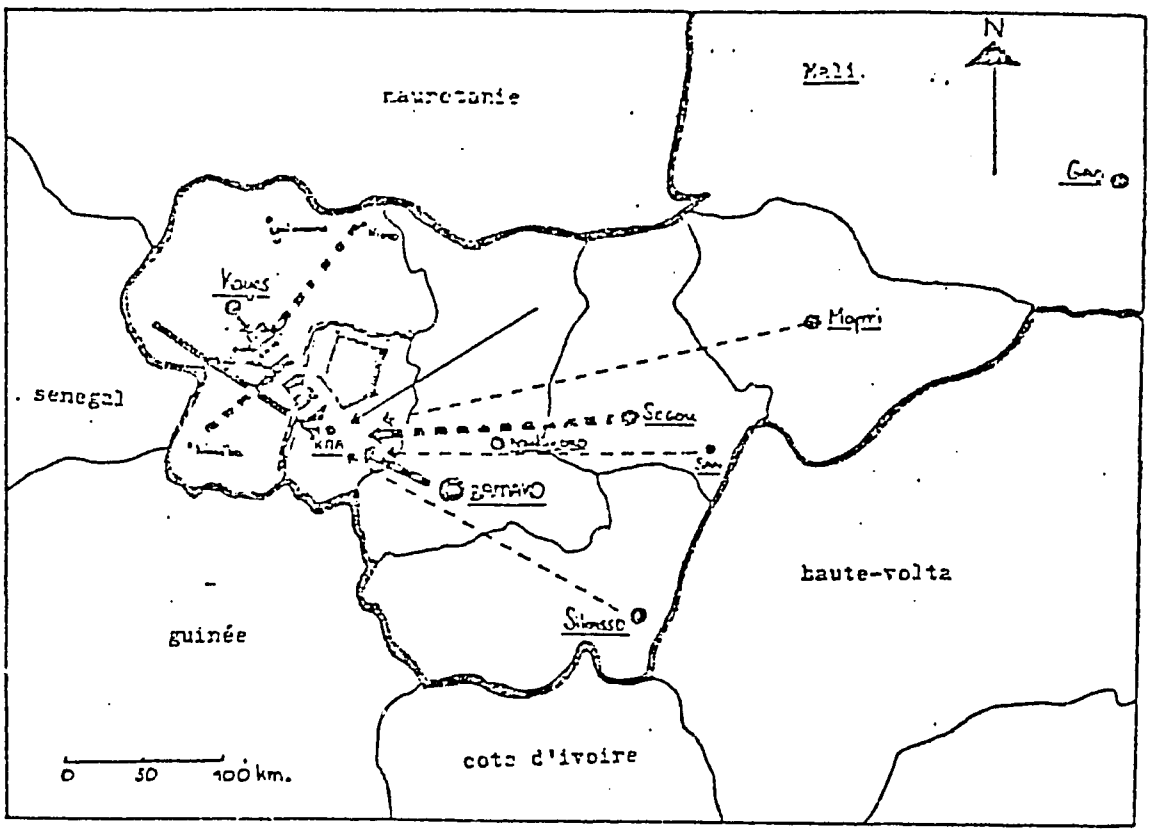



FIGURE 33

GEOGRAPHIC ORIGIN OF DIRECT MIGRANTS TO KITA




: migration rurale-urbaine
: migration urbaine-urbaine
: 4% (absolu: 2)

Source: Université Libre, Amsterdam, "Kita: Pôle de Croissance Ou Centre Urbain Dans Une Economie Territoriale?", September 1983, pp. 56 and 57.

It is particularly interesting to note, in Table 21 which breaks down Kita residents' past origins and destinations of migration into sizes of settlement, that:

(1) the largest number of moves are either village-village (caused by marriage probably) or from either regional or national capital down to smaller cities;
(2) there are an important number of lateral movements between regional capitals (Mali's largest secondary cities), and
(3) village migrants' destinations are evenly spread over the hierarchy of smaller and larger urban places.

TABLE 21

HIERARCHY OF PREVIOUS RURAL-URBAN VERSUS URBAN-URBAN DISPLACEMENTS REPORTED BY KITA MIGRANTS

| venant de \ allant à | village | chef-lieu du cercle | capitale régionale | capitale nationale | l'ensemble |
|---|---|---|---|---|---|
| village | 8 | 5 | 4 | 4 | 21 |
| chef-lieu du cercle | 1 | 1 | 3 | 1 | 6 |
| capitale régionale | 1 | 8 | 6 | 5 | 20 |
| capitale nationale | 2 | 6 | 2 | - | 10 |
| total | 12 | 20 | 15 | 10 | 57 |

Source: Université Libre, Amsterdam, "Kita: Pôle de Croissance Ou Centre Urbain Dans Une Economie Territoriale?", Rapport de base - 2, September 1983, p. 58.

During research for the Rural-Urban Profile in Zaire, it was found that almost half of the in-migrants to urban areas are dependents accompanying employment-seeking heads of households. This was therefore considered as an important aspect of demographic change which should be considered in Mali as well. Table 22 shows that Kita in-migrants were primarily family groups, with only 11% of migrants arriving in the city as individuals.

TABLE 22

| formes de migration | nombre de migrants | |
|---|---|---|
| | abs. | % |
| . migration individuelle | 8 | 11 |
| . migration avec la famille | 58 | 78 |
| . migration avec les parents | 8 | 11 |
| | 74 | 100 |

Source: Université Libre, Amsterdam, "Kita: Pôle de Croissance Ou Centre Urbain Dans Une Economie Territoriale?", Rapport de base - 2, September 1983, p. 59.

Against this pattern, should be considered the survey finding that up to 6.5% of Kita residents are absent, since they have emigrated from the city in search of work for at least 6 months at a time, on average. Table 23 summarizes the characteristics of this absent population, showing the dominance of married women and unmarried men in the 16-35 age group. The women tend to be accompanying their husbands, the males tend to be looking for work or to a lesser extent, education, and a higher percentage of absent residents are indigenous to Kita rather than being migrants who had become installed in the city.

The absentees are living primarily in other cities (77%), and two thirds of them have moved outside the Kayes region, especially to Bamako (see Table 24 and Fig. 34). Whether Kita is in long term decline, as an attractor of in-migration (which would otherwise add to the accelerating growth of

TABLE 23

ABSENT KITA RESIDENTS BY MARITAL STATUS
AGE, MOTIVE FOR ABSENCE, AND AREA OF ORIGIN

| caractéristique | | population absente | | | | | |
|---|---|---|---|---|---|---|---|
| | | femmes | | hommes | | ensemble | |
| | | abs. | % | abs. | % | abs. | % |
| .état civil: | marié | 30 | 61 | 17 | 31 | 57 | 50 |
| | non-marié | 19 | 39 | 39 | 69 | 58 | 50 |
| | | 49 | 100 | 56 | 100 | 105 | 100 |
| .âge: | 16 – 35 ans | 39 | 80 | 36 | 64 | 75 | 71 |
| .motif d'absence: | | | | | | | |
| | mariage | 31 | 63 | 1 | 2 | 32 | 30 |
| | travail | – | – | 37 | 66 | 37 | 55 |
| | formation | 14 | 29 | 13 | 23 | 27 | 26 |
| | divers | 4 | 8 | 5 | 9 | 9 | 9 |
| | | 49 | 100 | 56 | 100 | 105 | 100 |
| .lieu d'origine: | | | | | | | |
| | autochtone | | | | | 58 | 55 |
| | non-autochtone | | | | | 47 | 45 |
| | | | | | | 105 | 100 |

TABLE 24

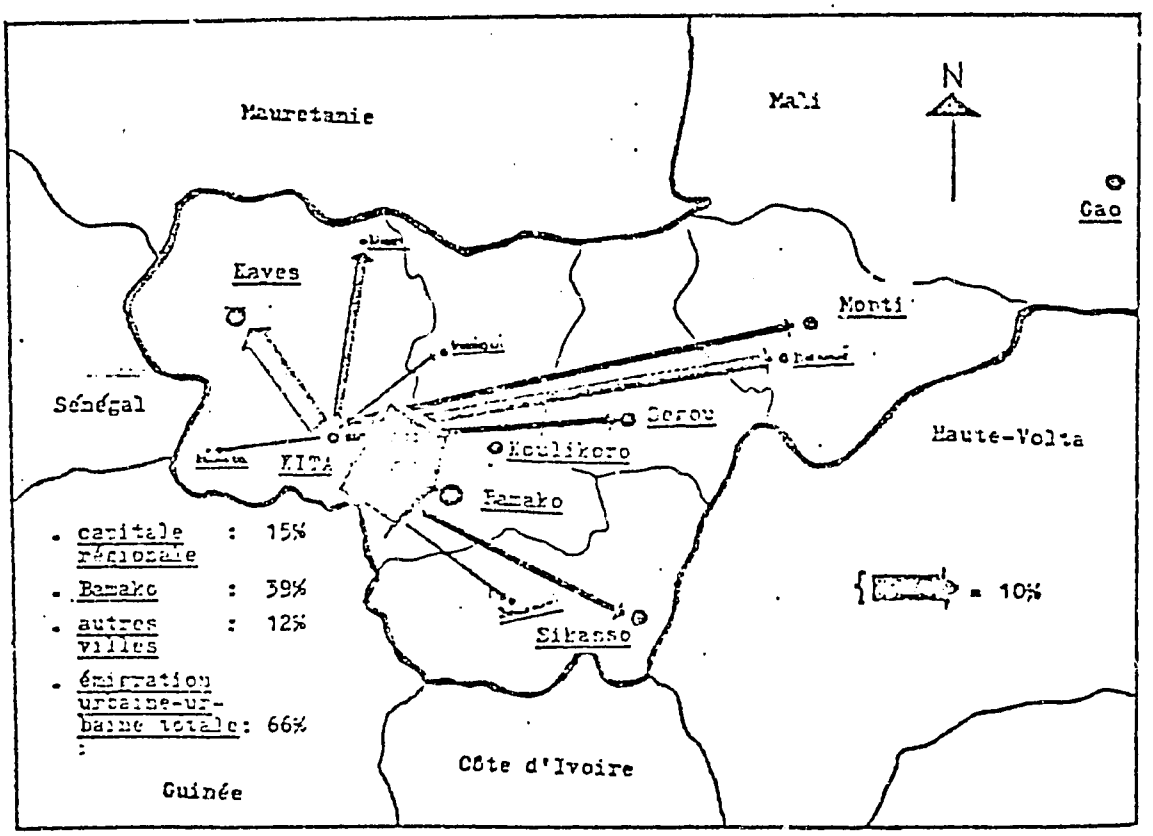
ABSENT KITA POPULATION BY CURRENT LOCATION

| | nombre d'absents | | |
|---|---|---|---|
| .lieu de résidence | abs. | % | |
| hors de Kita: milieu urbain | 81 | 77 | |
| milieu rural | 20 | 20 | |
| ailleurs à Kita | 4 | 3 | |
| | 105 | 100 | |
| .région de résidence: | | | |
| cercle de Kita | 18 | 17 | 36 |
| région de Kayes (sans Kita-cercle) | 20 | 19 | |
| autres régions du Mali | 56 | 53 | |
| l'étranger | 11 | 11 | |
| | 105 | 100 | |

Source: Université Libre, Amsterdam, "Kita: Pôle de Croissance Ou Centre Urbain Dans Une Economie Territoriale?", September 1983, pp. 61 and 62.

FIGURE 34

ABSENT KITA POPULATION
NOW LIVING IN OTHER URBAN AREAS




Source: Université Libre, Amsterdam, "Kita: Pôle de Croissance Ou Centre Urbain Dans Une Economie Territoriale?", September 1983, p 62.

Bamako and external migration to Abidjan) will depend upon long term economic development. Recent trends have been discouraging (e.g. closing of the SEPAMA peanut oil factory). In the next section of this chapter, a review of the migration patterns observed in Djenné, a smaller and more isolated city, will reveal more of the circular migration typical of small Malian cities than can be seen in the Kita data. Circular migration may also be strong in Kita, but its location, like that of Kayes, on an out-migration and unilinear transport axis (the railroad) seems to have reduced its role to a transit location which lacks the economic diversity, growth potential, and attractiveness of a crossroads town like Mopti.

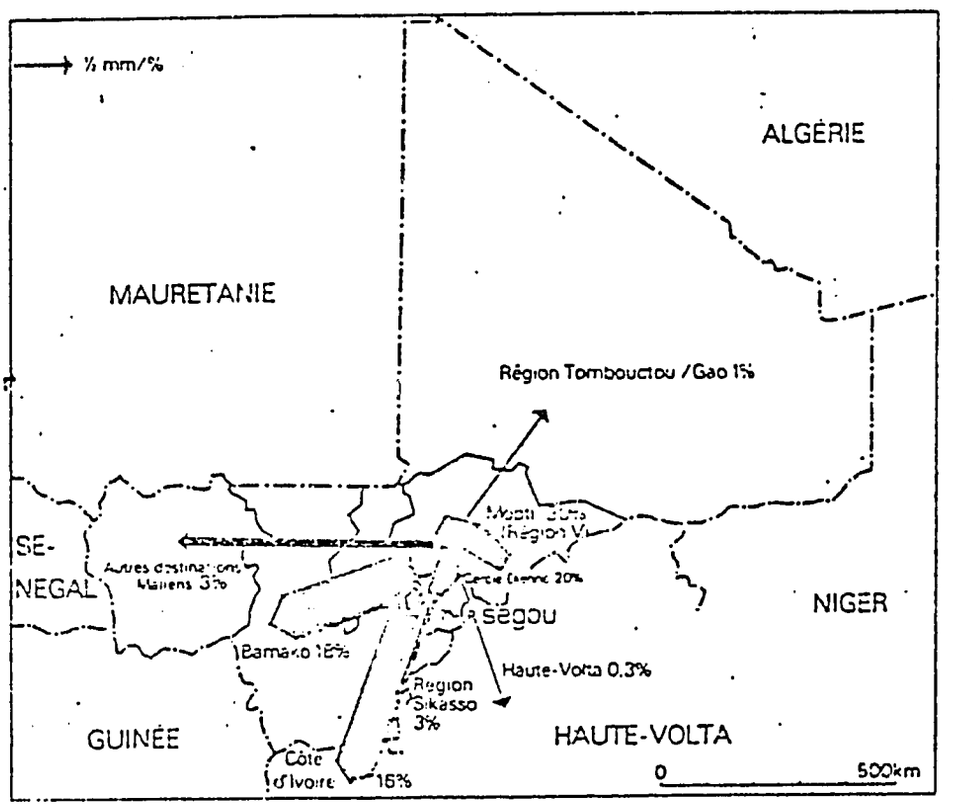
Comparing the findings from Kati, which is within the range of influence of greater Bamako, with more distant Djenné will reveal the range of trends among smaller secondary cities in Mali. Djenné, a city of approximately 10,000 people, was surveyed in January 1980 by a team from the University of Utrecht. The rather large sample (25% of the city's households) and the fact that the six years of migration between January 1974 and 1980, just after the great drought of 1973, were studied in detail allow the development of hypotheses for the projection of future drought aftermath migration of particular interest to USAID Mali.

Extrapolating from 1980 Djenné survey findings, 1/6 of the population had emigrated out of the town for at least a month during the 6-year period; among those over age 15, about one-third had emigrated. Almost half of the households in town had lost members through out-migration. The number of departures from Djenné per year had doubled from 1974 to 1978. The level of out-migration from Djenné appeared to be twice as high as the amount of in-migration, thus the town is characteristic of an exodus area, even though many emigrants expected to return in the indefinite future, according to family reports.

Motives for emigration from and immigration to Djenné are very different as shown in Table 25. Immigrants are primarily Koranic students attracted to one of the ten major schools in this nationally and internationally renowned center of Muslim learning, or are their accompanying dependents; the remaining 12% report economic motives but are primarily government or parastatal officials being transferred by their employers. On the other hand, most emigrants (70%) are economically motivated, in search of work, and are often accompanied by dependents. For those who had migrated from and subsequently returned to Djenné several times during the study period, this pattern of motivation remained constant.

FIGURE 35

DESTINATIONS OF EMIGRANTS FROM DJENNE




Source: Institut des Sciences Humaines, Direction Nationale des Arts et de la Culture, Bamako, Université d'Utrecht, "Investigation Socio-Economique de la Ville de Djenné et ses Environs", Rapport IV, 1983, p. 18.

TABLE 25

MOTIVES OF EMIGRANTS FROM AND IMMIGRANTS TO DJENNE, 1974-79

| | EMIGRANTS | | | IMMIGRANTS |
|---|---|---|---|---|
| | tournée achevée avant dernière | tournée achevée dernière | tournée présente | |
| Travail | 69,9 | 67,9 | 68,2 | 12,6 |
| Raisons familiales | 5,1 | 6,5 | 7,9 | 17,0 |
| Etudes | 6,3 | 5,6 | 11,9 | 38,8[a] |
| Membres de ménage accompagnants | 18,1 | 17,4 | 9,2 | 31,1 |
| Autres | 0,8 | 2,8 | 3,0 | 0,5 |
| | 100,0 | 100,0 | 100,0 | 100,0 |
| N.= | 237 | 324 | 199 | 219 |

a = élèves coraniques

Source: Institut des Sciences Humaines, Direction Nationale des Arts et de la Culture, Bamako, Université d'Utrecht, "Investigation Socio-Economique de la Ville de Djenné et ses Environs", Rapport IV, 1983, p. 17.

A review of the destinations of Djenné emigrants reveals that about half remain in the same region (Mopti Region V), and about a third travel long internal and external distances (to Bamako and Abidjan especially). Those remaining in the same region are moving primarily to Mopti city (30%) and the remainder to villages and work in agricultural fields in the circle of Djenné (20%). (See Fig. 35). As corroborated in other studies, including one in process in Segou which will be discussed later, female migrants travel shorter distances, and represent only 25% of total emigrants. More than half (60%) of the female emigrants remained in the region, and the rest were destined for Bamako.

Though search-for-work dominates all other migration motives in the Djenné study, search-for-education is somewhat influential, and accounts for a noticeable share of emigrants attracted to Bamako and the largest cities, since higher education is particularly centralized in Mali (all the "grandes écoles" are in Bamako). Political interests are considering dispersing the Malian "grandes écoles" (ENA, ENI, ENSUP, ENS) out from Bamako into several regional capitals, to

protect the central government from disaffected students and faculty by interfering with their ability to consolidate a core of discontent and a nucleus of civil demonstration in future (a response to past dissent and ENSUP closings in the late 70's and early 80's). If the policy were implemented, the growth of those regional capitals which were chosen as sites for the relocated schools would be stimulated, and Bamako-oriented migration would be slowed.

Table 26 shows the relative stability in the pattern of out-migration destinations from Djenné over the post-drought '70's (See Fig. 36). There is, however, a slight trend of

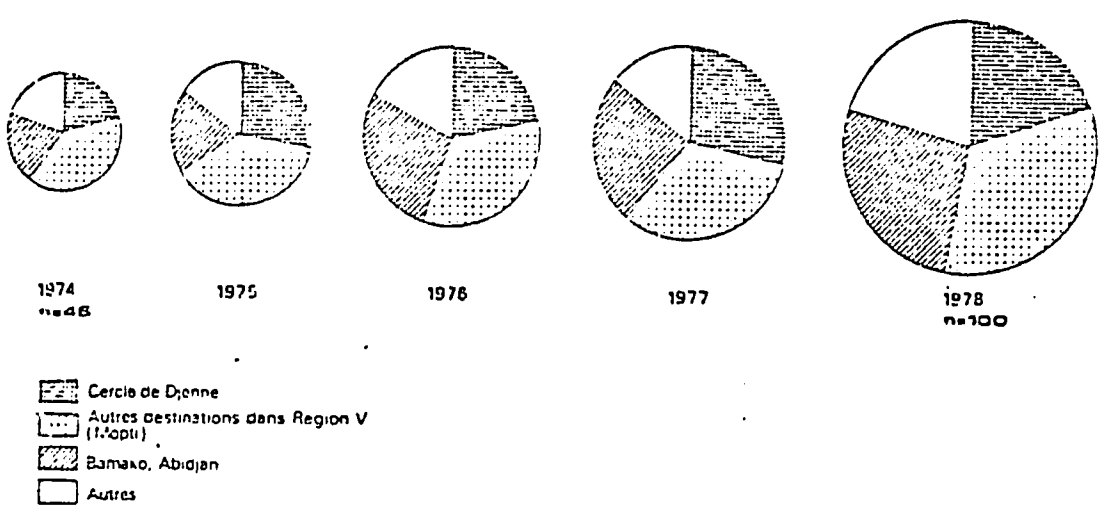
TABLE 26

DESTINATIONS OF COMPLETED PAST CIRCULAR MIGRATION FROM DJENNE

| Destination | tournée achevée avant dernière | tournée achevée dernière |
|---|---|---|
| Cercle de Djenné | 24 | 23 |
| Autres, Région V (Mopti) | 29 | 28 |
| Bamako et Abidjan | 22 | 22 |
| Autres destinations | 25 | 27 |
| Total | 100 | 100 |

FIGURE 36

DESTINATIONS OF EMIGRANTS FROM DJENNE BY YEAR OF DEPARTURE




Source: Institut des Sciences Humaines, Direction Nationale des Arts et de la Culture, Bamako, Université d'Utrecht, "Investigation Socio-Economique de la Ville de Djenné et ses Environs", Rapport IV, 1983, pp. 19 and 21.

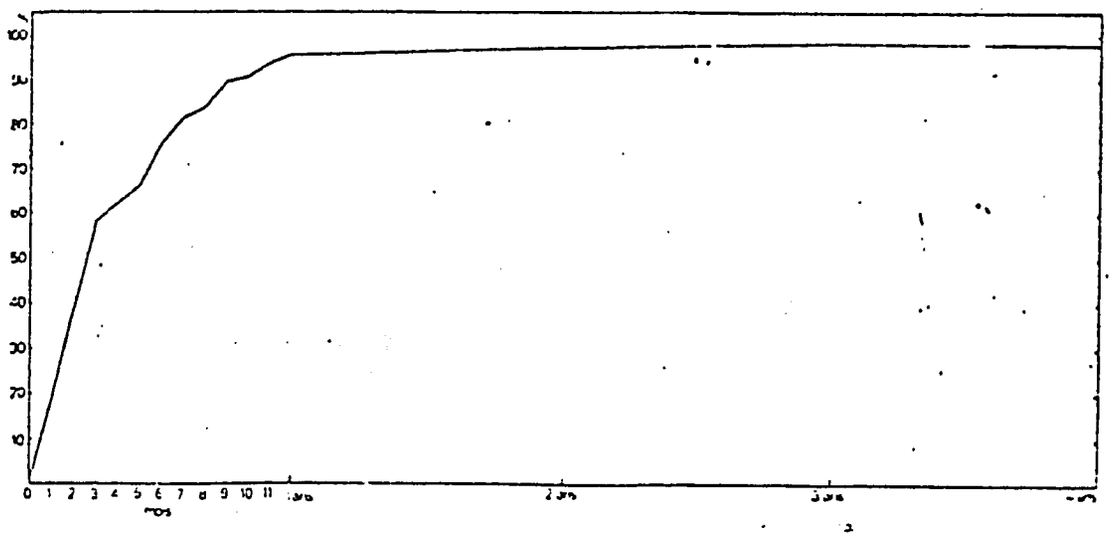
increasing attractiveness of Bamako and Abidjan, complementary to a decline in the volume attracted by Mopti. It will be important to compare this finding with other micro-surveys in order to project the types of assistance which could reverse this trend, by improving secondary city employment, educational, and living conditions which would enhance the attractiveness of centers like Mopti, thereby stemming the acceleration of flows towards Bamako and Abidjan.

Overall, however, this data shows that almost 3/4 of all out-migration from Djenné, including a large share of roundtrip migration, is oriented towards rural areas and other secondary cities, more evidence which contradicts the model of uni-directional rural to larger urban center exodus.

Relatively short durations of stay outside of Djenné predominated among emigrants who had returned to the town. About 80% of all out-migration initiated between 1974 and 1979 in the city turned out to be roundtrips completed within that period. Most of these stays outside Djenné were annual, seasonal trips of several months duration related especially to Djenné residents' participation in rainy season agriculture in rural areas, and to a lesser extent, their exercise of secondary and tertiary sector economic activities. Figure 37 shows that almost 60% of all trips lasted no more than three months, and only 5% of migrants left for more than six months. These longer stays exceeding six months tended to be related to educational or family-related migration decisions rather than the search for work (which focused on circular

FIGURE 37

DURATION OF RESIDENTS' DISPLACEMENTS OUTSIDE DJENNE, 1974-79
(CUMULATIVE PERCENTAGES)




Source: Institut des Sciences Humaines, Direction Nationale des Arts et de la Culture, Bamako, Université d'Utrecht, "Investigation Socio-Economique de la Ville de Djenné et ses Environs", Rapport IV, 1983, p. 23.

migration for six months or less). Table 27 shows, as one would expect, that closer destinations generate patterns of shorter length of stay, versus longer regular stays in more distant destinations. It would be a mistake, however, to let the statistical means mask the actual range of variations in migrant displacements.

TABLE 27

DESTINATIONS AND DURATION OF ABSENCE DURING LAST DISPLACEMENT: DJENNE OUT-MIGRANTS, 1974-79

| Destination | % des migrants absents pour une période de | |
|---|---|---|
| | moins de 3 mois | plus d'un an |
| Cercle de Djenné | 86 | 2 |
| Autres, Région V(Mopti) | 54 | 6 |
| Bamako et Abidjan | 33 | 12 |
| Autres destination | 58 | 4 |

Source: Institut des Sciences Humaines, Direction Nationale des Arts et de la Culture, Bamako, Université d'Utrecht, "Investigation Socio-Economique de la Ville de Djenné et ses Environs", Rapport IV, 1983, p. 24.

For example, consider the table below, which shows that half of migrants to Bamako or Abidjan return to Djenné within a year, even though the mean duration of stay was found to be 22 months overall.

TABLE 28

AVERAGE LENGTH OF STAY
FOR CIRCULAR OUT-MIGRANTS FROM DJENNE BY DESTINATION

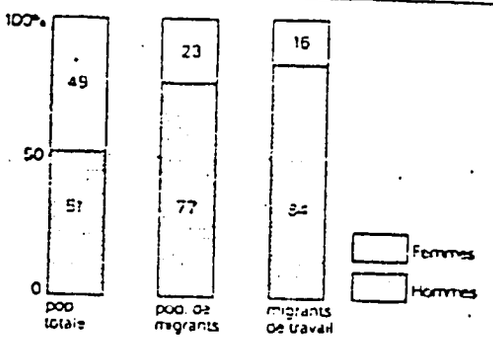
| Destination | Average Stay | % Djenné Residents Staying Away Less than 1 Year | % Djenné Residents Staying Away Less than 3 Years |
|---|---|---|---|
| Metropoles (Bamako, Abidjan) | 22 months | 50% | 83% |
| Mopti | 5 months | | |
| Other destinations | 15 months | | |
| Within Djenné circle | 3 months | | |

According to the reports of family members who had remained in Djenné, only 15% of migrants who had departed from 1974-1979 and had not yet returned, were expected to have made "permanent" displacements, usually towards Bamako or Abidjan. As predicted in our hypothesis, annual or periodic circular work-oriented migration predominated among trips to Mopti, while only 10% of long distance displacements (to Bamako or Abidjan) could be classed as circular periodic displacements. Work-oriented in-migrants, already shown as comprising the largest share of all Djenné in-migrants, are usually males. Only 16% of economically motivated Djenné in-migrants were females (See Fig. 38).

FIGURE 38

IN-MIGRANTS TO DJENNE:
SEX RATIOS AMONG DJENNE POPULATION AS A WHOLE,
AMONG IN-MIGRANTS, AND WORK-ORIENTED IN-MIGRANTS

Répartition de la population totale, du total des migrants et des migrants de travail à Djenné selon le sexe (%)




Source: Institut des Sciences Humaines, Direction Nationale des Arts et de la Culture, Bamako, Université d'Utrecht, "Investigation Socio-Economique de la Ville de Djenné et ses Environs", Rapport IV, 1983, p. 26.

As stated earlier, however, periodic seasonal rural migration to Malian secondary cities as a whole seems to be higher among females than males, since male rural out-migrants are traveling longer distances, primarily to Bamako and Abidjan. Supported by a grant from the Ford Foundation, the Malian Institut des Sciences Humaines (ISH) has just begun a study of female immigrants in Bamako and Segou which will also include surveys of two of the rural areas contributing most of the female exodus towards these two cities. During January 1984, the ISH team of four Malian social science researchers had just returned from the first (dry season) survey in Segou, and though their results had not yet been tabulated, several patterns were already apparent.

Annual dry season out-migration of rural women from the circles of San, Segou, and Tominian towards the city of Segou, is occurring in increasing volumes for drought-related causes, but different motives, employment patterns, and compensation schemes are involved for unmarried versus married women. Unmarried girls traditionally have their marriage trousseaus provided by their mothers, who formerly financed this purchase of household effects from cash earned by their sale of grain surpluses. The poor rainfall conditions in recent years have eliminated this source of cash. Rural mothers now pay their daughters' transport costs to Segou where the girls seek dry season jobs as maids in urban households to earn cash for their own trousseaus. Married rural women are also assuming greater economic responsibilities in the household economy, as poor harvests continuously erode their husbands' ability to provide the staple food for the family year round.

Married rural women (especially age 25-30) need cash to pay their own taxes, to provide breakfast for the family, and to buy household commodities like soap, as well as children's clothes. Women are increasingly relied upon to feed their families through dry season urban employment, while the men's dry season earnings are saved to buy food to take back to the villages later.

Both married and unmarried rural women are able to find urban jobs, usually in domestic service for urban-dwelling households. Few urban households, in fact, do not have one or more dry season female rural migrants employed as servants. Compensation schemes for unmarried girls pay monthly salaries in Segou of 5,000 to 7,500 FM and include free meals and lodging in the employer's compound. Their work hours are longer than those of married women, and involve extensive supervision of children.

Married women usually arrive in Segou with up to two of their youngest children, leaving any additional offspring with extended family back in the village. Married women are occasionally accompanied to Segou by their husbands, who establish themselves as weavers for the dry season, or obtain employment as mason's assistants or donkey cart drivers, delivering water or collecting fuel wood. Some husbands set up market gardens on the urban fringe. Even urban families who can not afford servants provide jobs for rural migrants as clients for migrants' day wage services in water delivery, laundering, and pounding. Most married women live outside their employer's compound and have more limited hours and tasks (only mid-day meal preparation, for example) because of their own family care responsibilities. They are paid less

cash, only about 1,000 FM per month in Segou, but also receive food adequate for themselves and their dependents, which they take back to their quarters. This drought-caused migration pattern, which allows the woman to feed her family during the dry season, has replaced earlier practices in higher rainfall years, in which the women were able to feed their families from their gardens from January to July, allowing them to remain in the rural area. According to ISH, many married migrant women in Segou are also using their food compensation from urban employers, supplemented by cash purchases of ingredients, to feed up to three single men as meal service clients (who subscribe on a monthly basis for one or two meals a day). These types of extra cash-earning activities, providing at least 6,000 FM a month, are possible in the urban areas where men are often living apart from their wives and families.

Rural women's urban employers appear to span a wide range of socio-economic categories, and are not limited to government workers. On the basis of this initial review of findings with the RHUDO consultant, the ISH team will add additional survey questions on the revenue-generating activities of urban employers and on who is responsible for paying the salaries and food costs of migrant domestic workers, especially in polygamous households. It is clear, however, that longer term urban dwelling women have access to more remunerative cash-earning opportunities, probably mostly in commerce and some artisanal work like dying, which justify the expense of hiring migrant females as domestic workers.

Almost all of these dry season female migrants return to their villages to cultivate in the rainy season. The price of urban domestic labor rises greatly during the rainy season in response to this scarcity. (In Bamako, domestics are paid 10,000 FM a month in the rainy season). Long term multi-generational links between urban and rural families seem to be part of this migration pattern and contribute to the high rate of job placement for rural women. Extended family and other women from the same village, who are already employed in Segou, form a network which usually places a rural woman in a job within days of her arrival in town. Women who have not yet found an employer for the season, go from house to house accepting day labor in pounding and laundering, and use these contacts as an entrée to more regular work.

Women from villages up to five kilometers from Segou will walk daily to urban employers' households. Rural economic desperation is at the heart of these socio-economic changes, and the consequent dry season swelling of demand for

employment, housing, and services in urban areas. These female migrants arrive and depart en masse, traveling in groups of up to 12 and organizing transport in common. Rural families are forced to take the great social risk of sending their unmarried girls unaccompanied to the urban area. Though an urban family which has been ceremonially entrusted with a rural girl through inter-family exchanges of gifts and meetings will supervise her movements closely, most migrants' families can not afford this extra cost.

Dry season migration costs more than transport alone - bribes of 2,000 FM to police for not having an identity card are one example. The Governor's speeches have explicitly threatened rural people in the circle of San with official sanctions if migrants are apprehended in Segou and this has created problems for the ISH survey, causing many migrants to refuse to cooperate. Migrant female workers do not exist in the eyes of public agencies concerned with employment, they have no association or union protection, and are at the mercy of their employers.

The next round of ISH project surveys are now underway in Bamako, where the situation is expected to be somewhat different from that found in a secondary city like Segou. Since distances are greater, ISH expects to find fewer married female migrant workers in Bamako than in a secondary city like Segou in the dry season. A larger number of married, permanently urban-dwelling women are expected to be working as domestics, resulting in a greater integration of women into city life. The larger number of government workers, and higher incomes in Bamako, have resulted in higher wage structures for domestic servants. Employers of domestic servants have greater fear of theft from males, protecting this sector for female employment. To gain a deeper understanding of urban job creation, trends in the informal services sector, and women's role in seasonal rural-urban migration, it will be important to continue monitoring the ISH findings during the next 18 months of this project.

# V. URBAN LIVING CONDITIONS: FOCUS ON SECONDARY CITIES

- Employment: The Informal Sector

The USAID Mali mission has identified the need to encourage urban employment generation as a major issue of interest. As in most underdeveloped countries, informal sector employment occupies most of Mali's urban residents and rural migrants. Since data on the informal sector in Mali's secondary cities is so limited, this discussion draws mainly upon Bamako survey material. Later in 1984 it will be possible to update this section of the profile using the World Bank's Bamako socio-economic survey findings, which will be published this spring, and artisan and market studies which will be published on Mopti-Sévaré and Kayes by the Dutch universities in the fall.

According to the ILO's 1978 survey of the informal sector (artisanal industry and services), 50% of households in Bamako receive all or part of their income from these activities. As was found in Zaïre, some neighborhoods have higher concentrations of informal sector workers than others; actions targeted towards this sector should be located in these geographical areas identified on a city by city basis. Apprenticeship remains the major training mechanism in the informal sector. Material from the ILO employment survey indicates that, for Bamako at least, urban jobs in this sector are predominantly commercial (67%), though production activities (mainly tailoring and weavering) are significantly represented (24%), with other services providing a relatively small share. (See Table 29). In comparison with tailoring and weaving, other production activities are much less prevalent (carpentry,metal-work and jewelry making) (see Table 30). Service employment is spread over several types of activities, but particularly laundering/dying (24%), vehicle repair (26%), and flour milling (15%), with some activity in shoe repair/shoe making and radio repair. (See Table 31). Food sales represent close to 2/3 of all commercial activities. (See Table 32).

ILO project interest has focussed upon activities for which expanding demand can be expected, if capital and labor productivity can be increased, eliminating activities such as weaving and tailoring (which are limited to the semi-industrial economic development stage) as well as those with particularly high level technical requirements (e.g. watch repair). Consequently carpentry, vehicle repair, and the building trades became the dominant informal sector activities which were designated as "modern" and therefore deemed worthy of further ILO study and project support (see Table 33).

TABLE 29

% OF INFORMAL SECTOR ACTIVITIES BY SECTOR, BAMAKO, 1978

| Secteur d'activité | Nombre au lieu de travail | Nombre au lieu de résidence | Total | % |
|---|---|---|---|---|
| PRODUCTION ..... | 4.002 | - | 4.002 | 23,7 |
| SERVICES ..... | 1.411 | - | 1.411 | 8,4 |
| COMMERCES ..... | 11.263 | - | 11.263 | 66,8 |
| CONSTRUCTION ..... | - | 183 | 183 | 1,1 |
| TOTAL ..... | 16.676 | 183 | 16.859 | 100,0 |

TABLE 30

BAMAKO INFORMAL SECTOR PRODUCTION:
SHARES BY TYPE OF ACTIVITY, 1978

| Catégories d'activité | Nombre | % |
|---|---|---|
| Tailleurs ..... | 1 772 | 44,3 |
| Tisserands ..... | 1 399 | 34,9 |
| *Petite menuiserie ..... | 198 | 4,9 |
| Forgerons ..... | 93 | 2,3 |
| Bijoutiers ..... | 88 | 2,1 |
| SOUS-TOTAL ..... | 3 550 | 88,7 |
| TOTAL pour le secteur ..... | 4 002 | 100,0 |

*Catégorie d'activité de la "population-enquête", voir chap. IV, section 1.

Source: ILO, "Analyse des Résultats du Recensement du Secteur Non Structuré de la Ville de Bamako", pp. 2 and 17.

TABLE 31

BAMAKO INFORMAL SECTOR SERVICES:
SHARES BY TYPE OF ACTIVITY, 1978

| Catégories d'activité | Nombre | % |
|---|---|---|
| Blanchisserie-teinturerie .. | 332 | 23,5 |
| *Réparation cyclomoteurs ... | 220 | 15,6 |
| Meunier ..... | 209 | 14,8 |
| *Mécanique automobile ..... | 141 | 10,0 |
| Réparation de chaussures ... | 91 | 6,4 |
| *Réparation radios ..... | 83 | 5,9 |
| SOUS-TOTAL ..... | 1 076 | 76,3 |
| TOTAL pour le secteur ..... | 1 411 | 100,0 |

TABLE 32

BAMAKO INFORMAL COMMERCIAL SECTOR:
SHARES BY TYPE OF ACTIVITY, 1978

| Catégorie d'activité | Nombre | % |
|---|---|---|
| Vente de fruits, légumes, céréales, condiments ..... | 4 056 | 36,0 |
| Alimentation générale ..... | 1 578 | 14,0 |
| Friperie ..... | 964 | 8,6 |
| Vente d'aliments préparés .. | 507 | 4,5 |
| Vente de poisson ..... | 479 | 4,3 |
| SOUS-TOTAL ..... | 7 584 | 67,3 |
| TOTAL pour le secteur ..... | 11 263 | 100,0 |

Source: ILO, "Analyse des Résultats du Recensement du Secteur Non Structuré de la Ville de Bamako", pp. 16 and 18.

TABLE 33

RELATIVE FREQUENCY OF ACTIVITIES
IN THE "MODERN INFORMAL SECTOR" IN BAMAKO, 1978

| PRODUCTION | Nbre | % | SERVICES | Nbre | % | CONSTRUCTION | Nbre | % |
|---|---|---|---|---|---|---|---|---|
| Petite menuiserie | 198 | 16,8 | Répar. radio | 83 | 7,0 | Ferraillage | 27 | 2,3 |
| Ebénisterie | 31 | 2,6 | Répar. froid | 14 | 1,2 | Maçonnerie | 13 | 1,1 |
| Tapisserie, garnissage | 7 | 0,6 | Mécanique auto | 141 | 12,0 | Carrelage | 3 | 0,3 |
| Miroitier, encadreur | 4 | 0,3 | Tôlerie, soudure, peinture | 16 | 1,4 | Charpenterie | 1 | 0,1 |
| Imprimeur-relieur | 5 | 0,4 | Répar. cyclomoteurs | 220 | 18,7 | Peinture | 10 | 0,8 |
| Moulage, briquetage | 6 | 0,5 | Electricité auto | 36 | 3,0 | Electricité | 5 | 0,4 |
| Fondeur aluminium | 12 | 1,0 | Répar. radiateurs | 3 | 0,3 | Tâcheron | 124 | 10,6 |
| Menuisier métal. | 52 | 4,4 | Répar. vélos | 39 | 3,3 | | | |
| Menuisier bois, métal. | 3 | 0,3 | Répar. pneus | 30 | 2,6 | | | |
| Tôlerie légère | 53 | 4,5 | Mécanographe | 1 | 0,1 | | | |
| Fabric. cantines | 16 | 1,4 | | | | | | |
| Fabric. matériel agricole | 20 | 1,7 | | | | | | |
| Carrossier camions | 3 | 0,3 | | | | | | |
| TOTAL | 410 | 34,8 | TOTAL | 583 | 49,6 | TOTAL | 183 | 15,6 |

Source: ILO, "Analyse des Résultats du Recensement du Secteur Non Structuré de la Ville de Bamako", p. 22.

Approximately 1900 apprentices were being trained in the "modern" part of the informal sector at the time of the survey in Bamako, and 70% of them were literate, augering well for their ability to participate in more formal training, credit or marketing programs. Presence or absence of literacy did not, however, appear to make a difference in revenue-earning ability. The modern share of the informal sector was defined by the ILO as including mechanical and electrical work, metal and wood fabrication, and the building trades. In all, almost 2600 Bamako jobs were estimated to exist in this sector. The significance of this source of urban employment can be readily seen, therefore, since the number of modern informal sector workers and apprentices in Bamako alone totals 19% of the number of modern formal sector jobs reported for the country as a whole. Rotation of workers and establishment of new enterprises frees up 1000 apprenticeship positions in Bamako alone each year, underlining the importance of this sector in training and absorbing unemployed youth. Revenues reported by these workers were at least equal to the official minimum wage, and the level of start-up capital required was modest (100,000 FM average).

Clients for the production of this sector were approximately 1/3 government, and 2/3 private. About 2/3 of the businesses reinvested annually, and seemed to be growing at a rate of about 12% per year. Almost all were self-financed, functioning without an accounting or recordkeeping system, and limiting production below capacity because of market constraints.

The profitability of the sector, and investment and pricing decisions made by its producers, are affected by their lack of accounting and recordkeeping. Only 7.5% of the entrepreneurs could calculate their profit; only 3% took amortization of equipment into account. Only about 19% could distinguish their income from their working capital. The presence or absence of schooling did not appear to be correlated with particular management practices. Businesses with the highest capitalization continued to use the same management practices as the smaller ones.

Based upon its analyses of this situation, the ILO recommends that: (1) government customs policies for import taxes be reviewed and revised to encourage the domestic market to patronize local modern informal sector producers; (2) prototype training programs for entrepreneurs be established in management/accounting and recordkeeping; and (3) research on appropriate technology and machine production focus on developping prototypes for productive tools which can be locally constructed for the use of this sector.

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If the ILO survey reports of income in this sector are to be believed, however, undercapitalization in this sector is rational, since the best equipped entrepreneurs (2,275,000 FM capital each) only earn personal incomes 3.5 times that of the least capitalized producers (35,000 FM average capital). The rate of participation in the proposed training programs would be low, unless compensation were provided for trainees' time spent, since about half of the entrepreneurs surveyed could see no benefit for spending their own or their workers' time attending courses. This, again, is an economically rational reaction since school attendance has not increased individuals' incomes in this sector in the past. The survey discovered major resistance towards government cooperatives as a project medium and though about 2/3 of the entrepreneurs were willing to create their own mutual aid organization, individualism seems predominant.

The most promising course of government intervention likely to facilitate the expansion of this urban employment sector seems to remain in the macro-policy domain, in which customs duties policies could be revised to favor the cost basis and market expansion for these local enterprises, by increasing the availability of their inputs (e.g. vehicle parts) at lower duties, thereby protecting them from competitive imports of finished goods. Jobs for shoemakers, though not a focus of the ILO study since they were classed as "traditional" rather than "modern" producers, have been greatly reduced by the flooding of local markets with cheap mass-produced plastic shoes (from Bata factories in Dakar, for example, which fill the Kayes market). The decline in this artisan sector has been noticeable for decades, and was already observed by Madame Keita, in her late '60's survey of trends among Kayes artisans.

USAID support to secondary city informal sector job creation could be considered through: (1) financing of the R and D necessary to reduce the cost of locally available tools; (2) extension of electrical sevices into and within urban neighborhoods with modern artisan activities; (3) provision of start-up credit and production skills courses to encourage expanded self-employment opportunities; (4) support for more detailed analysis of import duties and pricing policies which are constraining the cost basis of local producers, followed by (5) negotiation of changes in Malian government duties and pricing policies which would encourage local artisanal production as a pre-condition for obtaining the other types of USAID assistance suggested above.

- Secondary City Infrastructure and Socio-Economic Conditions - The Example of Sikasso

In order to evaluate living conditions, development potential, and institutional strengths and weaknesses in a major Malian secondary city, case material was collected in Kayes which will be presented in the following chapter. The existing infrastructure in small secondary cities and market towns, inventoried in the '76 census, was reviewed earlier in the chapter of this Profile on secondary city urban functions. To provide a comparative context for this case study of Kayes, since no comprehensive inventory of the infrastructure of urban communes is available, the assessment of existing infrastructure and urban conditions in Sikasso, provided in the city's 1983 Master Plan (one of the first three plans prepared by the Direction Nationale de l'Urbanisme) was reviewed. As discussed in the "Typology of Cities" chapter both Sikasso and Mopti have stronger economies and population growth rates than Kayes, and have benefitted from governmental and external donor road investments. Comparison of conditions in economically declining Kayes with those in both Sikasso and Mopti would reveal the range of investment levels in Malian secondary cities more fully. Unfortunately, the Master Plan for Mopti is still in the process of preparation, as are the Dutch students' field surveys of this city. Therefore, it has been necessary to focus mainly on Sikasso alone for this comparative analysis.

As a moderately growing secondary city in the midst of the highest rainfall agricultural area in Mali (1000 to 1300 mm a year), Sikasso also benefits economically from its crossroads location for road transport, 100 km from Ivory Coast and 42 km from Upper Volta. Its rainy season lasts, in normal rainfall years, for six to seven months, creating a shorter period of dry season under-employment in the city itself and in surrounding rural areas than is found in the other parts of Mali. According to the Division Nationale de l'Urbanisme et de la Construction, the city's population had reached 63,088 in 1982, growing at 4.5% per year. The most recent age and sex pyramids, however, date back to the 1976 census at which time greater sexual parity was found in Sikasso than in most other Malian secondary cities. Though there was a slight majority of females (50.4 females to 49.6 males), and out-migration of males aged 25 to 35 could be seen in the age/sex pyramids of the census, Sikasso showed less demographic impact from male out-migration than other cities, an indication of its healthier local economy and employment situation.

As with many Malian secondary cities, agriculture is the basis of Sikasso's economy, including 92% of all economic activities. Rice, cotton, and groundnuts are the principal cash crops marketed in Sikasso, but market garden production of fruits and vegetables is also important and some of the production is sent to Bamako, Segou, and Mopti, or exported to Upper Volta and Ivory Coast.

In comparison with agricultural production, Sikasso's secondary and tertiary economic sectors are reported as being almost non-existent. Industry and artisan activities represent only 2.5% of the city's production, and modern industry is confined to two factories: one for cotton ginning and the other for treating tea. Artisans in Sikasso are involved in an assortment of smithing, leather and ceramic work, weaving and jewelry-making, engaged in mainly by under-employed dry season agricultural workers.

Commerce and services (the tertiary sector) reportedly generate only 5% of the city's income. As was seen in the earlier discussion of market relationships between San, and smaller towns and villages in the Segou Region, Sikasso's weekly (Sunday) market provides the major market outlet for regional rural production, and this market also plays a pivotal role in the regional distribution of imported and manufactured consumer goods. The commercial and services sector has been expanding in Sikasso, but no employment data was provided in the Master Plan. The private services sector has not been growing as fast as government's share of service employment, and reversing this trend would seem to be an important planning goal. According to the World Bank, "a swollen civil service and student population receive 90% or more of the country's budget resources, by which employment is maintained for a miniscule proportion of Mali's total labor force in an inefficient para-statal sector at high opportunity cost."[2]

In infrastructure terms, Sikasso's market, vehicle parks, hospital, and schools are serving important numbers of rural clients, and deserve a priority for future investments. The market is reported as being spatially saturated and site expansion will be needed. Provision of additional neighborhood market sites has not been an effective approach to this problem. The attractive commercial ooportunities, beyond selling to neighbors from a location within or in front of one's own compound, appear to be confined to the major

2. World Bank, Economic Memorandum on Mali, June 30, 1981, p. iii.

weekly central city market. As evidence of this, neighborhood sites originally reserved for public markets have been spontaneously developed for other uses.

A major zone of urban physical activity is the city's vehicle transport park, located at the southern exit from Sikasso on the road to Bouaké, Ivory Coast. The park accommodates a mix of light, medium, and heavy transport vehicles. The Master Plan has emphasized the need for additional security measures to provide round-the-clock protection for the vehicle park's users. Five smaller central city transport parks are used by vehicles serving the weekly market. Inter-urban and intra-urban transport is provided by 66 trucks of 10 to 15 tons each, and 91 passenger vehicles (covered pickup trucks and taxis). Larger (30 ton) trucks provide international transport, and 70 of these are registered in the city, as well as 20 fuel trucks. This vehicle fleet is the same size as that reported by the Cooperative of Road Transporters as being registered in Kayes, but the private sector, which controls road transport in Mali, has shown economic rationality in its investments. The heavy transport vehicles located in Sikasso are larger than those in Kayes, responding to the better quality and capacity of Sikasso's road network. R.N.7 from Bamako through Sikasso to Bouaké is paved; relatively good quality laterite roads link Sikasso with Bobo Dioulasso, Koutiala, and Dioïla. In contrast, Kayes is barely linked to its rural areas and smaller regional cities by poor quality roads, many of which are seasonally impassable. Only smaller trucks of 20 tons or less can negotiate even the best of the roads in Kayes Region.

Sikasso's facilities have a regional importance in secondary education, including the 2,000 student Regional Lycée (up to junior college level), and the institution which certifies primary school teachers for the region (456 students at the Institut Pédagogique d'Enseignement Général). The Master Plan assigns a priority to instituting maintenance of these facilities which have long been neglected. A real understanding of the difference in school enrollments between the city of Sikasso (86%) and its adjacent rural areas (22%, approximately equal to the national average), would require site surveys to determine the extent to which urban primary and secondary schools are serving Sikasso-born students versus rural migrants. Concentration of secondary schools in urban areas is probably essential for cost-effectiveness and can be programmed to provide access for rural born students, if adequate provisions are made for quality rural primary schools and affordable urban accommodation for rural secondary students. Providing lodging for rural students in the city of

Kikwit was found during RUP research in Zaïre to be a useful source of supplemental income for urban households.

Malian health facilities are highly concentrated - and hospitals are present only in the largest secondary cities. In both Kayes and Sikasso Regions, the only full service hospitals are located in the regional capitals. Adequate regional roads and transport service systems are essential for equitable rural access to these urban hospitals. In this respect, Sikasso Region's rural inhabitants receive comparatively greater service from the regional capital's health facilities, since topography and political investment decisions have favored regional road investments, encouraging better developed private sector road transport service. Sikasso city has received much greater investment in health facilities than Kayes, including the eye clinic "Projet Velen" which treats up to 600 patients daily (avoiding the necessity for Bamako evacuation for eye treatment), five dispensaries (one Catholic run), a communal health center within the hospital compound, and other facilities.

According to the Master Plan, however, Sikasso has a number of infrastructure problems common to other secondary cities in Mali, which were also found in Zaire. The city's oldest neighborhoods date back to 1889 when it was the capital of the Senoufo kingdom, though it was only a village at that time. Even today, most housing construction is still adobe, but with increasing use of corrugated metal roofing. There have been no extensions of stormwater collectors, electric services, or water supply systems in Sikasso since Independence. Only the older neigborhoods in the central city have any of these services. Pressure to gain access to these limited centrally-located public services has provoked private anarchic densification of the oldest neighborhoods through infill construction, over-burdening and accelerating the breakdown of existing utilities. The water supply situation is even worse in Sikasso than in Kayes, since Sikasso's water supply undergoes no treatment at all, whereas Kayes water passes through a 3-step treatment process (settling tanks, filters, and chemical purification).

Though Sikasso has 21 centrally located public water points, they are not functioning, according to the Master Plan. Wells in the older neighborhoods are being polluted by nearly latrines. Most residents use cisterns to collect rain water and a private sector mobile water sales system is developing. Municipal revenues are extremely limited, almost non-existent, resulting in the virtual absence of trash collection. Electric power production capacity is saturated by the limited

existing service area. Expansion of Sikasso's small artisan sector would require extending the water and power service systems. Fairly reliable telephone service is available in Sikasso, however, and extensions of this service are being programmed in response to increasing demand.

Land use in Sikasso and other secondary cities involves competition over strategic sites between market gardens and building projects. The effectiveness of the Sikasso Master Plan exercise is likely to be rather limited, since the Plan only provides guidance for the large number of separate ministries which are the autonomous technical implementing agencies. This is an institutional structural weakness shared by most governmental units charged with urban planning throughout the world, including the developed countries. Urban planning agencies are usually confined to advisory roles, even where they have been empowered with urban budgetary review. The Sikasso Master Plan, though sketchy (no data on existing numbers of jobs for example), at least provides a point of departure for more detailed integrated urban development - e.g. base maps have been collected of existing urban infrastructure. The investment priorities recommended have at least been prepared with inter-agency and community participation so that they have the potential for mobilizing the inter-agency cooperation which would be necessary for their execution.

The Plan's recommendations are very ambitious, however, and are not at all related to financial or human resources available for implementation. The shopping list includes expanding new housing construction; extending all public utilities to achieve equitable service to all neighborhoods and to serve areas which could be subdivided for urban expansion; revising central city vehicle and pedestrian circulation; creating green spaces on the urban fringe. The economically most important collective facilities are casually included in the shopping list (new sites for relocation and expansion of the central market and major vehicle park) but the new sites seem to have been proposed without much study, and no priority is assigned to developing financing for these improvements before housing construction or other recommended investments. The Master Plan is extremely naive and includes no information on existing municipal finances, the cost of recommended improvements, mechanisms for generating new local or external revenues, user cost-recovery, etc.

In contrast to the detailed survey work by student technicians from the Dutch universities, which has been gradually emerging as a basis for understanding the social and economic dynamics

of secondary cities like Kati, Koulikoro, Kita, and Djenné, the official Master Plans recently prepared by the Direction de l'Urbanisme are comparatively superficial, and untailored to specifically Malian patterns of rural-urban linkage and financial constraints. It will be important for technical assistance to be provided to work along with the Malian authorities to develop specific priorities for the limited secondary city investments which are possible.

These investments should build upon the understanding of employment/migration conditions in Malian cities which can be gleaned from study and synthesis of available socio-economic survey data, some of which has been reviewed earlier in this Profile. This data begins to provide the information base necessary for defining sound urban development plans that will have a positive impact on regional rural development.

Mali has almost no resources for financing infrastructure investments. Regional inequities in the financing of infrastructural improvement and maintenance are caused as much by the priorities of donors and lenders as by those of Malian authorities. Inequity in the regional distribution of 1974-78 National Plan expenditures was quite extreme according to the expenditure performance analysis prepared by a 1980 World Bank mission to Mali. Table 34 summarizes regional distribution of actual Plan expenditures, in comparison with region shares of

TABLE 34

ACTUAL EXPENDITURES: 1974-78 PLAN PERIOD

| Region | Population | Percent Of Total | Expenditure/ Population Ratio |
|---|---|---|---|
| 1. Kayes | 871,871 | 13.8 | 0.62 |
| 2. Koulikoro | 916,148 | 14.5 | 0.28 |
| 3. Sikasso | 1,171,861 | 18.6 | 1.62 |
| 4. Segou | 984,613 | 15.6 | 1.17 |
| 5. Mopti | 1,042,782 | 16.5 | 0.49 |
| 6. Goa | 174,429 | 2.8 | 1.75 |
| 7. Tombouctou | 742,594 | 11.8 | 0.14 |
| 8. Bamako District | 404,022 | 6.4 | 3.80 |
| TOTAL | 6,308,320 | 100.0 | 9.87 |

Source: World Bank, "Mali Special Economic Study: Planning Institutions and the 1974-78 Plan", June 30, 1981, p. 26.

national population. The last column of this table aggregates these two factors in an expenditure/population ratio which serves as an indicator of advantaged versus disadvantaged regions. Only Bamako District and the regions of Sikasso, Segou, and Gao had expenditure shares greater than their population share. Bamako District, with an expenditure/population ratio of 3.8 had a disproportionately large share of expenditure, more than twice as high as the next most favored region. The other four regions, including the rest of Koulikoro Region with the exclusion of Bamako District, had each received less than 10% of national plan expenditures, a level of investment far below their share of national population.

Urban infrastructure allocations were especially highly concentrated geographically. The sectoral breakdown of regional plan expenditures in Table 35, shows that urban areas were relatively neglected in the least favored regions. All regions with an overall expenditure share less than their population share had a greater expenditure/population ratio for rural than for the total of all sectors. Half of all secondary economic sector investments were spent in Sikasso Region (Selingué Dam investments and half of all mining development). Bamako District received the second largest share, 14.5%, mainly for industry, and most of the benefit from the Selingué Dam power supply. Bamako received almost half of all public works investments, followed by Segou with 25%; only 25% was spent on all other regions combined. The inequitable advantage of regions which already had relatively good infrastructure at the beginning of the Plan period, therefore, was further reinforced. This is extremely dangerous since, as the Bank points out, adequate infrastructure is a prerequisite for ensuring positive rates of return on all other investments. The scarcity of investment resources in Mali will continue to promote the concentration of expenditures in regions where their marginal productivity is highest, to the detriment of equity goals.

Even social sector expenditures, which the Bank suggests could most efficiently be used to equalize regional expenditure disparities, were used to reinforce pre-existing imbalances. Bamako received 70% of national social sector expenditures. Table 36 of per capita social sector investments per region shows the extreme bias towards Bamako, even when an adjustment is made to eliminate costs of the Bamako facilities which serve the residents of all districts (technical institutes, specialized medical facilities, government offices). Even with this adjustment, Bamako per capita social services costs are three times higher than those of any other region. The urban bias of '74-'78 investment performance seems, on the

TABLE 35

REGIONAL ALLOCATION OF 1974-78 PLAN EXPENDITURE

| | 1. Kayes | | | 2. Koulikoro | | | 3. Sikasso | | | 4. Segou | | | 5. Mopti | | | 6. Gao | | | 7. Tombouctou | | | 8. Bamako District | | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total Plan Expd. | % of Kayes Expd. | % of Alloc. Plan | Total Plan Expd. | % of Koulikoro Expd. | % of Alloc. Plan | Total Plan Expd. | % of Sikasso Expd. | % of Alloc. Plan | Total Plan Expd. | % of Segou Expd. | % of Alloc. Plan | Total Plan Expd. | % of Mopti Expd. | % of Alloc. Plan | Total Plan Expd. | % of Gao Expd. | % of Alloc. Plan | Total Plan Expd. | % of Tombouctou Expd. | % of Alloc. Expd. | Total Plan Expd. | % of Bamako Expd. | % of Alloc. Expd. | Alloc. Plan Expd. | Total Plan Expd. |
| I. Rural Sector | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A. Agricultural Resources | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. Millet/Sorghum | 1.048 | 5.7 | 22 | 1,307 | 15.5 | 28 | | | | | | | 2,378 | 13.9 | 50 | | | | | | | | | | | |
| 2. Rice | | | | 1,307 | 15.3 | 28 | 2,103 | 3.3 | 8 | 15,669 | 40.6 | 62 | 5,736 | 33.6 | 23 | 1,350 | 13.1 | 5 | 323 | 9.5 | 1 | | | | 4,733 | 5,057 |
| 3. Corn | | | | | | | 15,658 | 24.5 | 100 | | | | | | | | | | | | | | | | 25,169 | 24,865 |
| 4. Groundnuts | 7,420 | 40.6 | | | | | | | | | | | | | | | | | | | | | | | 15,658 | 15,658 |
| 5. Other | | | | 559 | 7.0 | 19 | 34 | - | 1 | 720 | 1.9 | 23 | | | | | | | | | | | | | 7,420 | 7,420 |
| B. Forestry Resources | | | | 576 | 6.7 | 93 | | | | | | | | | | 43 | .4 | 7 | 560 | 17.1 | 18 | 1,250 | 2.4 | 39 | 3,183 | 1,179 |
| C. Animal Resources | | | | 550 | 5.8 | 5 | 1,416 | 2.2 | 15 | | | | 4,118 | 24.1 | 45 | 2,253 | 21.7 | 24 | 792 | 23.3 | 9 | 118 | .2 | 1 | 619 | 1,243 |
| 1. Cattle | | | | | | | | | | | | | | | | | | | | | | | | | 9,197 | 18,351 |
| 2. Livestock | | | | | | | | | | | | | | | | | | | | | | | | | | |
| D. Fish | | | | | | | | | | | | | | | | | | | | | | | | | | |
| E. Other | | | | | | | | | | | | | | | | | | | | | | | | | | 12,196 |
| Total Rural Sector | 8,448 | 46.4 | 12.8 | 2,982 | 34.8 | 4.5 | 19,211 | 30.1 | 29.1 | 16,389 | 42.5 | 24.8 | 12,323 | 71.6 | 18.5 | 3,656 | 35.2 | 5.5 | 1,695 | 49.9 | 2.6 | 1,368 | 2.7 | 2.1 | 65,999 | 90,555 |
| II. Secondary Sector | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A. Mining | 1,110 | | 9 | | | | 6,518 | 10.2 | 50 | | | | | | | 3,690 | 35.6 | 29.0 | 55 | 1.6 | - | 1,547 | 3.0 | 12 | 12,920 | 13,349 |
| B. Water & Energy | 2,187 | | 4 | 2,926 | 34.2 | 6 | 32,016 | 50.2 | 62 | 6,752 | 17.5 | 13 | 2,587 | 15.2 | 5 | 430 | 4.1 | 1 | 1,044 | 30.7 | 2 | 3,443 | 6.7 | 7 | 51,385 | 52,449 |
| C. Industry | 4,178 | | 21 | 1,050 | 12.0 | 5 | 2,279 | 3.9 | 13 | 4,673 | 12.1 | 24 | | | | 12 | - | - | | | | 7,170 | 14.0 | 37 | 19,542 | 15,722 |
| Total Secondary Sector | 7,475 | 41.0 | 8.9 | 3,956 | 46.2 | 4.7 | 41,013 | 66.2 | 48.9 | 11,425 | 29.6 | 13.6 | 2,587 | 15.2 | 3.1 | 4,132 | 39.8 | 4.9 | 1,099 | 32.6 | 1.3 | 12,160 | 23.7 | 14.5 | 83,847 | 83,511 |
| III. Public Works | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A. Roads | 151 | .8 | 1 | 776 | 9.1 | 4 | 1,153 | 1.8 | 6 | 8,872 | 23.0 | 45 | 576 | 3.4 | 3 | 1,428 | 13.8 | 7 | | | | 6,830 | 13.3 | 35 | 19,786 | 25,660 |
| B. Buildings | 1,423 | 7.8 | 49 | - | | | | | | | | | | | | | | | | | | 1,473 | 2.9 | 51 | 2,856 | 10,244 |
| C. Navigation | - | | | 31 | .4 | 8 | | | | | | | | | | | | | 49 | 1.4 | 12 | | | | 395 | 2,859 |
| D. Air | 211 | 1.2 | 4 | 42 | .5 | 1 | | | | | | | 690 | 4.0 | 13 | 575 | 5.5 | 11 | 401 | 11.8 | 8 | 3,230 | 6.3 | 63 | 5,143 | 5,165 |
| E. Post & Telecommunications | 51 | .3 | 1 | 112 | 1.3 | 2 | 225 | .4 | 3 | 1,111 | 2.9 | 24 | 16 | - | - | 5 | - | - | | | | 3,118 | 6.1 | 67 | 4,638 | 5,642 |
| F. Tourism | | | | | | | | | | 450 | 1.2 | 13 | 197 | 1.1 | 5 | | | | 100 | 2.9 | 3 | 2,763 | 5.4 | 79 | 3,500 | 2,317 |
| G. Urban Design Studies | | | | | | | | | | | | | | | | | | | | | | | | | | 546 |
| H. Programming | | | | | | | | | | | | | | | | | | | | | | | | | | 5,016 |
| I. Administrative | | | | | | | | | | | | | | | | | | | | | | 7,293 | 14.2 | 100 | 7,293 | 4,917 |
| Total Public Works | 1,836 | 10.1 | 4.2 | 960 | 11.2 | 2.2 | 1,378 | 2.2 | 3.2 | 10,747 | 27.8 | 24.6 | 1,469 | 8.6 | 3.4 | 2,008 | 19.4 | 4.6 | 550 | 16.2 | 1.2 | 24,707 | 48.2 | 56.6 | 43,655 | 62,121 |
| IV. Social Sector | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A. Education | 311 | 1.7 | 3 | 667 | 7.8 | 5 | 1,903 | 3.0 | 15 | 76 | .2 | 1 | 193 | 1.1 | 2 | 522 | 5.3 | 4 | 17 | .5 | - | 8,594 | 16.8 | 70 | 12,313 | 11,644 |
| B. Information | 154 | .8 | 3 | | | | | | | | | | 593 | 3.5 | 13 | 25 | .2 | 1 | 36 | 1.1 | 1 | 222 | .4 | 100 | 222 | 216 |
| C. Health | | | | | | | 299 | .5 | 49 | | | | | | | | | | | | | 3,904 | 7.6 | 83 | 4,712 | 4,461 |
| D. Social Affairs | | | | | | | | | | | | | | | | | | | | | | 309 | .6 | 51 | 608 | 259 |
| Total Social Sector | 465 | 2.5 | 2.6 | 667 | 7.8 | 3.7 | 2,202 | 3.4 | 12.3 | 76 | .2 | 4 | 786 | 4.6 | 4.4 | 377 | 5.6 | 3.2 | 53 | 1.6 | .3 | 13,029 | 25.4 | 73.0 | 17,855 | 16,620 |
| V. Total All Sectors | 18,265 | 100.0 | 8.6 | 8,565 | 100.0 | 4.1 | 63,804 | 100.0 | 30.2 | 28,637 | 100.0 | 13.0 | 17,074 | 100.0 | 8.1 | 10,372 | 100.0 | 4.9 | 3,397 | 100.0 | 1.6 | 51,264 | 100.0 | 24.3 | 211,357 | 253,261 |
| Percentage of Total Population | | | 13.8 | | | 14.5 | | | 18.6 | | | 15.6 | | | 16.5 | | | 2.8 | | | 11.8 | | | 4.4 | 100.0 | |
| Expenditure/Population Ratio | | | .62 | | | .28 | | | 1.62 | | | 1.17 | | | .49 | | | 1.75 | | | .14 | | | 3.80 | 100.0 | |

Source: World Bank, "Mali Special Economic Study: Planning Institutions and the 1974-78 Plan", June 30, 1981, p. 27.

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whole, to have been limited to Bamako, and to have excluded secondary cities (which have a higher potential for stimulating rural development and regional equity).

No comparable actual performance analysis of expenditures to date in the current Plan period 1981-85 seems to be available. The investment plan budget allocations have been included as the Annex B to this Profile, but the limited analysis time available has not permitted a regional and secondary city reaggregation of these allocations. It can be seen, however, that the allocations include reforestation projects in several secondary cities (Sikasso, Kayes, Mopti, Nara, Fana, Nioro, Koulikoro, etc.), which could mitigate the fuel wood scarcities and erosional problems of these cities. Various projects are listed which have secondary city employment-generation potential, such as San fishing operations. Funds for mineral exploration (diamonds, gold, and iron) in Kéniéba and uranium in Faléa could have employment-generation potential for these secondary cities in the south of Kayes Region, potentially attracting external investment in transport and communications infrastructure to access resource extraction in these areas, if found to be economically feasible. Bourem, a small market town near Gao, is scheduled to receive funds for developing a phosphate processing industry. Funding is allocated for feasibility studies for improving urban water systems in Kayes, Gao, Bougouni, San, Markala, Djenné, Diré, and Douentza. Energy sector projects are included for Sikasso, Kayes, Bougouni, Fana, Segou, Markala, Koutiala, Kita, San, Dioila, and Diré, and an Energy Sector Master Plan for Mopti-Sévaré. Industrial development outside of Bamako lists projects for Koutiala, Keniéba, Segou, and Sikasso, but continues to encourage plastic shoe factories which threaten the viability of the traditional shoemakers in the artisan sector. Tourist sector development plans favor investments in Mopti, Gao, Bougouni, and Tombouctou. Planned road investment concentrates on some disadvantaged regions (especially the Mopti-Gao road), and rail investments include improvements to the Kayes station.

Most of the specifically urban public works allocations focus on Bamako; the only secondary city projects are sanitation and drainage improvements for Kati and Koulikoro, roads for Mopti, and administrative buildings for Tombouctou and Koulikoro. All housing funds are targeted towards Bamako. Teacher training schools in San, Koulikoro, and Diré will be expanded. A number of secondary schools in small cities have been allocated expansion funds, including a number of projects for the extension of existing or the creation of new agricultural lycées. This is encouraging, since in

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comparison, Zaïre was missing the opportunity to establish agricultural training centers in secondary cities, where they have a potential for reaching a large number of temporary rural-urban migrants, more cost-effectively stimulating agricultural improvement than more isolated rural training centers. Some health sector investment funds have been given to each of the regions, but further research would be required to separate urban from rural allocations.

# VI. SECONDARY CITY CASE STUDY: RURAL-URBAN LINKAGE AND DEVELOPMENT TRENDS IN KAYES

The First Region, of which Kayes is the capital city, has become the major geographical focus of current AID activities in Mali, mainly because this region is included in the multi-donor three-country OMVS (Opération de Mise en Valeur du Fleuve Sénégal) project area. Construction of the Manantali dam has begun on the Bani river in the southeast portion of the region. The main purpose of this dam on the Senegal River tributary is the expansion of the potential for irrigated perimeters downriver, including the vicinity of Kayes city. Year round Senegal River navigation between Kayes and the port of St. Louis would be possible through the dam's maintenance of a higher water level, however, extensive technical studies and donor financing would be required to remove rocky obstructions to the channel below Kayes. To date, no donor commitments have been made on the fluvial navigation components, but both AID Mali and Italian bilateral assistance will be making substantial financial contributions to the rehabilitation and expansion of the irrigated perimeters. As the key urban center which will be expected to market and transport the agricultural production of these perimeters, Kayes was chosen by AID Mali as the Malian secondary city most influential in its program and project development work, and therefore the most useful site for the RHUDO case study. Data presented in this chapter was collected by the author during six days of field work in Kayes.

As suggested in the chapter of this Profile on the "Typology of Malian Secondary Cities", there is no "typical" secondary city. Kayes city has been declining in its relative share of the national urban population, losing place between '56 and '76 to Segou, Sikasso, and Mopti. (See Fig. 39.) As the fifth largest Malian city in '76, Kayes had a population of about 50,000. The Kayes Region has a smaller share of the national urban population than the Segou, Sikasso, and Mopti Regions (see Table 37). Looking, however, at the percentages of population within each region which are urban-dwelling, Kayes is second only to Segou and Gao in its level of urbanization (see Table 38). As was found in the Rural-Urban Profile for Zaïre, regions with the least developed rural communication and transportation systems, such as Equateur in Zaïre, and Gao and Kayes in Mali, often tend to be the most urbanized, since rural residents are most highly motivated to emigrate to local cities in search of basic infrastructure and services. The inadequate development of roads in the Kayes Region, which has political, technical, and financial causes, is one of the major factors generating the city's decline. This will be discussed in more detail later in this chapter.

TABLE 37

1976 SHARES OF TOTAL NATIONAL URBAN POPULATION
FOR THE MOST URBANIZED REGIONS IN MALI

| | |
|---|---|
| Bamako District | 38.97% |
| Segou | 14.59% |
| Mopti | 11.13% |
| Sikasso | 10.57% |
| Kayes | 9.21% |

TABLE 38

% URBANIZATION BY REGION, 1976

| | |
|---|---|
| Bamako District | 100.0% |
| Segou | 14.5% |
| Gao | 12.0% |
| Kayes | 11.4% |
| Mopti | 10.6% |
| Sikasso | 10.4% |

Source: 1976 National Census

- Historic Determinants of Urbanization in Kayes

The nucleus of urbanization on the site of present-day Kayes dates back to the medieval trans-Saharan trade era as does development on the sites of many other Malian cities (Tombouctou, Djenné, Gao, Segou, San, Bamako, Kankan, Sikasso, and Mopti). Originally both a crossroads for caravan trade, strategically located to mediate between the Sahara desert pastoralists and the savanna agriculturalists, and an important river port, Kayes' role in fluvial colonial trade and political penetration was reinforced by the 1886 completion of the Dakar-Kayes section of the railroad which was later extended to Bamako and Koulikoro in 1930. During the colonial era, Kayes was a major administrative headquarters, and the commercial capital of West Soudan and Southeast Mauritania.

The city's decline began in mid-1960, with the collapse of the Federation of Mali, at Independence, with the withdrawal of Senegal from its colonial union with the Soudan (Mali). The closing of the Senegal-Mali frontier and cessation of all river and rail transport between the two countries, lasted from 1960-63, and irreparably damaged the economy of Kayes. Forced to develop an alternate system of supply and evacuation to replace the rail to the port of Dakar, Mali invested heavily in road transport to Ivory Coast and the port of Abidjan. By the time the frontier was reopened with Senegal, and normal rail service resumed, much of the nation's trade had become irreversibly oriented towards its southern, rather than its western neighbor.

Today's OMVS plans for the agro-industrial development of the Senegal River valley, which have assigned an important port and industrial role to Kayes city, date back to this 1963 reconciliation between Senegal and Mali, and the simultaneous creation of the Inter-State Committee for Development of the Senegal River Basin which brought together Guinea, Mali, Mauritania, and Senegal. Complete disinvestment in First Region roads since 1960 was born of both the political and financial need to concentrate resources on the vital lifeline to Abidjan, and increasingly since then, a disinclination to encourage private sector road transport to compete with the State-owned railroad monopoly on First Region transport.

Kayes no longer has the dynamic crossroads function which it played in history, and is primarily passed over by goods and passengers between Dakar and Bamako. Though only testable through detailed feasibility studies, it is unlikely that river transport development will be economically useful enough

to be financially viable in spite of its potential technical feasibility after the completion of Manantali dam. Therefore, it seems unrealistic to project that the development of fluvial transport will restore crossroads economic activities in Kayes. One must look rather towards coordinated regional road development and agricultural productivity increases to maximize the city's economic stimulation of and service to regional development. According to the RHUDO's Urban Development Assessment for Senegal (1983), river traffic was historically important in Fleuve Region urbanization in that country, and development was initiated at the port of St. Louis and downriver trading posts below Kayes. The construction of the Dakar-Bamako railroad, and the more recent paving of all but 20 kms. of the road between St. Louis and Bakel in Senegal, have caused the virtual disappearance of Senegal River traffic west of the Malian border.

- Impacts of Migration on the First Region and Kayes City

About 40-50% of Malian male out-migration to other countries originates in the Soninke tribal areas, centered around the city of Kayes, but these out-migrants are partially replaced by in-migrant seasonal labor. Studies indicate that about 40% of an external migrant's annual salary (an average of $950/migrant/year) is remitted to his family back in Mali[3]. A recent study by the Sahel Institute surveyed comparative samples of Malian villages which are contributing large numbers of external migrants, and control villages but the Institute undermined the usefulness of this effort by mixing the two sets of villages in reporting its survey's findings. Of all villages surveyed, 1/3 were sending out-migrant seasonal labor on a regular basis, while 2/3 were attracting in-migrant seasonal farm labor. Unfortunately, it is impossible to retrieve, from the Institute's report, the extent of overlap, or lack thereof, between labor-exporting and labor-importing villages. It is possible that external migrants' remittances are used, in part, to pay lower wages to in-migrant laborers from more isolated parts of the First Region.

According to the Sahel Institute, out-migration of Malians to France, especially from the Kayes Region, has been increasing about 11.5% per year, as shown in Table 39. These out-migrants are predominantly male (90% in 1975) between the ages of 20-34 (69% in the same year). Most are living in

3. Lucie Colvin, "Mali", in The Uprooted of the Western Sahel, p. 266.

Paris, holding unskilled jobs, staying on average from 1-3 years per trip. Annual increases in external migration are weighted towards an increasing rate of female participation (about 25% at this time).

TABLE 39

NUMBER OF MALIAN MIGRANTS IN FRANCE, 1975-81

| | |
|---|---|
| 1975 | 12,530 |
| 1980 | 17,924 |
| 1981 | 19,992 |

Kayes Region is estimated to be contributing 61% of Malian external migrants, who come especially from the circles of Kayes and Yelimané. A strong trend of external migration among the Soninké tribe (which historically were long distance traders between Mali and the Gambia) was noted in a 1973 study in which 66,000 of the 70,000 African immigrants in France were found to be Soninké (not necessarily most recently from Mali, though the Kayes Region is the original homeland of the Soninké). Seasonal external migration has also been a historical pattern for other tribes in the Kayes Region, notably the Bambara, who were shorter distance migrant laborers (known as the "nawetan") during the rainy season in the Senegambian peanut basin. The returning "nawetan" invested their cash earnings in dry season trade. The flow of nawetan between Kayes Region and the Senegambia has been greatly reduced since World War II, but 21% of seasonal migrant labor in the Gambia is still Malian, mostly from the Kayes Region.

In financial terms, OMVS expansion of acreage of irrigated perimeters in the Kayes Region will only be feasible if potential producer earnings are competitive with potential earnings achievable through external migration. Compared with the average of $950/year which external migrants were able to remit to their families in Mali, only $425/year was the projected earnings from small holder cultivation of the average irrigated perimeter. Under these conditions, it is reasonable to expect that the most dynamic entrepreneurially motivated youth will continue to migrate outside the Kayes Region in search of employment.

A major development problem is raised by the fact, as found by Sahel Institute studies, that migrant remittances are

primarily being used for consumption, rather than productive investments. In descending order of cash absorption, remittances are used for clothes, food, and tax payments. Relatively little remittance investment is going into commercial or transport services or secondary production sectors. So while the high rate of external migration from the Kayes Region creates a development opportunity because of the high level of cash remittances, potential labor shortages must be analyzed carefully, and institutional mechanisms and economically attractive incentive packages must be put in place which will harnass capital for productive investments.

As one would expect, from its historical pattern of seasonal and longer term regional out-migration, Kayes city is experiencing a lower rate of in-migration than more economically dynamic secondary cities like Mopti and Sikasso. According to the '76 census, an average of about 50% of the residents of Malian secondary cities were born in the same city. Kayes and Nioro, the largest First Region cities, had much higher shares of indigenous residents (66% and 75% respectively) since they were much less attractive destinations for in-migrants.

- Urban Functions Which Generate Rural-Urban Linkage in Kayes

Commerce, transport, health, and education are the major urban services in Kayes which are generating rural/urban interaction. The urban energy and credit sectors are also important factors in rural-urban linkage. The lack of an agricultural processing industry and the limited number of private voluntary organization activities in Kayes are development obstacles. It will be particularly important to build-up Kayes-based rurally-focussed economic development and urban planning institutions to provide a structure for OMVS project implementation. Despite the high unemployment rate in the city, and the decline in its artisanal sector, there is an encouragingly high level of local commitment to Kayes, evidenced by private housing investments, public building projects, proposed commercial investment in a fuel depot, and the recent opening of a BIAO branch bank which hopes to channel migrant remittances towards economic development investments.

- Commercial Activities

Kayes city is feeding its region through its import and re-distribution of cereals. This urban function contradicts the traditional model of urban markets draining their regions' rural food surpluses at subsidized prices which benefit urban

consumers and disadvantage rural producers. About 90% of the freight handled by transporters in Kayes city is comprised of cereals imports (millet, rice, seminole). Kayes exports by volume and value are only a fraction of its imports. According to the Kayes branch of the Ministry of Economic Affairs, 1983 imports were valued at 1.2 million FM versus only 67.5 million FM of exports (a little over 25% of the value of 1982 exports). The region's low level of exports, substantially reduced by the past year's drought, is comprised by value of gum arabic (50%), cola (20%), small ruminants (20%), and cattle (10%). Imports were also down 25%, probably due to drought-affected reductions in buying power.

The city's major commercial activities are concentrated in a small number of hands. There are only four major import-export societies remaining in the city at this time. During 1983, two societies were transferred to Bamako, and another was liquidated when its owner died. Only fourteen additional major individual import-exporters (mostly Peuhl) are registered with the Kayes branch of the Ministry of Economic Affairs. The Chamber of Commerce has only 12 members, primarily the most well-off import-exporters, whose interests it represents. Two Kayes-based customs clearing agents handle most of the city's transactions at the port of Dakar.

Retailing, in contrast, occupies almost 1,000 traders in the circle of Kayes (959 registered early 1984, including 39 new permits approved in 1983). Exact figures can not be determined, because many traders outside the Kayes central market do not obtain permits, and once permits are issued, there is no monitoring of "dropouts". The official figures are particularly suspect since most of the fruit and vegetable sellers observable in the market are women, but only 1% of the registered retail traders are female.

As was seen earlier in the "Typology of Cities" Chapter, in the discussion of the hierarchy of markets in the circle of San, and their relationship to higher order markets in Mopti and Segou, the daily central market in Kayes is the commercial focal point for collection and re-distribution in its region. The major wholesale/retail shops in Kayes line the streets bordering and leading up to this market, creating a very concentrated downtown commercial core, just south of the Senegal river. The market begins early in the morning, closing up by mid-afternoon. A smaller night market for local consumer purchases lines a centrally located street a short distance away. Livestock sales take place in a separate market on the north bank of the river, where the submersible causeway crosses the river to enter the neighborhood of Kayes N'Di.

In terms of urban geography, this physical division of commercial activities within Kayes city is quite appropriate. The river divides the main part of the city on its south bank (with a savannah zone physical and mixed socio-economic character) from the Kayes N'Di neighborhood (with a more Mauritanian desert town ambiance) to the north, and the submersible causeway provides easy vehicular access between the two areas only during the dry season. (See Figure 40.) Kayes N'Di is a patchwork of ethnically segregated housing areas - predominantly Maure and Peuhl, but also Sarakollé, Khassonké, Bambara, and Wolof. Pastoral activities, as a whole, are centered in Kayes N'Di, where the government veterinary service and public livestock pens are located. Future technical studies on the impacts of Manantali dam construction should consider the effects of higher river levels on access between the south bank and north bank neighborhoods in Kayes, and transport improvements which will be required to avoid constraints to economic activities, particularly those which are livestock-related, since the rail station, the USAID-financed new slaughterhouse, and road transport to the Senegal border are all centered on the south bank, while livestock often arrives on the north bank.

Goods sold in the market include large quantities of cheap imported manufactured goods from Taiwan and plastic shoes (mostly Bata) made in Dakar (which have killed the traditional artisanal shoemaking sector in Kayes). Eggs are expensive since they are brought in by rail from Dakar. A limited amount of artisanal transformation and conservation of local vegetable production was observed among the food items for sale, including tomato paste and powder, peanut paste, dried onions, dried tamarind balls, karité butter, sauce powders prepared from some leafy vegetables, and dried baobab fruits. The dried and smoked fish was mostly imported from Senegal, though a neighborhood on the city's south bank, towards its eastern edge, is known for its historical and present-day community of Somono fishermen. Though not a food item, "diguité" incense, a historically important Kayes Region export, is still prepared from plant material gathered in the bush for sale in the market. As a whole, agricultural processing activities are very poorly developed in Kayes, and the tomato and peanut pastes being locally prepared are not being packaged for conservation and export to Bamako or other destinations. Seasonal fruit and vegetable surpluses are a problem since market gardeners and cultivators on existing irrigated perimeters tend to all plant the same crop at the same time, flooding the local market in series. It will be essential for USAID to provide technical assistance to develop better phasing and production choices on its future rehabili-

FIGURE 40

MAP OF THE CITY OF KAYES, 1984

Source: Reduced from a basemap provided by the Service Topographique, Kayes.

tated and expanded perimeters, and to provide training, equipment, and start-up capital for processing industries.

There is a considerable amount of sexual division of labor in commercial activities. Cereals, shoes, hardware, and textiles are mainly imported, and sold in male-owned boutiques.[4] Livestock sales, butchering, and meat sales are also predominantly male activities, while market women are selling domesticated fruits and vegetables, and gathered condiments.

- Transport Sector

Transport systems linking Kayes to other cities and to rural areas include rail, road, river, donkey carts, and feet. The bulk of the First Region's imports and exports move by rail between Kayes, Bamako, and the port of Dakar. Table 40 summarizes 1983 rail freight imports and exports in tons recorded at the Kayes train station. The figures reveal the major rail activity as being the handling of imports with June - December as the peak period of activity. As stated earlier these are primarily food imports, critical to filling local shortfalls in production, especially of cereals, but cement and fuel are also important. Table 41 of 1983 passenger tickets sold at Kayes station by destination shows that Bamako is by far the most popular attraction to Kayes passengers. Rail passenger origin-and-destination statistics are distorted, however, by the high rate of ticket purchase evasion, in spite of rail authorities' recent initiatives to improve enforcement procedures.. The issuing of "minimum parcours", "local and international passpartouts", and "on train-any direction" tickets obscures the destinations of at least 57,231 passengers (almost half of those using the system from Kayes), since more than one passenger can travel on any passpartout ticket, and the destination is not recorded. They are issued whenever the regular tickets are not available, and can be used for many purposes, such as first class fare between stations where first class tickets are normally not sold. A large number of passengers have official credentials which entitle them to free service (government employees, for example). The small number of tickets sold to Dakar does not present an accurate picture of this migration path, or the frequency of traders' trips between Kayes and Dakar.

4. It is worth noting that most of the cereals for sale in the Kayes market were marked (in English which is not generally locally understood) "Gift of the American People - Not for Sale - World Food Program KC (FF) 33005".

TABLE 40

1983 RAIL TRANSPORT VOLUMES HANDLED IN KAYES
(Exports and Imports in
Both National and International Networks in Tons)

| Period | Tons - National | | Tons - International | |
|---|---|---|---|---|
| | Export | Import | Export | Import |
| January | 109.3 | 1,800.2 | - 0 - | 2,243.6 |
| February | 322.3 | 1,299.4 | 25.0 | 518.0 |
| March | 159.2 | 1,908.9 | 21.5 | 1,616.1 |
| April | 127.7 | 1,700.1 | 95.0 | 2,239.2 |
| May | 135.5 | 1,563.8 | 163.2 | 2,464.2 |
| June | 55.6 | 2,435.7 | 41.5 | 5,203.9 |
| July | 315.2 | 2,775.5 | 5.5 | 1,906.4 |
| August | 537.4 | 3,629.0 | 11.5 | 2,093.4 |
| September | 202.6 | 2,200.2 | 87.6 | 2,990.8 |
| October | 197.5 | 2,917.8 | 21.5 | 3,426.6 |
| November | 522.7 | 4,814.3 | 10.0 | 1,168.1 |
| December | 294.2 | 4,241.2 | 50.0 | 2,139.6 |

Source: Chemin de Fer du Mali, Kayes Office.

TABLE 41

NUMBER OF PASSENGER TICKETS SOLD IN 1983
AT KAYES TRAIN STATION
(BY DESTINATION)

| Passenger Destination | 1983 | |
|---|---|---|
| Dakar | 1,386 | Westbound |
| Thies | 388 | |
| Diourbel | 43 | |
| Kaolack | 376 | |
| Tambacounda | 3,568 | |
| Diboli | 8,118 | |
| Ambidédi | 1,092 | |
| Kayes | | |
| Diamou | 652 | |
| Mahina | 200 | |
| Walia | 866 | |
| Toukoto | 1,320 | |
| Boulouli | 375 | |
| Kita | 6,650 | |
| Sébékoro | 279 | |
| Kassaro | 198 | |
| Négala | 254 | |
| Dyo | 107 | |
| Kati | 1,723 | |
| Bamako | 61,784 | Eastbound |
| Tickets Sold for Minimum Trips | 13,487 | |
| Diverse Passpartout (Local) | 27,009 | |
| Diverse Passpartout (International) | 92 | |
| On Train (Any Direction - Interior of Mali) | 16,643 | |
| Total Tickets Sold to Unknown Destinations | 57,231 | |

Source: Chemin de Fer du Mali, Kayes Office.

International train fares are much higher than the combined domestic rail fares. Most low income travelers between Kayes and Senegal destinations take a local train or truck to the Mali side of the border, cross the rail bridge by foot, and resume their trip by local train or road in Senegal. A fast paved road and frequent vehicle service links Tambacounda to Dakar in Senegal, so many passengers ride the train only from Kayes to Diboli (the Senegal border) or to Tambacounda. The lowest income passengers ride from Kayes to Dakar on the roof of the freight trains, in search of cargo handling jobs in the port of Dakar. Eastbound from Kayes, the most attractive intermediate destination seems to be Kita, roughly midway to Bamako.

Freight handling on the Malian railroad is unreliable, delayed particularly by inefficient use of rolling stock. The turnaround time for freight cars is extremely slow for two reasons: (1) government agencies, parastatals, and the military abuse their perogatives by delaying the unloading of their shipments from freight cars for weeks and months at a time; and (2) merchants are responsible for arranging private porters to off-load their shipments, and often delay doing so for weeks after their arrival while they attempt to assemble funds to pay the balance of transport and customs charges due. Relatively minor fines are assessed for these delays and they are not always enforced. Some fairly simple changes in operating practices, if combined with governmental curtailing of its own abuses in the tying up of freight cars, would vastly increase the levels of freight service on the Malian railroad and would entail minimal capital investment. Firstly, the Malian railroad should hire its own labor to off-load shipments into its warehouses to free up cars faster, transferring labor and storage costs to the merchants, without delaying the turnaround time of freight cars. A large number of railside warehouses were noted in Kayes, and they seemed to be extremely underused. Field surveys in other rail towns such as Kita, Kati, Bamako, and Koulikoro could be undertaken to assess the availability and rate of utilization of warehousing in the rail yards. Fines for delaying receipt of shipments by their importers should be reviewed, readjusted, and enforced in order to discourage inefficient practices more firmly. Government is the major offender, however, and private sector enforcement will be fruitless without improvement in public sector practices. At the time of the consultant's survey, 30 wagons had been awaiting army off-loading for 40 days in Kati.

It is difficult to compare the costs of rail and road transport between Dakar and Kayes. Rail freight tariffs vary

by commodity (nine different categories, each with a different rate schedule), and scale economies in costs/ton are obtained when one exceeds the minimum tonnage per commodity (15 tons per shipment in cereals, for instance, or five tons of milk or fish). Shipments of under five tons are priced at a much higher rate, while over five ton loads are eligible for "wagon" rate schedules. Malian rail freight cars are either 20, 30, or 40 tons each in capacity.

The privately-owned road transport services in Kayes are trying to compete with the state-owned rail monopoly for transport of imports from the port of Dakar. The Falémé River bed on the Mali-Senegal frontier is only passable by light trucks (10 tons), during the dry season. The railroad occupies the only bridge over this river. The road from Kayes to Kidira, Mali, is extremely poor, though the road transporters have been lobbying extensively for its improvement, defining it as their highest priority route, and they have even taken up a collection among themselves to help finance this. These funds were turned over to the Ministry of Public Works. The Road Transporters' Cooperative (Coopérative du Transport Routier) claims to control 250 vehicles - a combination of taxis, pick-ups, and small trucks, none of which exceeds 15 tons. Each individual transporter owns from three to eight vehicles, but many are old and in poor condition; breakdowns are frequent and repairs are delayed by lack of spare parts. The abominable condition of the Kayes Region's roads exacerbates wear and tear on vehicles, and fuel use inefficiencies, a major problem in a fuel-scarce region. In spite of these handicaps, the road transporters claim that they offer lower rates than the railroad for shipments from Dakar because they offer faster, and more reliable service, and have cooperative agreements with Senegalese trucking services, transferring goods from one fleet to the other at the border. This may in deed be the case, especially for loads which are too small to qualify for preferential rail "wagon rates", or for loads that have several intermediate drop-off points, instead of a single destination, even though the railroad authorities hotly deny any possibility that road transport could be a financially competitive alternative to their "monopoly". The truckers claim that they can transport goods from Dakar for half the price charged by rail. Road freight to Kidira costs 25% less than rail, according to the Kayes Chamber of Commerce, for a 10 ton load.

Road transporters based in Kayes control the bulk of the region's vehicle fleet. Compared to the 250 vehicles in Kayes, Kita has only 40, Nioro has 35, Bafoulabé claims 25, with 20 in Kéniéba. Aside from their interest in the Senegal

ade, Kayes' road transporters concentrate their services on out 20 weekly markets in Kayes circle, though roads are ten impassable in the rainy season, and they also collect oduce in marsh lands on the Ségala-Yélimané Road, and from uck farms ("market gardens") along the Senegal River. provements to the Ségala-Yélimané road are their highest iority, second only to the Kidira (Senegal border) route. uck service to Mauritania is provided by some Kayes ansporters, and trucks with Mauritanian plates were observed the livestock market in Kayes N'Di.

ver transport is a sideline investment among the road ansport cooperative's members, who reportedly control about 5 motorized dug-out boats (from 5 to 10 tons each). These oats primarily provide local service over a restricted istance, complementing use of trucks to collect produce from iverside gardens and irrigated perimeters, and ferrying oods, animals, and people across the Senegal River during the ainy season. The smaller boats (3-4 tons) can work as late n the dry season as January or February. The Khassonké are articularly active in river transport. The Malian river reight parastatal, CAMANAV, closed its Kayes office two years go through lack of interest, so no river freight statistics re officially recorded. The only large scale long distance iver freight activity originating in Kayes consists of two oundtrips to St. Louis of a CAMANAV barge (100 tons) loaded ith cola during the rainy season. When and where feasible, iver transport is reported to be half the cost per weight of oad transport, accounting for those existing investments hich have been made. Some emigrant remittances have been nvested in motorizing river boats, and incentive packages to aximize this source of investment should be designed if ear-round Senegal River navigation is eventually assigned a onor priority.

Donkey carts, bicycles, and feet are the major means of transport linking Kayes with its rural areas, especially feet. Few villagers can afford to use vehicle transport to take their produce to market, since their profits are so slim, and route monopolies have resulted in price fixing, except along the rail west to Senegal, where an incentive is provided for price competition with the railroad. Only one or two vehicles owned by the same proprietor served many key rural roads leading south from Kayes. Most trips from villages to Kayes are motivated by food sales and purchases (especially the latter). Marshes to the south make even bicycles ineffective and spines on the paths cause flat tires - only donkeys and feet can pass in all seasons. The donkey can carry more weight than a bicycle, and can travel at night, so

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it is preferred for long distances. To the north of Kayes, the landscape is flatter, allowing bicycles and carts to pass more easily. There seems to be a network of "relay villages" spreading out from Kayes in a radius defined by the distance (about 22 km.) viable for a roundtrip in one day by foot to the city's central market, with adequate time for rest, sales, and purchases. This pattern defines the early closing hour of the Kayes market (just after noon). The "relay villages" become secondary weekly market centers serving more outlying villages which can reach them in daylong roundtrips by foot, etc.

A rather large random sample survey of trip purposes and itineraries (over 6,000 responses) had been collected by a Dutch Free University graduate student during the dry season Nov. '83 - Jan. '84 (the rains stopped in July in 1983). Every tenth passerby was interviewed by his survey assistants using a rotating system of surveillance at 30 check points, covering all transport modes entering Kayes, and major intersections. Though the results will only be tabulated in summer of '84, the researcher had already noted the overwhelming dominance of pedestrian transport in rural-urban trips to Kayes. Over long multi-day trips, indirect itineraries were often reported, implying a pattern in which villagers moved from one known spot with contacts who would provide in-transit shelter and directions to the next intermediate point, even if the overall trip was much longer and slower than taking a direct route. Sex differences emerged consistently in types of food purchased and means of locomotion. Women were head-carrying most of their loads, heading to Kayes in search of sauce ingredients and condiments. Men were buying millet, and transporting it by donkey cart and bicycle. Cultural patterns in pedestrian travel were prevalent - Bambara women traveled to Kayes from the south in groups of 10-15; Peuhl women arrived from the north alone or in pairs.

The predominance of food purchases as a motive for trips to Kayes, and the inability of rural people to afford vehicular transport is understandable if one compares the Kayes 1983 rainfall statistics with earlier years:

| | 1921-'54 | 1973 | 1983 |
|---|---|---|---|
| Average August Rainfall | 244.4 mm | 205.7 mm | 80.2 mm |
| Total Annual Rainfall | 750.1 mm[5] | 561.9 mm | 427.8 mm |

5. This is the same as the average annual rainfall in the Netherlands but in Mali, temporal distribution is poor. Much of the year's rainfall may fall in a single storm, and is therefore lost as runoff.

During the 1983 growing season, almost all rainfall had stopped by July, and even the most drought resistant millet variety ("petit mil") yielded very little in Kayes region. If one considers that a 100 kilo sack of millet was selling for 31,000 FM in Kayes market, and that an average adult requires a minimum of a kilo every three days, it costs at least 100 FM per day to supply the millet staple per family member. Unemployment in Kayes was so high during the same time period (January 1984) that high school graduates were lucky if they could find occasional jobs for 600 FM/day.

Villagers who are buying millet in Kayes almost always brought something from the rural area to sell in exchange - charcoal from the south, baobab fruits from the north, potato leaves, gathered sauce condiments. Some specialization of village intermediaries' roles seemed to be occurring (e.g. women in a certain village were serving as market agents for the potato production in outlying villages).

- Employment and Industry

A substantial share of the salaried employment in Kayes Region is concentrated in the regional capital. Of the 1,500 administrative government jobs in the region, 950 are located in Kayes circle.

Salaried Jobs in Kayes Region

| | | |
|---|---|---|
| Primary Sector | | 2,500 |
| Secondary Sector | | 3,500 |
| Tertiary Sector: | Commerce | 1,100 |
| | Government | 1,500 |
| | TOTAL | 8,600 |

Source: Inspection du Travail, Kayes Region.

Over half of the tertiary sector jobs, as well as most of the primary and secondary sector jobs are actually government (including parastatal) employment. Agencies such as the Ministry of Water and Forests, and state agricultural development projects (ODIK, OVSTM, ODIPAK) provide most of the primary sector jobs. Secondary sector salaried work, aside from jobs at the Ministry of Public Works, the railroad, or Energie du Mali (the parastatal energy utility), are confined to the region's three factories (80 employees at the Kayes

tannery, the SEPAMA peanut oil factory in Kita, and the SOCIMA cement plant in Diamou, a railroad town east of Kayes. About 1,300 of the region's secondary sector jobs are temporary construction jobs at the OMVS Manantali Dam site.

The region's limited industry is barely able to keep its factory doors open. The Kayes tannery was closed from '81-'82, since it could not produce treated skins at a price which could compete with untreated export skins processed in Europe. Located on a site at the southern edge of the city, the factory could not be economically connected to public electricity. Though it only created 80 jobs when it reopened in '83 versus the 140 workers that it had formerly employed, it had been closed again prior to the site mission for lack of the parts required to keep its generator operating, and lack of chemical imports needed for processing. Power breakdowns had caused expensive losses of partly processed skins which were left soaking in chemical baths. Even though tanning of animal skins would seem to be a useful economic activity, recycling a locally surplus by-product for export, these technical and logistical realities have discouraged all other modern industry in Kayes from developing. Only the Diamou cement factory, with 400 jobs, remains a significant source of regional industrial employment. The Kita oil factory was closed this year because of the poor peanut harvest, involving the loss of 105 jobs (versus the 400 jobs that it formerly offered before peanut yields began declining).

The creation of a viable agricultural processing and preservation industry in Kayes will be essential in order to provide a market for expanded production on the region's irrigated perimeters after Manantali Dam construction. Determining the most appropriate technical and capital investment scale for this sector will require detailed feasibility studies which are beyond the scope of this report, however, it will be a matter of building an industrial sector from the ground-up. As noted earlier, existing agricultural transformation activities are only practiced on an individual artisanal scale, and even fewer preservation techniques are used. The high transportation costs of reaching markets in Bamako and other parts of Mali, and the periodic lowering of producers' prices through serial flooding of the market with vegetable crops, implies that conservation, storage, and coordinated release of production to stabilize market supply and prices will be required, if the cultivation of irrigated perimeters is to become an economically attractive alternative to external migration. The development of this sector will require marketing and transportation studies, technical training, machinery fabrication or import, and credit programs

to promote individually and cooperatively-owned processing industries, as well as the preparation of serviced industrial or artisanal sites with access to public water and power systems.

The history of the Dutch investment in a cold storage chamber is an example of the depressing lack of coordination between past donor investments, existing transport and marketing systems, and economic realities in this sector in Kayes. The cold chamber, financed by Dutch aid, was designed on a large scale, with sophisticated separate temperature controls for isolable compartments. It seems to have been extremely over-designed in both capacity and technical complexity in comparison with current production levels. No local involvement in project conception, design, programming, or monitoring of the facility was included in project execution. The director of OVSTM (the government agency which administers, advises, and services production activities on the irrigated perimeters) will be responsible for running the cold storage facility as part of his project's equipment. Though the chamber can be touched by leaning out his office window, he has been totally excluded from construction monitoring, does not know the facility's capacity or specifications, and has never set foot inside it.

A Dutch firm (now bankrupt) was put under contract for the construction, but no resident technical assistant or local project manager was ever provided by the donor. The project was administered by the Dutch Embassy in Dakar, who never came to visit it. If any technical or economic feasibility studies were ever done for the facility, no one is aware of them. The costs of running and powering the facility and alternative crop choices and marketing strategies which producers could use in order to pay these costs are unknown. Only installation of a few missing parts followed by an official turnkey ceremony which would convey the facility to the Malian government are required to make the refrigeration chamber technically operational, but there has been no response along these lines from the Dutch Embassy in Dakar. The resident Dutch PVO worker in Kayes, who has volunteered to coordinate project completion, has become frustrated by this lack of response to his initiatives.

Of what use is this expensive facility without coordinated investment in frigorific transport to economically viable markets? The only two refrigerated rail freight cars owned by the Malian Railroad have been in disrepair for many years, and have in fact become, by the director's own admission, "calorific" cars. Various ideas have been proposed which

could use irrigated perimeters to meet staple food shortages in Kayes Region, such as intensifying the production of short cycle starch crops (like 60 day potatoes) to fill the gap left by millet and other cereal shortfalls in local rainfed production of diet staples. The viability of this type of proposal would depend upon consumer willingness to accept such extensive dietary changes, and upon the economic viability of production and preservation costs, which might include a useful role for the cold storage chamber. If this sunk investment is to become at all useful, these sorts of scenarios will need to be investigated through in-depth studies. Complementary investments in training and transport will need to be financed by other donors, since Dutch follow-through has been non-existent to date.

- Health Sector

During the 1983 transportation surveys in Kayes, a substantial number of non-commercially motivated rural-urban trips were generated by travel to obtain the curative services of city or village marabouts (Muslim religious leaders) but weighted in favor of reverse urban-to-rural movement. Rural health-motivated trips to Kayes focussed upon services available at the 95-bed General Hospital. This is the only full-service hospital in the region, and is the facility to which all cases are evacuated west of Kita in Mali. Farther to the east, cases are treated in Bamako, since Kita itself has only a health center. The Regional Health Service (Direction Régionale de Santé) includes a secondary hospital in Nioro staffed by two doctors, and two other doctors are attached to that city's health center. Even in the case of Nioro, only caeserians and emergencies are treated on site. Cases requiring specialized services are evacuated to the Kayes General Hospital. The poor quality of regional roads, and the scarcity and cost of vehicle transport in outlying areas, cause considerable hardship for rural people needing to obtain access to the hospital. An informal survey of hospital patients' origins during the consultant's mission revealed the clear advantage provided to rail-linked towns and villages. A USAID-funded landrover given to the Yélimané health center was the major means of patient transport from '78-'82. Seasonal change in road conditions alters service availability drastically, converting the four hour dry season drive from Yelimané to Kayes Hospital into an impassible situation during the rainy season. Though there are two doctors in Yelimané, they are not equipped to handle most types of surgery.

The Kayes Hospital heads a three-tier network of health services implanted in each administrative level. The

hospital, the regional pharmacy, and multiple outlets of the State-owned Pharmacie Populaire d'Etat are all located in the regional capital. There is a State monopoly of pharmacies in Mali. Seven circle capitals have health centers in Kayes Region; each maintains a maternity and runs maternal and child health programs. Arrondissement capitals also have health centers, with a more rural-standard maternity and maternal and child health program. On the lowest level of service delivery, some villages also have primitive health services. Some World Bank assistance is provided to circle health centers, primarily those in Keniéba, Nioro, and Kita. Pharmaceutical supplies are only regularly available within Kayes. Though circle capitals have CAC depots (Centres d'Animation Coopérative) which are supposed to be State-stocked, little is usually available.

In spite of the Kayes General Hospital's importance, as the keystone at the top of the regional health service system, investment in its structures has been almost non-existent since their construction in 1883, over 100 years ago. Within the facility, there is a virtual absence of tertiary equipment. The water pipes are blocked and, in fact, the entire hospital water supply, waste water evacuation, and sewage systems need to be redone. Needless to say, in such a poorly serviced and obsoletely designed facility, staff morale is extremely low, and sanitation conditions are truly appalling. Construction of a desperately needed half-finished new surgical pavilion was halted several years ago for lack of funds.

In spite of these problems, which require donor investment in hospital facilities, utility systems, sanitation training, and emergency evacuation vehicles to be garaged in smaller outlying towns, the Hospital is serving a crucial need for urban and rural users over a wide service area. Its consultations are affordable even to the poorest (600 FM fee); its staff includes eight doctors (five Malian, three Russian); and its wards provide an even distribution of hospital beds among pediatry, maternity, surgery, general medicine, and emergency cases.

- Savings and Credit

The Malian branch of the BIAO (Banque Internationale pour l'Afrique Occidentale/Mali) studied the domestic savings and investment potential of the Kayes Region in detail, leading to its decision to establish a Kayes branch bank, which was opened during the RHUDO consultant's mission. Over 10 billion Malian Francs per year are repatriated into the Kayes Region,

sent by migrants in France and throughout the West African coastal states. Postal payments understate this flow of funds considerably, recording only 3 billion FM from '76-'81. The progressive abandonment of this remittance mechanism has been caused by the Post Office's poor track record in facilitating timely payments, and provides an opportunity for private banking services to fill the demand for secure financial intermediaries. The BCM (Banque Centrale du Mali) reported that it transferred 14.9 million FM from external migrants to Kayes recipients in 1981 alone. With its network of branches in France and francophone West Africa, BIAO has a competitive advantage, and offers rapid transferral services and security.

Until the recent opening of BIAO's Kayes branch, BDM (Banque du Développement du Mali) had the monopoly on banking services in Kayes city. The BDM Kayes branch had 312.5 million FM worth of accounts in 1980, opened in the name of external migrants to France, comprising 27% of its total deposits. Group funds for mutual aid and investment have been established which are supplied by external remittances. BIAO recorded the existence of four such funds, which averaged 40 million FM each. In addition to these group savings, individual migrants were remitting, on average, 11,000 FF (French Francs) per year each. BIAO has targeted the attraction of migrant deposits to its new branch in Kayes, as the foundation of an innovative portfolio of commercial credit offerings, since it considers migrant deposits to be sufficiently long term to serve as security for commercial lending. These funds are usually deposited for at least 1-2 years or longer, and represent savings for house construction or marriage. BIAO is studying the provision of mobile banking services in major arrondissements in Kayes Region (Yélimané Central, Tanbakara, Kirané, and Aourou), and in weekly markets, and hopes to create new financial incentive packages to attract applicants for loans which would finance production equipment and durable consumer goods purchases. It would be appropriate for USAID to consider collaborating with BIAO Kayes to finance technical assistance and feasibility studies to explore these mobile service and innovative investment packages.

Until recently, BIAO presence in Mali was limited to two branches in Bamako, and one in Mopti. The initiative of opening the Kayes branch represents the bank's desire to tap key secondary city markets, and Kayes is attractive both because it receives the lion's share of national cash remittances and because substantial multi-donor OMVS investment is beginning to flow into the region. The BIAO has established a good image by rehabilitating a centrally placed

colonial architectural landmark as its Kayes office, providing a model for other restorations. Most of the city's historical architecture has been allowed to deteriorate, and many of the most impressive buildings are completely abandoned. In contrast, the BIAO restoration with its cheerful repainting (white with pink trim) has provided a real shot-in-the-arm highly visible on the river bank within sight of the central market. This restoration represents a much more impressive community contribution than the alternative of constructing a new modern building.

BIAO Kayes is headed by an extremely creative and highly motivated young Malian director. He is planning to offer attractive services for Kayes traders including the issuance of bank checks which they can cash more safely for payments in Dakar and two-day service for cash transfers between Dakar and Kayes. In order to provide an incentive for shelter sector investment in Kayes, he is contemplating establishment of a housing savings system which would offer preferential rates on construction loans to depositors who had kept a minimum balance at or above a set rate for at least three years. Commercial and industrial investment loans would also receive preferential terms. The bank is planning to finance an ice cream factory, and is discussing investments in iron, gold, diamonds, and aluminum extraction near Kéniéba, as well as exploitation by an American company of forests which will be floaded after Manantali dam completion. In order to attract new accounts to its Kayes branch, lower levels for minimum deposits have been established, requiring only 25,000 FM to set up an individual account, and 50,000 FM for a commercial one (versus 50,000 FM for individual and 500,000 FM for commercial accounts required at BIAO Bamako). The bank is also planning to set up an office at the Manantali dam construction site, to serve the well paid workers there. Local optimism about the services to be provided at BIAO Kayes is high. The consultant personally observed that every major political and commercial figure in Kayes attended the opening reception. As a local institutional vehicle for shelter sector investment, BIAO Kayes could be a potential recipient for a RHUDO Housing Guarantee loan. Such a project could build upon BIAO's example, to include some financing for the restoration of abandoned historical landmarks, thereby increasing tourist attractions in Kayes. The mayor has been hoping to attract a hotel chain to build a facility in Kayes for some time, and though exploratory visits have taken place, no commitments have yet been obtained. Extremely attractive riverside construction sites are available, and could, in fact, offer a viable tourist attraction en route from Mopti to Dakar, if the interest of a quality hotel chain could be

secured, supported by appropriate scheduling of transport service from Bamako via the most comfortable first class passenger trains.

- Power and Water Systems

In comparison with the low sanitation standards observed at the General Hospital, the hydroelectric power station and more recently installed diesel powered electric motors and water purification plant in Kayes are sparkling with cleanliness, a testament to the careful supervision, hands-on maintenance, and pride of workmanship of the dynamic regional office manager at Energie du Mali (EDM) Kayes. The hydropower installation dates back to 1927, and only produces 400 kw at full capacity now, because its obsolete design has made it impossible to obtain the spare parts needed to regain its original output level. The diesel powered supplementary facility should by now be producing an additional 1,313 kw, including a 1,000 kw new motor which was being installed during the consultant mission, and an older 313 kw motor which was being repaired at the same time. With all three power sources functioning, the system's capacity is 1,700 kw, expected to be sufficient to meet demand for the next five years. These improvements were financed by the utility itself.

Though the city had 1,800 subscribers for electrical services in January 1984, the largest consumers were small in number: the railroad and its hotel, and the Banque du Développement du Mali. Since it charges 86 FM/kwh, EDM estimates that individuals pay 5,000 FM/compound for electric lights each month, and users who also have refrigerators average 10,000-12,000 FM/month. User fee recovery is reported to be punctual.

By April each year, the water level is too low to permit continued production at the hydropower site, and if there is a shortage of diesel fuel (caused by foreign exchange difficiencies and national fuel allocation priorities), May through mid-June are low service periods. The inventiveness of the EDM regional director, however, has resulted in the lengthening of the period during which hydroelectric production can be maintained. Through convincing the local government to purchase thousands of used plastic grain sacks, which laborers filled with sand and stacked two layers deep along the dam's wall, he was able to raise the height of the plant's falls by 40 cm. Local water plants are used to seal the gaps between sacks. Fuel limits are still a major concern, since the hydropower facility alone can not meet peak hour demand (760 kw/hr between 8:00 and 9:00 PM). EDM Kayes

has a fuel reserve of only 40,000 liters. Its diesel is sent in from Dakar by train, arriving about two weeks after payments are received by suppliers. About 1,500 liters of fuel are used in a single night to meet the city's power needs.

Typical of most secondary cities in West and Central Africa, not all neighborhoods are connected to electric services. The oldest areas are the best connected: the city center, Khasso, Quinzambougou, Diyabougou, and the Plateau (including the governor's office). Daytime electric service is limited, targeted mainly towards the central city, the prison, government and commercial offices. Limited service to Kayes N'Di on the northern river bank is provided via cable. Many of the newer neighborhoods are unserved (Lafiabougou for instance).

Urban water systems are also managed by Energie du Mali. The antiquated water mains are severely under-sized (125 mm), and internal silt deposits over the years since 1930, when the pipes were installed, have reduced their interior diameters by half. The water treatment facility was installed in 1973, and includes settling tanks followed by chemical purification. EDM reports serving 1,422 subscribers for its Kayes water services including some public fountains, for which the Mayor's office pays the water rates, but service is concentrated mainly in only a few neighborhoods (Legal-Segou, Liberté, and the city center, with limited service on the southern edge of Kayes N'Di). Water system flow is unstable, varying with public electrical system output, since storage facilities are limited to one water tower and there is no reservoir.

World Bank financing supported several recent water system improvements in Kayes, the only secondary city investments proposed to be funded by the Bank's Malian urban project. The most important improvement was the relocation of the water system intake to a deeper part of the Senegal River on the eastern edge of the city, where year round intake would be feasible. The original water intake point was located in the vicinity of fluvial sand bars, which dried up during the dry season. The World Bank project installed a small number of new water mains and a public fountain at the point where the submersible causeway enters Kayes N'Di, however, most of the unserved neighborhoods were not touched by these limited upgrading efforts. A priority should be assigned to investments in extending water distribution networks, repairing dysfunctional public fountains and installing new ones in unserved neighborhoods, as well as expanding water storage facilities.

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Wood is used for all urban food preparation, and is transported mainly by donkey cart from up to 67 kilometers from the city. Deforestation closer to Kayes has created the need for these longer distance supply chains. Urban-dwellers invest in donkeys and carts, and hire migrant rural male laborers as cart drivers, cutters, and collectors of wood. The system is fairly elaborate, involving rotation of carts in many cases (a driver arrives in one cart, and starts back immediately with another, while the first donkey rests and his cart is loaded). If one circulates in the densest inner city neighborhoods, one frequently sees donkey stables in domestic courtyards, some with up to six animals each, representing a substantial level of investment. Given the importance of this means of transport in the region, in view of the poor quality of regional roads, consideration should be given to a credit program, perhaps administered by BIAO Kayes, which would increase the availability of funds for donkey and cart purchases. The Ministry of Water and Forests collects fees for tree-cutting permits within the classified forests under its administration, and controls the quantities and species which can be harvested, but much of the wood sold in urban areas is cut elsewhere. Acacia senegal is a protected tree species and harvesting of "roniers" (used as framing members in house construction) on its lands is monitored by the Ministry.

Historically, the "neem" tree has been frequently used in Kayes to stabilize floodprone river banks. For instance, the northern bank of the Senegal River was planted in neem trees after a disastrous flood washed away the southern portion of Kayes N'Di in the '60's, and these trees have now reached an impressive girth. Within Kayes neighborhoods, the "neem" is also a popular shade tree, and can be seen in many courtyards, or lining streets. The Ministry of Water and Forests has undertaken an impressive urban reforestation program, assisted by German aid from 1980-82. In only three years, the project was able to establish a "green belt" of approximately 250 hectares of "neem" trees on the southern edge of the city, using seedlings germinated in a four hectare nursery built with project funds 12 km. west of Kayes, on the road to Samé. After 6-7 months in the nursery, the young trees are ready for replanting in the green belt. The "neem" was chosen because of its rapid growth rate, ease of germination, and drought resistance. After they reach maturity, selective harvesting of green belt trees for fuel wood will be permitted. The nursery, which was visited by the RHUDO consultant, is extremely well organized and maintained. The facility uses a pump to irrigate the planting beds with Senegal River water, and aside from producing 100,000 "neem" seedlings per year,

its highly motivated supervisor is growing fruit tree and eucalyptus seedlings (the latter are slower growing, but are also planted in small quantitites in the green belt). The green belt will make an effective contribution to erosion control, a major problem in Kayes. Ravining of the access roads in recently developed neighborhoods is severe, and many sites can not be reached even by four wheel drive vehicle. The southeastern edge of the city is bounded by a wide and rapidly expanding swale, which was not included in the green belt area, and still needs to be stabilized by neem plantations. A number of millet fields are being eaten away by this gulley.

The Ministry's project, though no longer externally funded, offers an exciting vehicle for the extension of AID's Mopti Region rural reforestation activities into the First Region. The Ministry hopes to supply trees from its nursery to peasants for replanting in smaller towns and villages in the region. Historically, Kayes has been effective in exporting sylvicultural innovation to its rural hinterland. Rural visitors to the city frequently obtained mango cuttings and seedlings in Kayes for replanting back in their villages. This historical pattern, complemented by existing German nursery investments and the horticultural skill and dedication of the Ministry's workers, combine to produce a readily available context for USAID project development. The Ministry has proposed to provide neem seedlings free to peasants who must, however, arrange transport for the plant material back to their rural areas. Given the limited availability and high cost of transport in the Kayes Region, this initiative is likely to be unsuccessful, unless donor support for the transportation component could be obtained. Simultaneous support for the testing, reproduction, and dissemination of productive trees (dates and other fruits as well as dry season animal feed supplements like leucina) could be included in such a project, based upon identification of the most ecologically appropriate species by a USAID consultant. The International Livestock Center for Africa has a branch in Mali, which could assist with this program, drawing upon alley cropping leucina trials conducted by its Ibadan branch for the production of small ruminant feed.

Another possible project activity in the energy sector, which would serve USAID rural development interests through a focus on Kayes-based institutions, is created by the flooding, (within a relatively short time frame) of substantial forestry reserves upriver of the Manantali dam site. A major bottleneck for USAID's proposed assistance to the expansion of the irrigated perimeters on the Senegal River, after the dam

becomes operational, will be the problem of fueling irrigation pumps. This is especially true given the combined impediments of scarce foreign exchange reserves to finance petroleum fuel imports, the scarcity of fuel depots, and the logistical difficulties of transport in the Kayes Region. Since BIAO Kayes is interested in packaging exploitation of the soon to be flooded forest areas, it might be possible for USAID to provide technical and financial assistance to the development of large scale charcoal production in this area, which could be combusted in a "gazogene" to power a small scale irrigation pump. Since return from Mali, the RHUDO consultant has continued to explore the technical feasibility of this type of irrigation system, and discovered that IPNETP (Institut Pédagogique National de l'Enseignement Technique et Professionnel) in Cocody, Abidjan has recently received FAC financing to built and test two different prototype "gazogene" pumps. The prototypes are now being built by students over the next two months, and will then be tested by the government-owned Laboratoire de Bâtiments et Travaux Publics, also in Abidjan. The pumps will be wood-burning, and are expected to run for about five hours after being filled with small morsels of wood (6-7 cm. blocks), an energy output (10 kwh) equivalent to the combustion of 30 liters of petroleum gas. The pump will use a Renault 4 motor, modified to accommodate the low grade wood gas produced by the "gazogene". The volume of water which could be lifted by the prototype pump would depend upon the elevation to which water was being lifted, but the following approximate capacities are expected:

30 $m^3$ of water per hour lifted 30 meters in height;
50 $m^3$ of water per hour lifted 24 meters in height;
100 $m^3$ of water per hour lifted 10 meters in height.

Conversion of the IPNETP irrigation pump to charcoal combustion would seem to be feasible, based upon initial discussions. There would be a significant energy loss involved in converting Manantali wood to charcoal, but this would probably be economically justified by transport and storage cost savings. The energy output of combusting 6-7 kilos of wood is equivalent to that produced by combusting one kilo of charcoal, but since about 50% of the wood gas is lost in transforming wood to charcoal, it will require 14 kilos of dry wood to produce the energy equivalent of 1 kilo of charcoal. The gas produced by charcoal combustion would be richer in quality than wood gas, requiring modification of the

IPNETP motor for such a pump. The cost of raw materials for the prototypes which are now being built has been estimated at about 300,000 CFA per pump, including the production by an Abidjan supplier of a specially designed stainless steel bottom for the combustion chamber, which is beyond IPNETP's workshop capacity. Free student labor will be used. It is recommended that USAID Mali, in combination with the regional USAID "Energy Initiatives for Africa" project, investigate this possibility further, initially through commissioning technical and economic feasibility studies, in collaboration with IPNETP, to test the viability of charcoal-burning irrigation pumps. The prototypes could then be field-tested by USAID in Mali. If they are found to be technically and economically viable, credit could be provided through BIAO Kayes for (1) industrial charcoal production, (2) irrigation pump replication by local metal workers, and (3) contracting of transport services from charcoal plant to irrigated perimeters through the Kayes Coopérative du Transport Routier. Faculty at IPNETP are interested in collaborating with USAID Mali to provide the technical assistance components of such a project, and USAID's Energy Initiatives for Africa leader is also enthusiastic about exploring these project possibilities further, if given a green light by USAID Mali.

- Education

Secondary education is a major resource provided by cities for their rural hinterlands. In Kayes, the most important State-owned schools are the Lycée (which offers training up to the second part of the baccalauréat degree in the French system, usually preparation for further studies at either the Bamako Ecole Nationale d'Enseignement Supérieur or a University outside of Mali), and the Institut Pédagogique d'Enseignement Général (IPEG) which trains the region's primary school teachers. The privately owned Collège Technique Moderne, a branch of a French-based institution, also provides a diploma course in commercial skills (office management, typing, accounting), producing about 30 graduates per year who have difficulty finding employment in Kayes. Because of the importance of secondary education in enhancing one's competitive advantage in obtaining employment through long distance migration, Kayes residents have successfully lobbied for substantial local investments in first cycle secondary educational facilities, as shown in the following statistical tables. Most students pursuing training beyond the first six years of secondary school, however, must relocate to the capital, in which higher education facilities are still concentrated.

Circle of Kayes:
Number of Secondary Schools, 1982-83

| | |
|---|---|
| First Cycle (6 years) | 46 |
| Second Cycle (3 years) | 6 |
| Complete Cycle (9 years) | 7 |
| TOTAL | 59 |

Circle of Kayes:
Secondary School Enrollments, 1982-83

| | |
|---|---|
| First Cycle | 13,290 |
| Second Cycle | 1,963 |
| Complete Cycle | 616 |
| TOTAL | 15,819 |

Typical of many Muslim Countries in West and Central Africa, male secondary school enrollments in Kayes far outweigh female enrollments:

Circle of Kayes:
1983-84 Enrollments

| | |
|---|---|
| Males | 10,529 |
| Females | 5,797 |
| TOTAL Students | 16,326 |

USAID action on the national level, which would support the Malian government's willingness to decentralize higher education among the regional capitals, (e.g. financing of superior school construction in Kayes) would decelerate educationally motivated migration to the capital, and would generate local economic spin-offs. Aside from government salaries, student fellowships form the largest share of the Malian national budget.

In keeping with the importance of agricultural activities in Kayes circle, the government has ensured that almost half of its secondary schools have agricultural training programs focussing on millet, sorgham, and corn, and an even higher share have market garden demonstration projects (49 schools). All schools teach reforestation. USAID project support to the Ministry of Water and Forests, for its Kayes-based establish-

ment of a rural reforestation project, could integrate activities in the schools, using the students as informal extension workers during their return to rural areas in the vacation period.

The contributions of private voluntary organizations to the educational sector in Kayes have been reduced substantially over the years. At this time, there are only three schools in the Kayes Region which are supported by the Catholic Diocese, including one in Kayes city, though the Diocese formerly operated many more. Financial limitations have forced the Diocese to turn over the rest of its educational facilities to the government. Even for these few remaining Diocesan schools, the Church is able to finance only operating costs and 20% of the teachers' salaries, relying upon the Malian government to pay 80% of teachers' salaries. Discipline and teaching standards at the Diocesan school in Kayes have suffered over the past three years, though formerly it was favored by high government administrators for the education of their children, and its students' test scores have been declining accordingly. Its graduates receive the Diploma of Fundamental Studies, and generally move on to nursing or primary school teachers' training programs.

Opportunities for nonformal education in Kayes are limited. Expatriate Catholic sisters operate a women's center for female school dropouts, offering a three-year course in sewing, hygiene, and childcare to about 40 young women at a time. In the evenings, married women are offered the same training, attracting primarily the wives of government officials, since 3-4 years of prior schooling are required for entrance. Continuing education for government teachers in market gardening and sewing is provided during a month long course once a year. Concerned by what the Diocese perceives as "a lack of professional consciousness" among young Malian government workers, Catholic interests have raised over $300,000 in European donor funds to build a training center on the outskirts of Kayes, which is under construction at this time. The center's facility will include a 25-bed dormitory, lecture halls, and meeting rooms. Seminars and short courses will be offered on work ethics, aimed at increasing dedication to duty and building morale, designed to especially target agricultural agents, teachers, and nurses. The program seems too soft and paternalistic to justify such an expensive construction project, but it may be possible to develop more productive training programs which could make use of the facility to teach employment-generating skills.

Eligibility for learning artisan production in Kayes was traditionally limited by clan and ethnic group membership, and

opportunities for nonformal training through apprenticeship to an urban artisan are becoming fewer in number every year. Mme Keita, during her in-depth research in Kayes city over a decade ago, had already noted the decline of traditional shoemakers' production, which could not compete with cheap imported manufactured shoes. These shoes (mostly produced by BATA in Dakar) still flood the Kayes market. The city had been well known for its high quality artisanal jewelry production in the past, but a rapid survey by the RHUDO consultant revealed that many of the most famous family-based jewelers' establishments (identified by name in Mme Keita's 1972 research in Kayes) had either moved to Bamako or Dakar. Even opportunities to learn the fishing trade have been reduced substantially, since most of the Kayes fishermen have migrated closer to the Manantali dam site, in response to demand created by the construction workers. The only major artisan activity, observed by the consultant throughout Kayes, was male dry season weaving of strip cloth, which is then sewn into women's skirt panels. This cash-earning activity remains strong because of lack of alternative dry season employment, and is primarily producing cloth for sale on the local market. Kayes weavers seemed to be producing a lower quality cloth at a higher price than was charged in Bamako, another indicator of economic decline, since earlier in the city's history, Kayes weavers exported large quantities of cloth to meet Senegalese demand.

- Private Voluntary Organizations (PVO's)

Aside from involvement in education, private voluntary organizations have initiated few development activities in Kayes, a situation which is also found in other parts of Mali, since PVO's are typically church-supported, and are discouraged by the Muslim majority. The Diocese supplies the city's dispensary with medications, and provides four nuns as its administrative staff. The Malian technical staff (a nurse and three health aids) are funded by the Mayor's office.

The most important Kayes-based PVO development project is the Diocesan "Opération Puit", headed by a Dutch volunteer, which is supporting well construction in selected rural villages. Four teams of three villagers each have been trained to use explosives to deepen wells beyond the rock zone, up to which hand digging can be used. The project has found that wells must be from 10 meters up to as much as 25 meters deep before water is reached. The wells are then lined with rounded bricks. The past three years' funding by a Belgian organization will be ending soon, but the Diocese has been looking for new donors. There has been a constant lowering of

the local water table, which indicates that 3-5 meters of extra depth will have to be dug in most of the project's wells. If continuation funding is secured, the Diocese hopes to experiment with small concrete-covered earth dams in marshy areas, to accelerate the recapture of rain water into the recharge area of its wells. During 1983, the project dug 21 new wells, of which three already require deepening. Of these wells, 13 were successful, but 8 found no water, or were too slow in refilling for viability. The project staff have limited technical skills, as shown by this hit-or-miss performance record. A stronger Kayes-based training program in well construction could be developed, with USAID technical and financial support, building upon the Diocesan interest in coordinating such a project. Protestant activities in Kayes are confined to evangelism. USAID could play a pivotal role in attracting and supporting the establishment of Kayes-based branches of other PVO's active (or interested in becoming active) in Mali.

- Housing Investment and Construction Projects

Almost one-fifth of the urban area is under construction at this time, primarily in the newly developing neighborhood of Lafiabougou, in the southwest portion of the city, and in southern Liberté. This is a surprisingly high level of privately financed durable construction activity, especially in the context of Kayes' apparent economic decline. Almost all of the half-finished houses in this area are being built of cement or mixed cement and abobe block. Though lots have been laid out by the Direction Régionale d'Urbanisme in most cases, leaving wide public rights-of-way for road development, no public works (services, drainage, road construction, etc.) are being undertaken, and the denuded carriageways are rapidly becoming cliffs and gorges. It is difficult to drive from one part of the construction zone to another because of the discontinuous access caused by this erosion. Informants claimed that most of this housing activity represents the immobilization of local traders' savings, which would otherwise have to be redistributed to family members requesting loans and gifts.

The Direction Régionale d'Urbanisme has a small staff of construction technicians and draftsmen with limited skills, but no urban planners. Its activities are focussed upon preparing subdivision plans and designs for public construction projects, as well as reviewing construction permit applications. In-service training in a more integrated approach to urban analysis and planning is definitely needed. The Regional Director did not even know that a hydropower

facility was supplying a major share of the city's electrical power.

Building permits are only required for durable construction, and enforcement is not very thorough. Only 86 permits were requested in '82, and another 88 permits in '83, though a much higher level of construction was observed during the field reconnaissance. For proprietors who obtain building permits before construction, and certificates of completion afterwards, a five year exoneration from real estate taxes is provided for rental properties, and 10 years are tax-free for owner-occupants. Building permits are reviewed by all five ministries concerned with urban services, construction, and public health (EDM, Urbanism, Topography, Health, and Land Registration). Though theorically this would provide coordination in the servicing of development sites, in reality the combined lack of public investment, legal enforcement, and technical expertise results in unsupervised land development. The Kayes Topographic Service maintains only a rather schematic base map. Many of the older densely built neighborhoods, in which no carriageways were laid out, can be negotiated only by foot or by donkey (Legal-Segou, Plateau, and Liberté). The Topographic Service has made no effort to map these areas.

A substantial number of public projects are under construction, aside from those described earlier (the recently completed EDM/World Bank water system improvements, and the aborted surgery pavilion at the General Hospital). These are primarily public buildings including offices and housing for the government's Opération Puit, the Social Security Ministry, and the Education Ministry, and extension of the governor's complex to accommodate the Direction Régionale de la Coopération. Religious groups are financing construction of a mosque, an Islamic tribunal, a Catholic church, and an extension to the Protestant mission.

It is encouraging to note that during the consultant's field trip, a privately-owned Italian business (Petro-stock Bamako) arrived to initiate negotiations with the Kayes local government to secure a construction site for a gas, diesel, and fuel oil depot on the western edge of town. Discussions of more visionary schemes have also been initiated by the Mayor's office including relocation of the city's airport to a site north of the river in Kayes N'Di, to allow housing expansion to the south of the city; construction of a new neighborhood market in Lafiabougou; and discussions with Canadian bilateral aid on design of a river port near the center of town on the Senegal's southern bank. None of these

projects is considered by the consultant to be an investment priority. The mayor favors replacement of the existing causeway (which is submerged from July to September or October each year) with a bridge, however even after Manantali dam completion raises the river level, cross-river traffic should be accommodatable through upgraded ferry services. The Ministry of Public Works' ferry can currently carry only two trucks at a time. The existing system allows free passage for publicly owned vehicles, and only imposes a 750 FM - 1,000 FM charge per crossing on private vehicles, so the operating costs of even an upgraded ferry service would require an economic feasibility study.

Local municipal revenue generation is extremely limited. The motley assortment of income sources includes: police fines, commercial license fees, market stall rents, annual vehicle taxes, a 500 FM/year head tax, 3000 FM/month taxi parking permits, a tax per animal slaughtered imposed on butchers, a tax on push carts, and fines charged for unsupervised livestock. The city's annual budget of $4 (US) per capita can barely support minimal salaries along with gas and repairs for official vehicles. Only two trucks are available for all urban services (garbage collection, drainage canal cleaning, road maintenance), and the city possesses none of the equipment or labor needed for neighborhood road construction (bulldozers, graders, etc.). Road construction, maintenance, and drainage are priorities for urban construction investment, but are completely beyond the means of local government at this time.

- Local Institutional Strengths and Weaknesses Critical to the Success of OMVS Investments in Kayes Region

USAID concern has already been raised by a 1981 FAC study, which stated that local markets in Kayes could only absorb about 200 tons of fresh vegetable production per year, equivalent to the production of only 40 hectares of irrigated perimeters in comparison to the 8,000-10,000 hectares in the region which will be potentially irrigable after Manantali dam completion. A staggering amount of institution-building, technical assistance, and credit provision will be needed to set up production on the perimeters, establish an agricultural transformation and conservation industry, and design and implement a transport and marketing strategy.

Over $32 million will be invested by Italian bilateral aid alone in the Kayes Region over a five year period, funneled through the FAO. Though USAID is concerned that the shopping list of Italian-funded investments includes an overly

ambitious and too wide-ranging approach, it is undeniable that a number of the package's elements will begin to meet locally defined investment priorities in Kayes, notably:

a) improvements to the Ségala-Yélimané road ($1,230,000);
b) upgrading of 250 kms of rural roads ($2,500,000);
c) modernization of the Felou hydroelectric station ($1,000,000);
d) a feasibility study of 1600 hectares and rehabilitation of 150 hectares of irrigated perimeters downstream from Kayes ($1,110,000);
e) training of forestry agents ($70,000);
f) agricultural credit for inputs, equipment, and draft animal ($380,000);
g) credit for storehouses for collective grain storage ($100,000);
h) support to the regional veterinary center including creation of a lab for preventative and curative treatment and establishment of a better health data base ($139,000);
i) regional forest restoration and building of a sawmill in Kayes ($833,000);
j) technical assistance to the regulation, organization, and marketing of the fishing industry ($250,000).

It is a matter of major concern, however, that the Italians are proposing to invest only $400,000 in development of a support system for cash crop production and marketing, which is in many ways the most essential input, while on the other hand, investing substantial sums in virtually unnecessary facilities (e.g. rehabilitation of the Kayes slaughterhouse).

The Kayes-based government organization which is responsible for organizing and servicing the exploitation of existing and future irrigated perimeters in the Kayes Region, OVSTM, is currently only able to maintain 70 hectares in the vicinity of Kayes under exploitation, by its own admission, out of the 267 hectares already irrigated (including 50 hectares financed by USAID during the 1978 Accelerated Impact Program). Though legally mandated to provide a full range of services (training for smallholder producers; consultation on crop choices and rotations; provision of inputs including fertilizer, seeds, credit, spare parts for irrigation pumps, and motor fuel), OVSTM has no budget to provide anything but training assistance. The producers themselves are expected to obtain and finance fuel purchases and other inputs, and to form management committees which will conduct their own marketing, through URCAK (Union Régionale des Coopératives Agricoles de Kayes), the umbrella organization which represents producer

interests. OVSTM apathy, in the face of the key role which it is expected to play in the coordination and servicing of the expansion of Kayes Region irrigated perimeters, is evidenced by its director's lack of interest in the Dutch-financed cold storage chamber which will be a major part of his project's capital inventory. The irrigated perimeters project will have little chance of success unless dynamic and highly motivated institutional leadership is put in place, supported by coordinated phased investments in (1) strengthening technically competent extension services, able to organize producers on a wider scale, (2) increasing the availability of cost effective transport services from farm gate to markets, (3) creating, from the ground up, an agricultural processing and conservation industry and (4) establishing effective systems for supplying inputs and credit to service producer organizations.

Existing producer cooperatives which are exploiting the irrigated perimeters in the vicinity of Kayes are small in number, and by many reports, are falling apart. The CAMS (Coopérative Agricole de Soumankidi), a cooperative formed by Sarakollé émigrés returning from France, controls 20 hectares and was formerly used as a model for a highly motivated energetic group. More recently, internal disagreements have precipitated the departure of several members, and only seven couples, at most, are still active.

The small number of existing producers (257 members registered in eight cooperatives by the government's Centre d'Assistance Coopérative) can get by without training in marketing, selling their production directly in the Kayes market, even though already spoilage of surplus tomato production already occurs periodically. Vegetable garden surpluses produced from December to February are difficult to market in Kayes, followed by a relative scarcity of garden products from March to November. If economically competitive with the cost of importing vegetables from Dakar and southern Mali, Kayes surplus production could be stored in its frigorific chamber for release during the dry season on the local market. Producers are unwilling, however, to take the risk of paying for transport to Bamako, where they might only find the market already saturated, or priced at a level which will not cover their costs.

To meet OMVS employment and production goals, a much stronger institutional base in both government and the private sector will need to be established. Working only with cooperatives composed of individual smallholders may not be an adequate approach. There are several medium and high level

entrepreneurs (many of whom are also prominent in local politics) who are effectively exploiting irrigated perimeters near Kayes, through employing hired labor. For many peasants, being a salaried employee on an individual investor's perimeter may be a more attractive apprenticeship than assuming, from the outset, all the risks of smallholder production. USAID credit and technical support for the development of some irrigated perimeters by major Kayes entrepreneurs, or as professionally managed investment opportunities for external remittances, might actually facilitate long run equity goals, by providing a technically efficient incubator experience for the initiation of future smallholders into new production and management techniques. During research for the Rural-Urban Profile in Zaïre, it was discovered that many migrants were leaving their villages to seek salaried agricultural work on the outskirts of secondary cities, primarily because they preferred to avoid the risk and delay of waiting for post-harvest cash receipts, even if the returns might be higher.

Kayes city is also the headquarters for one of the three ODIPAK (Office pour le Développement Intégré des Productions Arachidières et Céréalières) zones in the region. This government agricultural development operation was originally established to promote groundnut cultivation for export, but has been diversified since 1981 pursuant to the failure of groundnut production. ODIPAK Kayes has more dynamic leadership than OVSTM, but is still in an experimental stage, studying existing rainfed peasant farming systems in order to develop the technology packages it will eventually try to promote. The southern portion of the zone administered from Kayes has much better production potential than the poorly watered area near Kayes, but the southern (Kéniéba) area is extremely disadvantaged by its inaccessibility. Bafoulabé also has surplus cereal production potential in normal rainfall years, according to ODIPAK. Since Bafoulabé is not adequately served by private transporters, a 100 kilo sack of millet may sell there at only 25% of its usual market price. Because of the poor access conditions in the productive areas of Koundian and Bamaflé, which are cut off by marshes, ODIPAK agents based in Kayes are unable to effectively conduct training activities for producers there. Linked by good roads to Bamako, and then by rail to Kayes, Sikasso oranges can be sold cheaper in Kayes than the more expensive and logistically difficult to transport oranges from Faléa, in the south of Kayes' own region. Lacking access to markets, producers in the southern part of the region lack any incentive to increase their production, in spite of relatively favorable environmental factors.

Throughout Kayes city, everywhere water and urban waste land are both available, vegetable gardens and mango trees are being carefully tended (e.g. the Hospital grounds, and a strip of low lying land which separates the warehouses on the Senegal River from the neighborhood of Légal-Segou). Wherever environmental resources and marketing incentives are both present, Kayes residents are responding with economically rational financial and labor investments in food production. This initiative can be tapped by the OMVS perimeters, but major road and transport service investments will be required as well as producer training and marketing structures.

Regional statistics, necessary as base data for economic development planning, are extremely primitive. During the consultant's mission, it was discovered that no economic statistics had been published by the Plan Ministry's office in Kayes since 1976 (an eight year lag), and an extremely limited (not very revealing) set of data is monitored. With a staff of only three professionals in Kayes and no resources for data collection missions elsewhere in the region, this paucity of data is not surprising.

# VII. STRATEGIES FOR PROJECT DEVELOPMENT

Project development strategies and programmatic concerns have been described in detail under the appropriate thematic subheadings of this Profile. The following outline highlights some of the major suggestions which are proposed for USAID and RHUDO consideration, with a focus on Kayes, though next steps in a broader national program are also listed.

A. National Level Proposals

1. Assign a program priority to secondary city economic development in order to decrease Malian dependence on external employment markets, and to decelerate Bamako-oriented onward migration.

2. Target job-creation assistance towards the modern informal sector in secondary cities, since these types of activities have the greatest impact on economic development.

3. Develop the Malian human resource and institutional base needed to cope with projected rapid urban growth and a decentralized secondary city focus, especially by providing training in urban analysis and investment planning.

4. Encourage investments in secondary cities which have the elasticity to meet the dry season peak demands on their infrastructure and capacity for employment absorption, which are generated by the annual rural-urban migration cycle.

5. Support the decentralization of Malian technical and higher educational facilities and administrative services on to secondary city sites outside of Bamako, in order to decelerate migration to the capital and create local economic spinoffs.

6. Develop Malian expertise in integrated regional development planning, by providing financial and technical assistance to the Ministry of Plan, which has proposed a multi-disciplinary team effort to develop a Mopti Regional Development Plan. RHUDO support for the integration of urban planning expertise into the plan's preparation is recommended. (See Annex for more detail.) As an initial effort, USAID support for a case study of Mopti is recommended, since the city is one of the most attractive destinations for migrants outside of Bamako and its economy has considerable growth potential and diversity, thanks to its Niger Delta resource base. Mopti Region is likely to become a

region of focus for USAID programs within the next 4-5 years, so current support for this integrated regional planning effort would be timely and could lay the groundwork for future project development.

7. Decrease the cost of rail transport to markets, a key element within an irrigated perimeters' marketing strategy, by decreasing the turnaround time of railroad rolling stock. This would require management studies on existing practices including the utilization of warehousing, off-loading procedures, fine and fee structures, but would entail minimal capital investment. This action would only be effective if supported by a government commitment which would curtail its own inefficiencies in use of the rail system, which are primarily attributable to the delayed off-loading of its own shipments.

8. Develop criteria for the essential minimum infrastructure needed in all centers of over 5,000 population and an updated inventory of the existing facilities in Malian cities and towns (fuel depots, pharmacies, public water points, schools, and dispensaries). Using this base data, a strategy could be developed for installing needed facilities in the most disadvantaged towns which are serving the densest concentrations of the rural population, linked by selective improvements to strategically important roads.

9. Target secondary cities like Segou, which are experiencing high rates of rural female in-migration during the dry season, for women-in-development projects.

10. Capitalize on the historically important role of cities as exporters of technical innovation (especially new tree varieties) to rural areas, by siting regional reforestation projects in urban areas like Kayes. Peri-urban reforestation is critically needed to replenish depleted fuel wood reserves and to control erosion (which is accelerated by urbanization).

B. <u>Kayes Pilot Project Components</u>

1. Invest in Kayes Region roads, with the aim of decreasing the cost of road transport to Senegal and of providing market incentives which will promote increased rainfed agricultural production in the

southern part of the region. Priority should be assigned initially to the Kayes-Kidira, and Kayes-Ségala-Yélimané roads. Standards have been consistently reduced for the USAID improvements to the Kayes-Nioro road. It will be important to assure that adequate minimum standards are maintained for budgeted improvements to roads, or else risk having no measurable impact. Priority should be assigned to route alternatives which serve the densest concentrations of users (in the choice between alternative Kayes-Nioro alignments, for example). Road improvements are critically needed in order to restore crossroads functions which would stimulate the Kayes's economy. River transport investments are not likely to be able to provide this stimulation, since river trade has declined to a negligible level, and rail transport is a more competitive alternative for river-serviced destinations.

2. Collaborate with the Kayes branch of the BIAO (Banque Internationale de l'Afrique Occidentale) to provide matching capital and preferential interest rates which will attract migrant remittances into productive investments, especially in agricultural technology, processing and conservation industry, and transport (vehicles, motorized pirogues, donkeys and carts). Entrepreneurs should be encouraged to develop irrigated perimeters which provide salaried jobs for workers, as incubator training sites for future smallholder producers. The RHUDO should consider providing HG loan funds and technical assistance to the shelter sector in Kayes through BIAO loan management. Whenever possible, project activities should contribute to the restoration and reuse of historical architecture in Kayes, rather than financing new buildings (for project offices, schools, etc.). This will contribute in the long run to the economic viability of tourism in Kayes.

3. In addition to the provision of individual and cooperative credit, support the development of an agricultural processing and conservation industry through financing marketing and transportation studies, technical training, research on crop choices and planting schedules, import or local fabrication of machinery, and the preparation of serviced industrial or artisanal production sites (including access to public water and power systems). These efforts should include in-depth economic feasibility

studies designed to incorporate the Dutch-financed cold storage chamber into marketing strategies for the irrigated perimeters. Complementary investments in refrigerated trucks or rail cars may be needed for transport from chamber to market.

4. The highest priority urban infrastructural improvements are (1) extending water service into recently developed neighborhoods, repairing and installing new public fountains, and enlarging urban water storage facilities; (2) construction of urban roads, erosion control, and drainage; (3) extension of electrical services to sites with industrial processing potential, and to unserved neighborhoods.

5. Initiation of a rural reforestation and erosion control program in Kayes city through support to the Ministry of Water and Forests for extension and transport of seedlings. USAID technical assistance could identify a wider range of tree species for dissemination, beyond the "neem" already being grown by the Ministry, potentially including fruit trees and dry season animal feed supplements.

6. Support the Coopérative du Transport Routier (CTR) in Kayes, through contracts for Manantali Resettlement Project transport, and credit for expansion and renovation of the Kayes-based vehicle fleet, as part of a long term strategy of private service sector job creation.

7. Though river transport is not seen as a competitive long distance alternative to rail and road transport from Kayes, if donor commitments are made towards port construction and removal of downstream channel obstructions, a whole new structure for river exploitation will need to be created and financed, because of the relative lack of current investment and activity in this sector in Kayes. Support to CTR (for private sector encouragement) and to reinstate CAMANAV (state-owned) activity in Kayes would be required.

8. An integrated approach to meeting regional fuel needs could be developed as a pilot project, including: (1) collaboration between IPNETP (Institut Pédagogique National de l'Enseignement Technique et Professionnel) in Abidjan and USAID to develop and test prototype charcoal-combusting "gazogene" irri-

gation pumps for use on the irrigated perimeters, (2) support to BIAO for packaging industrial charcoal production to exploit forests which will be flooded after Manantali dam completion, and (3) provision of CTR transport from charcoal production sites to the irrigated perimeters. Complementary program components would also be required, involving technical training and credit for (1) local pump fabrication and maintenance, (2) rafts and motors to float the pumps between perimeters being served by a single investment, and (3) construction of charcoal storage facilities. The case study on Kayes contains additional detail on this project concept.

9. The cooperatives already exploiting irrigated perimeters near Kayes are few in number, poorly trained, and not well organized or serviced. Major remedial action and extension of services to smallholders as individuals and as cooperatives will be needed to meet USAID's production goals, including institution-building within OVSTM, CAC (Centre Assistance Coopérative), and URCAK (Union Régionale des Coopératives Agricoles de Kayes).

# ANNEXES

A. Supplement to "Strategies for Project Development"

- Malian Institutional Collaborators

- Integration of Urban Development into the Mopti Regional Plan

B. 1981-1985 National Plan Allocations

C. Persons Contacted

D. Bibliography

## A. SUPPLEMENT TO "STRATEGIES FOR PROJECT DEVELOPMENT"

- Malian Institutional Collaborators

The Direction Nationale de l'Urbanisme et de la Construction, in the Ministry of Public Works, is the Malian governmental unit directly responsible for urban planning. The department has its central office in Bamako, with branch offices in each of the regional capitals. In the Urban Direction's January 1981 policy statement "Les Grandes Orientations de la Politique Nationale de l'Urbanisme et de l'Habitat dans le Cadre de l'Aménagement du Territoire", a major concern with equitable regional economic and social service distribution is expressed, and an appreciation of the important contribution of urban areas to national development. The statement outlines the major urban problems as seen from the administration's point of view especially:

- limited and ineffective past national plan investments in the face of high unemployment and rural exodus;

- unplanned, disorderly urban development, with official efforts allocating parcels far from the city while spontaneous settlement continues on the urban fringe and often occupies public service parcels;

- a limited national view of urban development planning which focuses only on land subdivision without coordinated installation of utilities, feeder roads, etc.;

- wasteful use of urban land by speculators' undeveloped holdings;

- lack of effective public participation in urban development planning, and lack of inter-agency governmental coordination;

- external financing, as the only source of capital infrastructure investment available, is allowed to side track governmental efforts into a piecemeal response to opportunity, without an overall plan.

In response to this problematique, the Direction de l'Urbanisme has defined its goals for urban growth management including: (1) reform of urban land registration and allocation, (2) reduction of the distance between housing areas and social service/employment areas; and (3) increasing of the supply of decent housing available at a reasonable cost. The Direction recognizes that implementing this approach requires employment generation, the extension of

public utilities to unserved neighborhoods, improvements to urban transport, and increased control of land speculation and orderly land subdivision, through mobilizing local financing and participant collaboration.

Legal reform in the urban sphere has begun through a review by the Direction of existing statutes. The key legal instrument which has been defined by the Direction de l'Urbanisme is the Urban Master Plan ("Schema Directeur d'Aménagement d'Urbanisme") which is expected to include spatial plans for urban land use, infrastructure networks, transport organization, expansion zones, private and public development plans. The Malian administrative structure recognizes urban communes, currently defined to include Bamako (an urban district plus six communes) and all of the regional capitals, plus Kita, Nioro, Kati, Koutiala, San, and Bougouni (the only new commune recognized since the 1976 census). Aside from Bamako, all of these communes were cities of over 10,000 population at the time of the 1976 census. In preparing the urban communes' Master Plans, the Urban Direction relies heavily on its central office staff, who return to prepare the document at Bamako headquarters after the field survey phase, and the effort includes the participation of the communal council and communal administration.

Implementation of the enabling legislation to date has included the publication of urban Master Plans for Bamako, Segou, Koulikoro, and Sikasso, with preparation of the plan for Mopti now underway, and Kayes scheduled as the next commune for Master Plan surveys. For this reason, the Direction expressed a preference for a focus on Kayes for the RHUDO case study, hoping to include this contribution in Master Plan design. Though this detailed city-by-city planning approach is a positive step, generating a minimal data base for secondary city urban development, and initiating a coordinated inter-agency policy towards future investment in these cities, a review of the documents produced to date reveals the limited optic being used by the Urban Division.

The main legal instrument for enforcing conformity to the Master Plan remains the construction permit, and permit execution theoretically provides an opportunity for review by not only the regional branch of the Urban Direction, but by other relevant public agencies and utilities (Ministère de la Santé, Energie du Mali, etc.). Delays and complexity in the application process, and lack of effective enforcement of compliance, result in the submission of only a small number of applications - most construction proceeds without a permit.

Though 10 years exoneration from real estate taxes is available to those who receive construction permits, and certificates of conformance after the completion of construction, since real estate taxes are so ineffectively collected this incentive is fairly meaningless. In any event, the Urban Direction confines its permit process to durable construction - eliminating most low cost construction from permit requirements. The lack of public revenues for infrastructure extension or even routine maintenance of rights-of-way, reduces the Master Plan to the level of wishful thinking.

In terms of its institutional mandate for regional planning, including the important aspects of allocating investments for inter-urban infrastructure and rural-urban linkages, the Division Aménagement du Territoire at the Département du Plan is a more appropriate collaborator for RHUDO/USAID Mali project development. With an economic perspective, this unit is responsible for developing regional plans for investment in the broader range of urban areas, while the Direction d'Urbanisme seems mainly focussed upon the Communes, particularly those which are regional capitals. Handicapped administratively by its status as a "Division" rather than having a more powerful designation as a "Direction Nationale", this regional planning cell would need to have a larger number of trained professionals, and a budget sufficient for extensive field work, in order to fulfill its mandate for generating regional development plans. The major initiative of the Division Aménagement du Territoire at this time is the production of a Master Plan for the Niger Delta ("Schéma Directeur du Delta"), and the scope of work proposed is of great importance to enhancing the integrated development of urban services for rural development in this demographically important region.

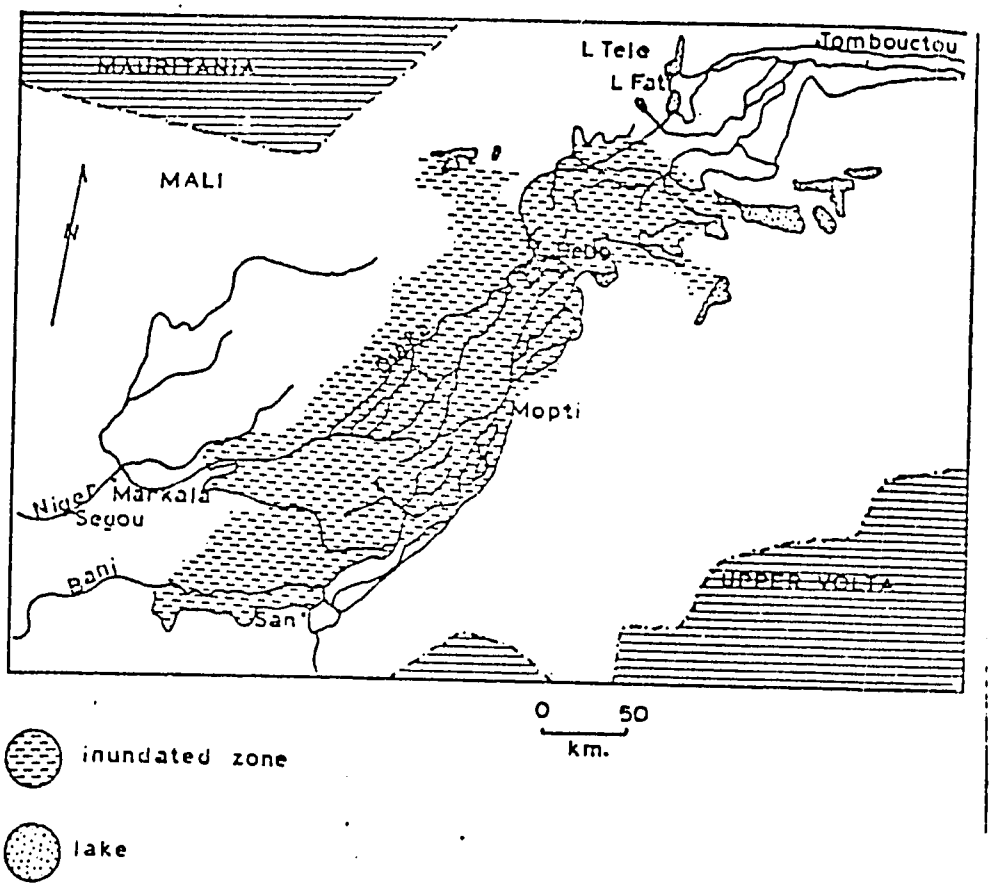
- Integration of Urban Development into the Mopti Regional Plan

An inter-ministerial commission coordinated by the Division Aménagement du Territoire has outlined the terms of reference for this Delta Master Plan (see Fig. 41) and has been discussing financing with the World Bank for a five-member multi-disciplinary team to be based in Mopti, to survey the natural and human resources of the Mopti Region (V), and to develop the Master Plan over a 30 month (maximum) period.

The disciplines to be represented on the team have been proposed to include: an overall coordinator, a trainer, a hydro-geologist, a forestry and range specialist, and an economist, and the unit would have financial autonomy within

FIGURE 41

INTERIOR DELTA ON THE MIDDLE NIGER-MALI




Source: Sahelian Social Development, REDSO/Abidjan, 1980, p. 374.

the Départment du Plan. The high-powered inter-ministerial commission directing the Delta's regional plan has already been convened several times to review the terms of reference for the work, evidence of the priority assigned by the Malian government to this first integrated regional planning experiment. The 16 ministries represented on the Commission (see Table 43) include most of the major governmental physical and social services which play important roles in the region.

As a relatively resource-rich area within the low rainfall (400 mm to 800 mm per year) portion of the Sahelo-Sudanic Zone

TABLE 43

MEMBERS OF INTER-MINISTERIAL COMMISSION FOR MOPTI REGIONAL DEVELOPMENT PLAN

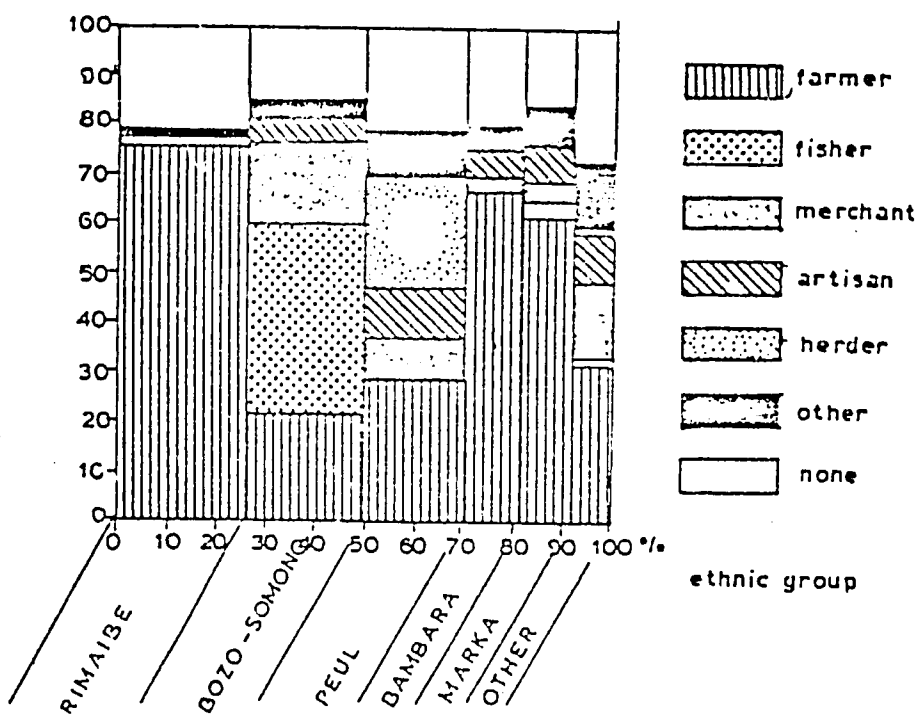
1. Président du Gouvernement
2. Direction Nationale de la Planification
3. Direction Nationale du Génie Rural
4. Direction Nationale de l'Urbanisme et de la Construction
5. Direction Nationale de la Cartographie et de la Topographie
6. Direction Nationale de l'Elevage
   (Opération du Développement d'Elevage Mopti, ODEM, was also invited)
7. Direction Nationale de l'Agriculture
   (Opération Riz Mopti , ORM, was also invited)
8. Direction Nationale des Eaux et Forêts
9. Direction Nationale des Travaux Publics
10. Direction Nationale de l'Intérieur
11. Direction Nationale de l'Hydraulique et de l'Energie
12. Service des Domaines
13. Direction Nationale de la Planification Sanitaire et Sociale
14. Centre International pour l'Elevage - C.I.P.E.A.
15. Projet Inventaire des Ressources Terrestres - P.I.R.T.
16. Société Nationale d'Etudes pour le Développement - S.N.E.D.

in Mali, the Niger Delta has a more diverse and dynamic economy than other portions of this zone, with active fishing, livestock, and agricultural sectors, as well as dynamic artisanal production centering on Mopti. The agricultural and pastoral uses of land are often in competition engendering conflict, and possibly a less than optimal allocation of scarce resources. This particular interest in the Niger Delta is not new. Historically, the Mopti Region resources have supported major kingdoms in the past (the Empires of Ghana, Mali, and Songhai between the 11th and the 17th Centuries) and have attracted political conquest and conflict (Fulani and Bambara migrations which created disorder from the 15th to the 17th Centuries).

In 1818, the Islamic rule of Sékou Hamadou enforced sedentarization of many pastorialists at a newly emerging urban center known as the Dina, thereby provoking strong opposition from the existing cities of Dia and Djenné, Fulani herders and others. From 1862 to 1893, the Toucouleurs ruined the Dina and enabled the ethnic and economic diversity of the Delta to revive, while pushing its demographic center of gravity eastwards (the displacement of Fulani, Bozo and Somono). Since then, the Delta has continued to be the scene of increasingly numerous conflicts between agricultural peoples, fishermen and pastoralists. As shown in Figure 42, ethnic occupational specialization remains strong (Peul herders, Bozo-Somono fishermen, Rimaibe rice cultivation).

FIGURE 42

ETHNIC GROUP BY PRINCIPAL OCCUPATION: INLAND DELTA-MALI




Source: Sahelian Social Development, REDSO/WA, 1980, p. 376.

Presidential weight, since April 1982, has been placed behind the priority, in order to resolve these conflicts, for the establishment of a Regional Development Plan for the Delta.

During the most recent past, agricultural interests have continually eroded the resources available to pastoralists. National population growth rates, and the impacts of successive droughts on herd size, have contributed to the priority given to agricultural land uses in conflicts between the three interest groups. In order to establish base data for the terms of reference for an in-depth Regional Development Plan, a ten day multi-disciplinary field reconnaissance was commissioned by the inter-ministerial committee in November 1982, and included seven Malian professionals from relevant ministries accompanied by a Canadian technical assistant from the Département du Plan.

Four principal types of land use conflicts were discovered by this mission:

(i) Conflict between agriculturalists and pastoralists. Dry season crops have been planted in transhumant ranges, and rice production has been extended throughout the 150 km between Konna and Sofara, blocking traditional herd passages between the river and the National Road. Competition between herders and rice cultivators for the "bourgou" (areas submerged for more than 6 months of the year) is extremely intense, since these areas are naturally covered by plant species which are used as dry-season pasture land. When herders attempt to drive their flocks over rice paddies, conflict with peasants becomes rather bitter , as one would expect. Even where passages have been left for herds, they are often too narrow to meet pastoralists' needs. In response to the opportunity presented by Opération Riz's potential abandonment of some rice paddies in the Konna and Sofara area, the Opération du Développement d'Elevage Mopti (ODEM) is considering establishing pasture and pastoral rest huts on these lands.

(ii) Conflicts between pastoralists. There seems to be a need for adoption of a revised and formalized pastoral code adapted to present environmental realities. Disputes have become increasingly frequent over the order of herds which successively use the same pastures, delimitations of pastures, sanctions against the in-migration of herders traditionally based farther east, the invasion of cattle pastures by herds of

smaller ruminants, the increasingly premature return of transhumants to designated pastures, and other infractions in the established cycle such as prolonged grazing beyond maximum date historically agreed upon for a particular range.

(iii) Conflicts between agriculturalists and fishermen. Fishermen resent peasant earthworks, for rice production, which interfere with traditional fishing areas. Rice cultivators occasionally poison fish, fearing that rice-eating species will damage their harvests. About two out of five species of fish in the Delta are rice-eating, so this conflict has some basis in fact.

(iv) Conflicts among fishermen. Traditional fishermen indigenous to the Delta are experiencing increasing competition over fishing grounds from in-migrants, who often have more modern equipment and can therefore net a larger share of the available catch.

The conflicts are clearly driven by the saturation of existing natural resources under current management practices. In spite of cyclic droughts, the number of animals grazing the Delta pastures has been multiplied five times during 100 years since the fall of the Dina. ODEM estimates that only about 1.5 million head can be supported by the Delta using traditional technology, but in 1982-1983, about two million head, including drought-displaced herds from as far away as Mauritania, were grazing these lands. The expansion of irrigated agriculture, especially rice cultivation, within the last 15 years has created 39,000 hectares of earth works since the 1970's, and has seriously reduced the acreage of pasture in the delta. Politico-social change, since the fall of the Dina almost a hundred years ago, has progressively eroded traditional political structures responsible for range management, without replacing them with a new enforceable pastoral code. Beneficiairies of the historical system of range allocation have opposed official attempts to establish a new more equitable code which serves the interests of dispossessed herds in the heart of the drought-affected zones. Several adverse environmental factors have continuously reduced traditional grazing areas - low rainfall, over-grazing, and the increasing competition of the *Mimosa pigra* plant which is displacing browse on the remaining ranges.

The bitterness expressed by pastoralists against the invasion of their pastures by rice development projects is supported by the feeble results produced by Opération Riz Mopti (ORM). Of

the 39,000 hectares removed from pasture, only 24,437 were actually put under cultivation in 1981-1982, and because of low rainfall, only about 5,000 hectares have actually been productive, with even these fields yielding only 50% - 33% of the production per hectare projected in the feasibility studies. ORM has had difficulty attracting peasants to exploit its project paddies, since ORM retains a monopoly for the marketing of project production, and pays lower than market prices. Up to 50% of project land is not adaptable to irrigation, and is wasted by ORM. For rainfed agriculture, the picture in Mopti Region has been even bleaker. In 1981-1982, poor rainfall decreased the acreage of millet fields in the area of Bandiagara and Mopti by 60%, and 1982 production per hectare dropped by 30% below former yields. This land use has also driven herders further toward the Delta.

There has been increasing confusion over land use rights in the delta with the accelerating incursion of permanent public works for agriculture into traditional transhumant grazing areas. The Dioro, pastoral political authorities who were established during the hegemony of the Dina, and who continued to administer pastoral use of the "bourgou" during the colonial era, are no longer providing effective administration and resolution of disputes among pastoralists, and between herders and agriculturalists. Though no longer legally supposed to receive compensation in kind from herders for their services, the Dioro continue to collect these payments, but no longer shield individual herders from state-imposed fines for exceeding dates of onward migration from grazing areas. These fines are stiff, and are borne by the herders themselves (25,000 FM per day per herd). The proposed Mopti regional study would include definition of a new pastoral land use code and administrative structure (reconsidering the role, if any, which the Dioro should play). Socio-economic cost/benefit studies of the three types of resource exploitation (fishing, livestock raising and agriculture) would be undertaken to provide an optimal allocation of resources to each activity.

Conservation measures would be geographically defined including:(1) the siting of herd passageways and rest huts between Konna, Mopti and Sofara; (2) creation of a participant representation structure for the fishermen and agriculturalists, parallel to institutionalized representation (Dioro)for herders which is already in place; (3) temporary suspension of new irrigation construction projects pending intensification of the productivity of existing sites; (4) establishment of a procedure of land use registration which takes into account mitigation of the adverse impacts on

traditional users in cases where new users are given access; (5) phased integration of the 4 existing autonomous development operations (Opération Riz, Opération Mil, Opération Elevage, Opération Pêche) into a single integrated regional development structure. The current sectoral project divisions exacerbate the user conflicts cited above, since each operation by definition advocates the interests of its own client group, to the detriment of others.

Initial budget estimates for the Mopti Regional Development Plan included salaries for 12 professionals, six support staff, three vehicles and their operating expenses, and 300 days of expert technical assistance for a total of 245 million FM (about $288,000). During the course of financial negotiations, the proposal has been pruned to a team of five full time profesionals (no budget estimate proposed yet) but no urban development expertise has been proposed for the team, even though the role of large and small urban centers in the region will be critical to integrate into the overall plan.

As discussed earlier in this Profile, Djenné residents are providing major amounts of seasonal agricultural labor. Mopti is absorbing large numbers of dry season rural immigrants in search of artisanal, domestic service, or other informal sector cash earnings. Longer term rural-urban exchanges involve apprenticeship training and the use of other non-formal educational facilities in urban areas by rural residents. The role of urban-based health institutions in rural development also needs to be considered - in the provision of animal health care services (which have contributed to over-grazing of the delta by fostering the expansion of herd size), and in large scale public health campaigns (rice intensification technologies such as the promotion of transplanting, involve increased risk of shistosomiasis infection for workers).

Malian negotiations on financing for the Regional Plan with the World Bank have not been entirely satisfactory so far. The Bank would mainly be interested in funding smaller scale site-specific plan elements related to its 2 sector-specific regional projects (Opération Riz Mopti, and Opération de Développement de l'Elevage Mopti), which is rather counter to the multi-sectorial integrated purpose of the Regional Plan (and which contributes to the project's attractiveness as a prototype for integrated regional development planning for use in other parts of Mali and the Sahel).

Since USAID Mali will probably be re-establishing a broader range of development activities in the Mopti Region within the

next 4 to 5 years (beyond existing rural forestry and health programs), it would be useful for AID to participate financially in the production of this model integrated regional plan, and it is recommended that USAID sharing of the financing with the World Bank be considered. Complementary financing could be considered by the RHUDO to support the integration of expertise in urban development, rural-urban demographic and economic linkage (including inter-urban transport and urban processing and consumption of rural production) into the regional planning team.

## B. 1981-85 NATIONAL PLAN ALLOCATIONS

## 1. Projets d'investissements du secteur de l'économie rurale

(millions FM)

| PROJETS | 1981 | 1982 | 1983 | 1984 | 1985 | Total Plan |
|---|---|---|---|---|---|---|
| **1.1. DEVELOPPEMENT DES RESSOURCES AGRICOLES** | | | | | | |
| **1.1.1. Opérations agricoles** | | | | | | |
| Office du Niger | 3 200 | 4 800 | 8 000 | 12 000 | 12 000 | 40 000 |
| Riz-Ségou | 1 000 | 2 700 | 5 900 | 7 100 | 8 300 | 25 000 |
| Riz-Mopti | 1 000 | 2 500 | 7 700 | 8 800 | 10 000 | 30 000 |
| Mil-Mopti | 600 | 800 | 1 000 | 1 200 | 1 400 | 5 000 |
| Mali-Sud et riz-Sikasso | 3 600 | 4 100 | 4 600 | 5 100 | 5 600 | 23 000 |
| Haute-Vallée | 1 000 | 1 200 | 1 400 | 1 600 | 1 800 | 7 000 |
| Arachides et céréales (ODIPAC) | 2 700 | 2 100 | 2 300 | 1 400 | 1 500 | 10 000 |
| Zone-Centre (Ségou-Koulikoro) | 600 | 700 | 800 | 900 | 1 000 | 4 000 |
| Zone-Lacustre | 400 | 2 600 | 2 800 | 3 000 | 3 200 | 12 000 |
| Térékolé-Sénégal | 400 | 500 | 600 | 700 | 800 | 3 000 |
| Mil-Kaarta | 1 400 | 1 600 | 1 800 | 2 000 | 2 200 | 9 000 |
| Riz-Sorgho Gao | 200 | 1 400 | 1 600 | 1 800 | 2 000 | 7 000 |
| Baguineda | 200 | 1 400 | 2 400 | 3 000 | 3 000 | 10 000 |
| Blé-Sikasso | 500 | 900 | 1 000 | 1 200 | 1 400 | 5 000 |
| Thé-Sikasso | 100 | 500 | 700 | 800 | 900 | 3 000 |
| Travaux et équipements ruraux | 200 | 300 | 400 | 500 | 600 | 2 000 |
| Total 1.1.1. | 17 100 | 28 100 | 43 000 | 51 100 | 55 700 | 195 000 |
| **1.1.2. Etudes agricoles** | | | | | | |
| Couverture pédologique | 30 | 10 | 10 | 10 | – | 60 |
| Schémas directeurs des bassins des fleuves | 15 | – | 35 | – | – | 50 |
| Analyse opérations développement rural | – | 20 | – | – | – | 20 |
| Enquête consommation | 50 | 50 | 50 | – | – | 150 |
| Coûts de production | 30 | 10 | 10 | 10 | 10 | 70 |
| Modernisation équipement agricole | – | – | – | 20 | – | 20 |
| Etudes diverses productions | 20 | 20 | 20 | 20 | 20 | 100 |
| Appui structures IER | 250 | 150 | 50 | 50 | 50 | 550 |
| Etude factibilité Térékolé Kolombiné | – | – | 300 | 100 | 100 | 500 |
| Vallée du Sénégal | – | 100 | 100 | – | – | 200 |
| Riz-Ségou | – | 100 | 50 | 50 | – | 200 |
| Seuil de Djenné | 100 | – | 100 | – | – | 200 |
| Seuil de Talo | 100 | – | 100 | – | – | 200 |
| Lac Horo | 100 | 100 | – | – | – | 200 |
| Mares Gourma et Kessou-Kelly | 50 | 50 | 50 | 50 | – | 200 |
| Plaines diverses et pistes | – | 50 | 50 | 50 | 50 | 200 |
| Station expérimentale machinisme agricole | 100 | 50 | 20 | 20 | 10 | 200 |
| Etude matériels agricoles | 50 | 30 | 20 | – | – | 100 |
| Appui au bureau d'étude du Génie Rural | 200 | 55 | 52 | – | – | 307 |
| Etudes du Génie Rural | 100 | 100 | 85 | – | – | 285 |
| Total 1.1.2 | 1 195 | 895 | 1 102 | 380 | 240 | 3 812 |

| PROJETS | 1981 | 1982 | 1983 | 1984 | 1985 | Total Plan |
|---|---|---|---|---|---|---|
| 1.1.3. Recherches agricoles | | | | | | |
| Cultures vivrières et oléagineuses | 220 | 220 | 881 | 440 | 441 | 2 202 |
| Cultures cotonnières et fibres jutières | 130 | 132 | 524 | 262 | 266 | 1 314 |
| Technologie fibres textiles | 21 | 21 | 82 | 40 | 42 | 206 |
| Cultures fruitières et maraîchères | 88 | 90 | 353 | 177 | 178 | 886 |
| Tabac | 63 | 63 | 252 | 126 | 126 | 630 |
| Thé | 36 | 36 | 144 | 72 | 72 | 360 |
| Contrôle semences | 49 | 50 | 198 | 99 | 99 | 495 |
| Système de production | 219 | 219 | 219 | 219 | 219 | 1 095 |
| Total 1.1.3 | 826 | 831 | 2 653 | 1 435 | 1 443 | 7 188 |
| 1.1.4. Coopération agricole | | | | | | |
| Action de formation | 100 | 100 | 100 | 100 | 100 | 500 |
| Action d'appui | 100 | 100 | 100 | 100 | 100 | 500 |
| Total 1.1.4 | 200 | 200 | 200 | 200 | 200 | 1 000 |
| TOTAL PROJETS RESSOURCES AGRICOLES | 19 321 | 30 026 | 46 955 | 53 115 | 57 583 | 207 000 |
| 1.2. DEVELOPPEMENT DES RESSOURCES FORESTIERES | | | | | | |
| Aménagement forêts Bamako | 1 150,0 | 1 000,0 | 1 000,0 | 1 000,0 | — | 4 150,0 |
| Aménagement forêts Sikasso | 1 200,0 | 950,0 | 1 040,0 | 700,0 | 461,0 | 4 351,0 |
| Ceinture verte Kayes | 125,0 | 100,0 | 100,0 | 100,0 | 100,0 | 525,0 |
| Protection forêts : Baranuli-Kita-Bafoulabé | 84,5 | 54,5 | 53,5 | -- | — | 192,5 |
| Reboisement : Mopti - Bandiagara | 132,0 | 23,0 | 23,0 | 23,0 | 23,0 | 224,0 |
| Reboisement : Nara - Nioro - Niafunké | 56,2 | 28,4 | 29,7 | 28,4 | 13,7 | 156,4 |
| Reboisement : Fana - Koulikoro | 56,0 | 55,0 | 55,0 | 55,0 | 59,0 | 280,0 |
| Pépinières et reboisement : Bla - Baraouli | 400,0 | 350,0 | 350,0 | 350,0 | 350,0 | 1 800,0 |
| Récupération bois Manantali | 700,0 | 600,0 | 600,0 | 600,0 | 500,0 | 3 000,0 |
| Plantations irriguées O.N. | 14,0 | 14,0 | 14,0 | 14,0 | 14,0 | 70,0 |
| Inventaire ressources terrestres | 500,0 | 400,0 | 350,0 | 250,0 | 217,0 | 1 717,0 |
| Etude forestière bois savane | 28,5 | 16,5 | 16,5 | 16,5 | 16,5 | 94,5 |
| Etude plantations irriguées | 68,0 | 39,7 | 39,7 | 39,7 | 39,7 | 226,8 |
| Etude fixation dunes | 56,6 | 33,1 | 33,1 | 33,1 | 33,1 | 189,0 |
| Etude restructuration des sols | 113,6 | 66,1 | 66,1 | 66,1 | 66,1 | 378,0 |
| Etude gibier du sahel | 28,5 | 16,5 | 16,5 | 16,5 | 16,5 | 94,5 |
| TOTAL PROJETS RESSOURCES FORESTIERES | 4 713 | 3 747 | 3 787 | 3 292 | 1 910 | 17 449 |

| PROJETS | 1981 | 1982 | 1983 | 1984 | 1985 | Total Plan |
|---|---|---|---|---|---|---|
| 1.3. DEVELOPPEMENT DES RESSOURCES ANIMALES | | | | | | |
| 1.3.1. Pêche | | | | | | |
| Opération pêche-Mopti | – | 1 846,0 | 1 199,0 | 963,0 | 769,0 | 4 777,0 |
| Pisciculture - San | – | – | 37,0 | 35,0 | 34,0 | 106,0 |
| Etude dynamique des poissons | 28,5 | 17,0 | 17,0 | 16,5 | 17,0 | 96,0 |
| Total 1.3.1. | 28,5 | 1 863,0 | 1 253,0 | 1 014,5 | 820,0 | 4 979,0 |
| 1.3.2. Elevage | | | | | | |
| 1.3.2.1. Opérations d'élevage | | | | | | |
| Mali-sud-élevage | 247,2 | 173,0 | 238,9 | 206,0 | 164,0 | 1 029,0 |
| Mali-Livestock I | 1 500,0 | 875,0 | 487,5 | 375,0 | 262,5 | 3 500,0 |
| Opération ODEM | 1 550,0 | 1 007,5 | 1 821,2 | 1 521,7 | 1 550,0 | 7 450,4 |
| Opération ODIK | 340,0 | 399,5 | 399,5 | 340,0 | 221,0 | 1 700,0 |
| Mali-Livestock II | 1 000,0 | 1 125,0 | 1 125,0 | 1 000,0 | 750,0 | 5 000,0 |
| Projet race N'Dama | 468,0 | 468,0 | 252,0 | 360,0 | 252,0 | 1 800,0 |
| Développement élevage sahel occidental | 2 622,0 | 2 622,0 | 2 232,0 | 1 842,0 | 1 842,0 | 11 160 |
| Opération CMDT : élevage | 168,0 | 228,0 | 168,0 | 458,0 | 168,0 | 1 190,0 |
| Abattoirs séchoirs | 85,0 | 255,0 | 425,0 | 85,0 | – | 850,0 |
| Elevage zone-lacustre | 457,5 | 827,2 | 803,7 | 850,8 | 530,3 | 3 520,0 |
| Elevage Mali-nord-est | – | 870,0 | 1 710,0 | 1 710,0 | 1 710,0 | 6 000,0 |
| Elevage crocodiles | 14,0 | 44,0 | 34,0 | 44,0 | – | 136,0 |
| Embouche Office du Niger | – | 116,4 | 286,5 | 349,5 | 267,6 | 1 020,0 |
| Appui pharmacie vétérinaire | – | 750,0 | 450,0 | 300,0 | – | 1 500,0 |
| Total 1.3.2.1. | 8 451,7 | 9 760,6 | 10 433,3 | 9 442,0 | 7 767,9 | 45 855,5 |
| 1.3.2.2. Etudes élevage | | | | | | |
| Appui à l'OMBEVI | 300,0 | 200,0 | 100,0 | 100,0 | 100,0 | 800,0 |
| Appui centre pilote sahélien | 100,0 | 100,0 | 100,0 | 100,0 | – | 400,0 |
| Evaluation projets Mali-Sud et Sud-ouest | – | – | – | 100,0 | 100,0 | 200,0 |
| Factibilité zone-lacustre et Gourma-Haoussa | 300,0 | 200,0 | – | – | – | 500,0 |
| Etude commercialisation bétail et viande | 500,0 | 488,0 | – | – | – | 988,0 |
| Enquêtes petits ruminants | 75,0 | – | – | – | – | 75,0 |
| Total 1.3.2.2. | 1 275,0 | 988,0 | 200,0 | 300,0 | 200,0 | 2 963,0 |
| 1.3.2.3. Recherche élevage | | | | | | |
| Amélioration génétique bovins-Sotuba | 132,8 | 77,4 | 77,4 | 77,4 | 77,4 | 442,4 |
| Sélection à la station du sahel-Niono | 134,5 | 78,5 | 78,5 | 78,5 | 78,5 | 448,5 |
| Sélection Toronké | 197,6 | 114,8 | 114,8 | 114,8 | 114,8 | 656,8 |
| Sélection à la station El-Oualadji | 117,2 | 68,3 | 68,3 | 68,3 | 68,3 | 390,4 |
| Sélection zébu-Aza-ouak | 99,3 | 57,9 | 57,9 | 57,9 | 57,9 | 330,9 |

| PROJETS | 1981 | 1982 | 1983 | 1984 | 1985 | Total Plan |
|---|---|---|---|---|---|---|
| Amélioration génétique porcins | 10,3 | 5,9 | 5,9 | 5,9 | 5,9 | 33,9 |
| Sélection génétique avicole | 35,8 | 20,8 | 20,8 | 20,8 | 20,8 | 119,0 |
| Recherche nutrition animale | 9,1 | 5,5 | 5,5 | 5,5 | 5,5 | 31,1 |
| Fabrication aliment bétail | 49,5 | 28,9 | 28,9 | 28,9 | 28,9 | 165,1 |
| Agrostologie et cultures fourragères | 25,3 | 14,6 | 14,6 | 14,6 | 14,6 | 83,7 |
| Production secondaire pâturages sahéliens | 240,9 | 140,6 | 140,6 | 140,6 | 140,6 | 803,3 |
| Total 1.3.2.3 | 1 052,3 | 613,2 | 613,2 | 613,2 | 613,2 | 3 505,1 |
| 1.3.2.4. Coopérative élevage | | | | | | |
| Total 1.3.2.4 | – | – | – | – | 1 000,0 | 1 000,0 |
| TOTAL PROJETS RESSOURCES ANIMALES | 10 808 | 13 225 | 12 499 | 11 369 | 10 401 | 58 302 |
| 1.4. PROJET DE BASE ECONOMIE RURALE | | | | | | |
| TOTAL PROJETS DE BASE | – | 1 983 | 3 968 | 5 949 | 7 932 | 19 832 |
| TOTAL PROJETS SECTEUR DE L'ECONOMIE RURALE | 34 842 | 48 981 | 67 209 | 73 725 | 77 826 | 302 583 |

## II. Projets d'investissements du secteur secondaire

(millions FM)

| PROJETS | 1981 | 1982 | 1983 | 1984 | 1985 | Total Plan |
|---|---|---|---|---|---|---|
| 2. 1. DEVELOPPEMENT RESSOURCES MINIERES | | | | | | |
| Locaux DNGM | – | 401 | 401 | 401 | – | 1 203 |
| Equipement centre Documentation | 290 | 90 | – | – | – | 380 |
| Equipement laboratoire | 100 | 100 | 100 | – | – | 300 |
| A. T. à la DNGM | 21 | – | – | – | – | 21 |
| Inventaire ressources minérales : Mali ouest | 440 | 440 | 440 | 440 | 440 | 2 200 |
| Inventaire ressources minérales : Mali sud | 120 | 120 | 120 | 120 | 120 | 600 |
| Prospection aurifère Bagoe | 30 | – | – | – | – | 30 |
| Prospection or Kénieba | 600 | 1 266 | 1 267 | 1 267 | – | 4 400 |
| Prospection diamant Kénéba | 1 500 | 1 500 | 1 500 | 1 500 | – | 6 000 |
| Etude exploitation gisement fer Balé | 110 | 110 | 110 | 110 | 110 | 550 |
| Prospection fer région Djidian-Kénieba | 655 | – | – | – | – | 655 |
| Prospection diatomites dans les daounas | 15 | 112 | – | – | – | 127 |
| Prospection zone Tessalit | 86 | 86 | 88 | – | – | 260 |
| Prospection complexe annulaire de Tah dla | 86 | 86 | 88 | – | – | 260 |
| Permis Elf-Arouane | 4 100 | 4 100 | 2 000 | 4 100 | 1 000 | 15 300 |
| Permis ESSO | 600 | 600 | 600 | 600 | 600 | 3 000 |
| Shistes bitumeux Agonor | – | 250 | – | – | – | 250 |
| Prospection uranium Falea | 140 | 160 | 200 | 200 | 300 | 1 000 |
| Prospection uranium Adrar de Iforas | 2 860 | 4 260 | 7 000 | 7 000 | 7 000 | 28 120 |
| Etude environnement Sahara | 16 | 21 | 3 | – | – | 40 |
| Développement gisement ci Kalana | 1 729 | 1 729 | 1 729 | 1 729 | 1 729 | 8 645 |
| Exploitation industrielle phosphates de Bourem | 1 903 | 1 903 | 1 903 | 1 903 | 1 903 | 9 515 |
| Recherche aurifère | – | 405 | 405 | 405 | 405 | 1 620 |
| Equipement du laboratoire SONAREM | – | 150 | – | – | – | 150 |
| TOTAL PROJETS RECHERCHE GEOLOGIQUE ET MINIERE | 15 401 | 17 889 | 17 954 | 19 775 | 13 607 | 84 626 |
| 2. 2. DEVELOPPEMENT DES RESSOURCES EN EAU | | | | | | |
| 2. 2. 1. Hydrogéologie | | | | | | |
| Approvisionnement eau population Bankass | 80 | 80 | – | – | – | 160 |
| Approvisionnement eau population San et Tominian | 70 | 70 | – | – | – | 140 |
| Secteur «opération puits» région Mopti | 280 | 280 | 280 | 280 | 280 | 1 400 |
| Puits de la voie ferrée «Diboli-Koulikoro» | – | 50 | 170 | – | – | 220 |
| Projet «eaux souterraines» 2° et 3° phase | 570 | 380 | – | – | – | 950 |
| Projet «eaux souterraines» 4° phase | – | 2 581 | 2 117 | 1 647 | 2 192 | 8 537 |

| PROJETS | 1981 | 1982 | 1983 | 1984 | 1985 | Total Plan |
|---|---|---|---|---|---|---|
| Etude moyens d'exhaure | 300 | 300 | 300 | 300 | 300 | 1 500 |
| Eaux souterraines Bougouni Yanfolila-Kolondiéba | 254 | 253 | 253 | – | – | 760 |
| Projet «Aqua-Viva» | 760 | 760 | – | – | – | 1 520 |
| Eaux souterraines 7° région | 1 000 | 750 | 750 | 750 | 750 | 4 000 |
| Points d'eau 8° et 7° régions | 1 000 | – | – | – | – | 1 000 |
| Eaux souterraines 5° région | 158 | 160 | 158 | 158 | 158 | 792 |
| Programme 250 puits | – | 1 076 | 578 | 659 | 699 | 3 012 |
| Espace pastoral Niono-Bankass | 250 | 250 | – | – | – | 500 |
| Création oasis route du sel | – | 378 | 380 | 380 | 380 | 1 518 |
| Total 2.2.1. | 4 722 | 7 368 | 4 986 | 4 174 | 4 759 | 26 009 |
| 2.2.2. Hydrologie | | | | | | |
| Services agro-météo-hydrologique | – | – | – | – | – | PME |
| Prévisions fleuve Niger | – | – | – | – | – | PME |
| Etude crues du Niger | – | – | – | – | – | PME |
| Annuaires et cartes hydrologiques | 18 | – | – | – | – | 18 |
| Navigabilité Koulikoro-Gao | 1 080 | 1 079 | 1 080 | – | – | 3 239 |
| Berges Diafarabé-Kayes-Macina-Djenné | 512 | 510 | 510 | 510 | 510 | 2 552 |
| Fleuve Sénégal : navigabilite | – | – | – | – | – | PME |
| Gestion eau O.N. | 300 | 300 | – | – | – | 600 |
| Total 2.2.2. | 1 910 | 1 889 | 1 590 | 510 | 510 | 6 409 |
| 2.2.3. Hydraulique-barrages | | | | | | |
| Système hydraulique O.N. | 642 | 643 | – | – | – | 1 285 |
| Central Markala | 60 | 506 | 505 | – | – | 1 071 |
| Etude barrage Tossaye | 1 000 | 1 000 | 1 000 | 1 000 | 1 000 | 5 000 |
| Etude site Bani | 303 | 303 | 307 | – | – | 923 |
| Petits barrages pays Dogon (3° phase) | 176 | – | – | – | – | 176 |
| Petits barrages pays Dogon (4° phase) | – | 500 | 500 | 500 | 500 | 2 000 |
| Total 2.2.3. | 2 183 | 2 957 | 2 312 | 1 500 | 1 500 | 10 455 |
| 2.2.4. Hydraulique-urbaine | | | | | | |
| Etude amélioration eau Kayes-Gao-Bougouni-San-Markala | 175 | 175 | – | – | – | 350 |
| Eau Kayes | 134 | 134 | – | – | – | 268 |
| Eau Gao | 250 | 250 | – | – | – | 500 |
| Eau Kita | 1 033 | 1 034 | 1 033 | – | – | 3 100 |
| Eau Djenné-Diré-Douentza | 193 | 193 | 193 | 193 | 194 | 966 |
| Adduction eau 13 localités | 650 | 650 | 650 | 650 | 650 | 3 250 |
| Etude tarification eau | 2 | – | – | – | – | 2 |
| Total 2.2.4. | 2 437 | 2 436 | 1 876 | 843 | 844 | 8 436 |
| TOTAL PROJETS RESSOURCES EN EAU | 11 255 | 14 650 | 10 764 | 7 027 | 7 613 | 51 309 |

| PROJETS | 1981 | 1982 | 1983 | 1984 | 1985 | Total Plan |
|---|---|---|---|---|---|---|
| **2.3. DEVELOPPEMENT PRODUCTION D'ENERGIE** | | | | | | |
| Plan redressement EDM | 3 360 | 2 310 | 1 930 | 2 100 | – | 9 700 |
| Plan directeur Mopti-Sévaré | 65 | 130 | 127 | 127 | 126 | 575 |
| Renforcement Sikasso | – | 150 | 160 | – | – | 310 |
| Renforcement Faparah-Kayes | 30 | – | – | – | – | 30 |
| Production et réseau : Bougouni | 30 | 85 | 85 | 85 | – | 285 |
| Production et réseau : Fana | 41 | – | – | – | – | 41 |
| Production et réseau : Ségou-Markala | 30 | 81 | 81 | 81 | – | 273 |
| Production et réseau : Koutiala | 50 | 100 | 75 | 60 | – | 285 |
| Extension centrale Sotuba | – | – | 300 | 350 | 500 | 1 150 |
| Electrification Kita | 57 | 100 | – | – | – | 157 |
| Etude électrification San | – | 120 | – | – | – | 120 |
| Ligne haute tension Sélingué-Kalana | – | 6 300 | – | – | – | 6 300 |
| Réseau interconnexion | – | 7 000 | – | – | – | 7 000 |
| Production solaire Dioila | 60 | – | – | – | – | 60 |
| Complexe solaire Diré | 150 | – | – | – | – | 150 |
| Développement énergie solaire | 228 | 1 334 | 1 318 | – | – | 2 880 |
| Energie solaire par développement rural | 2 125 | 1 125 | – | – | – | 3 250 |
| Energies renouvelables | – | – | 1 170 | 2 200 | 1 490 | 4 860 |
| Digesteur à biomethane | 24 | – | – | – | – | 24 |
| Digesteur économique | 12 | – | – | – | – | 12 |
| Gazogène paille riz | – | – | 221 | 221 | – | 442 |
| TOTAL PROJETS ENERGIE | 6 262 | 18 835 | 5 467 | 5 224 | 2 116 | 37 904 |
| **2.4. DEVELOPPEMENT INDUSTRIEL** | | | | | | |
| Renforcement CEPI | 315 | 315 | 394 | 360 | – | 1 384 |
| Promotion industrielle et artisanale | 138 | 122 | 60 | – | – | 370 |
| Etude zones industrielles | – | 532 | 798 | 1 224 | – | 2 554 |
| Projet P.M.I | 2 500 | 2 500 | 2 500 | 2 500 | 2 500 | 12 500 |
| Troisième sucrerie | – | – | – | – | – | PME |
| Minoterie | 2 027 | 97 | – | – | – | 3 124 |
| Bouillon «CUB» | 642 | 184 | – | – | – | 826 |
| Brasserie | 100 | 880 | 1 940 | 530 | – | 3 450 |
| Eau gazeuse Koutiala | 368 | – | – | – | – | 368 |
| Eau minérale (SEMIKO) | 1 267 | 1 172 | – | – | – | 2 439 |
| Jus orange Kéniéba | – | 418 | 82 | – | – | 500 |
| 2ème cimenterie | 5 280 | 17 640 | 29 630 | 12 450 | – | 65 000 |
| Platerie Tessalit | 143 | 77 | 96 | 64 | 51 | 431 |
| Briqueterie Ségou | – | – | 191 | – | – | 191 |
| Briqueterie Bamako | 574 | – | 26 | – | – | 600 |
| Etude fabrique d'engrais azoté | – | – | – | 230 | – | 230 |
| Fabrication d'engrais | – | 358 | – | – | – | 358 |
| Savonnerie Sikasso | 488 | – | – | – | – | 488 |
| Savonnerie Bamako | 337 | – | – | – | – | 337 |
| Huilerie anacardium | 264 | 25 | – | – | – | 289 |
| Huile karité | 1 360 | – | – | – | – | 1 860 |
| Produit pharmaceutique | – | – | – | – | – | PME |
| Chaussures plastiques «SOVEAMAL» | 180 | – | – | – | – | 180 |

| PROJETS | 1981 | 1982 | 1983 | 1984 | 1985 | Total Plan |
|---|---|---|---|---|---|---|
| Chaussures plastiques «PLAS-MAL» | 336 | – | – | – | – | 336 |
| Bodega pneumatique | 346 | – | – | – | – | 346 |
| Fabrique cigarettes filtrées | 300 | 150 | 150 | – | – | 600 |
| Fabrique cahiers | 200 | – | 176 | – | – | 436 |
| Fabrique fournitures de bureau | 316 | – | – | – | – | 316 |
| Fabrique matérie s agricoles | 190 | – | – | – | – | 190 |
| TOTAL PROJETS INDUSTRIELS | 19 201 | 24 470 | 36043 | 17 358 | 2 551 | 99 703 |
| 2.5. DEVELOPPEMENT INDUSTRIE TOURISTIQUE | | | | | | |
| Plan directeur tourisme | 60 | – | – | – | – | 60 |
| Aménagement lac Faguibine | 30 | – | – | – | – | 30 |
| Aménagement bords lac Sélingé | 20 | – | – | – | – | 20 |
| Aménagement îlots Gao | 5 | – | – | – | – | 5 |
| Prospection de sites | 200 | 100 | 100 | 100 | 100 | 600 |
| Rénovation «Bar-Malin» | 55 | – | – | – | – | 55 |
| Extension Hôtel Amitié | 320 | 2 760 | 920 | – | – | 4 600 |
| Amélioration campement Sangha | 10 | – | – | – | – | 10 |
| Hôtel Atlantide Gao | 50 | 300 | – | – | – | 350 |
| Motel Bamako | 200 | 800 | – | – | – | 1 000 |
| Transformation campement Bougouni | 60 | 140 | – | – | – | 200 |
| Transformation campement-Hôtel Tombouctou | 250 | 750 | 250 | – | – | 1 250 |
| Motel Mopti | 250 | 750 | 250 | – | – | 1 250 |
| Projet promotion tourisme | 50 | 55 | 60 | 65 | 70 | 300 |
| Ecole formation hôtelière | – | 200 | 500 | – | – | 700 |
| Actions de formation | 38 | 57 | 89 | 68 | 71 | 323 |
| Renforcement Commissariat Tourisme | 30 | 20 | 20 | 20 | 20 | 110 |
| TOTAL PROJETS TOURISMES | 2 228 | 5 932 | 2 189 | 253 | 261 | 10 863 |
| 2.6. PROJETS DE BASE SECTEUR SECONDAIRE | | | | | | |
| TOTAL PROJETS DE BASE | | 826 | 1 651 | 2 478 | 3 304 | 8 259 |
| TOTAL PROJETS SECTEUR SECONDAIRE | 54 427 | 82 602 | 74 063 | 52 115 | 29 452 | 292 664 |

## III. Secteur infrastructure des communications et des travaux publics

(millions FM)

| PROJETS | 1981 | 1982 | 1983 | 1984 | 1985 | Total Plan |
|---|---|---|---|---|---|---|
| **3. 1. DEVELOPPEMENT DES INFRASTRUCTURES DES COMMUNICATIONS** | | | | | | |
| **3. 1. 1. Infrastructures et moyens routiers** | | | | | | |
| Route : Sikasso-Koutiala | 1 300 | – | – | – | – | 1 300 |
| Route : Sévaré-Gao | 13 200 | 16 000 | 16 000 | 16 000 | – | 61 200 |
| Route : Markala-Niono | 2 880 | 4 032 | – | – | – | 6 912 |
| Route : Djidéni-Goumbou | 519 | – | – | – | – | 519 |
| Route : Ansongho-Ménaka-Anderamboukane | 2 594 | – | – | – | – | 2 594 |
| Route : Bamako-Dougouni | – | – | – | 3 500 | 3 500 | 7 000 |
| Route : Sévaré-Kersedougou | – | – | 1 000 | 1 000 | 1 000 | 3 000 |
| Route : Kayes-Nioro | – | – | – | 5 000 | 5 000 | 10 000 |
| Route : Bougouni-Yanfolila Guinée | – | 2 000 | 2 000 | 500 | – | 4 500 |
| Route : Goumbou-Nara | – | 400 | 400 | – | – | 800 |
| Route : Kati-Kolokani | – | 6 000 | 6 700 | – | – | 12 700 |
| Réfection routes en terre | 314 | 675 | 800 | – | – | 1 889 |
| Travaux pistes agricoles | – | 110 | 2 502 | 2 803 | 900 | 6 315 |
| Etude : Gossi-Rharous-Tombouctou | – | 375 | – | – | – | 375 |
| Etude : Dialaka-Yélimané | – | 205 | – | – | – | 205 |
| Etude : Néma-Nara | – | 460 | – | – | – | 460 |
| Etude : Nioro-Ayoun El Atrouss | – | 610 | – | – | – | 610 |
| Etude : Kayes-Tambacounda | – | – | – | 336 | – | 336 |
| 2° pont Niger Bamako | – | – | – | – | 3 000 | 3 000 |
| 4° projet routier | 634 | 1 387 | 1 387 | – | – | 3 408 |
| Centre formation travaux publics | 35 | 268 | 37 | – | – | 340 |
| Stockage des hydrocarbures | 500 | 1 500 | – | – | – | 2 000 |
| Magasins Lomé-Cotonou-Abidjan | 1 200 | 1 200 | 1 250 | – | – | 3 650 |
| Total 3. 1. 1. | 23 236 | 35 422 | 32 176 | 29 139 | 13 400 | 133 173 |
| **3. 1. 2. Infrastructures et moyens ferroviaires** | | | | | | |
| Soudage rails Kayes-Kassaro | 17 | 34 | 34 | 34 | 18 | 137 |
| Renforcement ponts | 4 000 | 1 270 | – | – | – | 5 270 |
| Allongement voies de service | 169 | 56 | – | – | – | 225 |
| Ballastage voie Kayes-Toukoto | 45 | 45 | 45 | 46 | 46 | 227 |
| Renouvellement 60 aiguillages | 150 | 50 | – | – | – | 200 |
| Passages à niveau Bamako | 120 | – | – | – | – | 120 |
| Réaménagement gare Kayes | – | – | 70 | 315 | 315 | 700 |
| Terminaux à containers | – | – | – | 1 500 | 1 500 | 3 000 |
| Transfert gare marchandise Bamako | – | 750 | 750 | 1 500 | – | 3 000 |
| Entrepôt stockage céréales | 31 | – | – | – | – | 31 |
| Réhabilitation voie Bamako Koulikoro | – | – | 250 | 250 | 500 | 1 000 |
| Matériels roulants | – | 4 500 | 4 500 | 4 500 | 4 500 | 18 000 |
| Pièces de rechange | 150 | 28 | – | – | – | 178 |
| Total 3. 1. 2. | 4 682 | 6 733 | 5 649 | 8 145 | 6 879 | 32 088 |

| PROJETS | 1981 | 1982 | 1983 | 1984 | 1985 | Total Plan |
|---|---|---|---|---|---|---|
| 3.1.3. Infrastructures et moyens fluviaux | | | | | | |
| Renouvellement flotte | 1 355 | 680 | 1 355 | 680 | 680 | 4 750 |
| Transformation atelier Koulikoro | 446 | 442 | 415 | – | – | 1 303 |
| Projet intégré modernisation | 18 | 139 | – | – | – | 157 |
| Total 3.1.3. | 1 819 | 1 261 | 1 770 | 680 | 680 | 6 210 |
| 3.1.4. Infrastructures et moyens de l'aéronautique et météorologie | | | | | | |
| 3.1.4.1. Aéronautique | | | | | | |
| Aérodrome Bamako-Sénou | 100 | 900 | 800 | 200 | – | 2 000 |
| Aérodrome Gao | – | 60 | 360 | 480 | 300 | 1 200 |
| Aérodrome Tombouctou | – | 666 | 331 | 775 | 666 | 2 438 |
| Aérodrome Mopti-Bamako | – | – | 170 | 170 | 500 | 840 |
| Aérodrome Nioro | – | – | – | 500 | 500 | 1 000 |
| Aérodrome Yélimané | – | – | – | 250 | 250 | 500 |
| Aérodrome Kayes N'Di | – | – | – | – | 100 | 100 |
| Base industrielle Air-Mali | – | – | – | 1 000 | 2 000 | 3 000 |
| 3.1.4.2. Météorologie | | | | | | |
| Projets agro-météorologiques | 25 | 30 | 35 | 40 | 40 | 170 |
| 8 stations agrométéorologiques | 4 | 6 | 6 | 7 | 7 | 30 |
| Radar panoramique | – | – | 50 | – | – | 50 |
| Transferts 4 stations synoptiques | – | – | 39 | 40 | 41 | 120 |
| Création 5 stations synoptiques | – | – | 40 | 42 | 44 | 126 |
| Archives climatologiques | – | – | – | – | 50 | 50 |
| Total 3.1.4. | 129 | 1 662 | 1 831 | 3 504 | 4 498 | 11 624 |
| 3.1.5. Infrastructures et moyens postes et télécommunications | | | | | | |
| 3.1.5.1. Postes | | | | | | |
| Bureau Nioro | – | 11 | – | – | – | 11 |
| Nouveaux bureaux poste | – | – | 40 | 40 | 40 | 120 |
| Bureau Sénou | – | 40 | 40 | 20 | – | 100 |
| Centre chèques postaux Bamako | – | – | 100 | 100 | – | 200 |
| Centre Colis postaux Bamako | – | – | – | – | 100 | 100 |
| Centre tri régional Bamako | – | – | 20 | 30 | – | 50 |
| Hôtel poste régional Bamako | – | – | – | 125 | – | 125 |
| Hôtel poste Ségou | – | – | – | – | 125 | 125 |
| Recette principale Bamako | – | 40 | 30 | – | – | 70 |
| Fourgon postal | – | – | 200 | – | – | 200 |
| Poste-automobile | – | 76 | 154 | – | – | 230 |
| 3.1.5.2. Télécommunication | | | | | | |
| Projet Liptako-Gourma | – | 811 | 811 | – | 811 | 2 433 |
| Projet CEDEAO | – | – | – | 242 | 242 | 484 |
| Projet TELECOM II | – | – | – | 1 868 | 1 412 | 3 280 |

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| PROJETS | 1981 | 1982 | 1983 | 1984 | 1985 | Total Plan |
|---|---|---|---|---|---|---|
| Projet complémentaire Liptako-Gourma | – | 400 | 1 000 | 1 500 | 2 500 | 5 400 |
| Central telex Bamako | 31 | 277 | 255 | 5 | 5 | 573 |
| Extension Souleymambougou | 13 | 63 | 463 | 463 | 8 | 1 010 |
| Modernisation liaison radio-Gao | – | – | – | – | 180 | 180 |
| Plan télécommunication | – | 30 | 30 | – | – | 60 |
| Total 3.1.5 | 44 | 1 748 | 3 143 | 4 393 | 5 423 | 14 751 |
| TOTAL PROJETS INFRASTRUCTURES COMMUNICATIONS | 29 910 | 46 626 | 44 559 | 45 861 | 30 880 | 197 846 |
| 3.2. DEVELOPPEMENT DES TRAVAUX PUBLICS | | | | | | |
| 3.2.1. Topographie et cartographie | | | | | | |
| Equipement technique DNCT | – | 172 | 453 | 453 | – | 1 078 |
| Moyens transports-DNCT | 40 | 40 | 28 | 47 | – | 155 |
| Archives cartographiques | 10 | 60 | 50 | 34 | – | 154 |
| Cartographie 2 000° et 5 000° | 50 | 100 | 60 | 60 | 35 | 305 |
| Cartographie 20 000° et 10 000° | – | 50 | 50 | 50 | 50 | 200 |
| Cartographie 50 000° | – | – | 190 | 400 | 400 | 990 |
| Cartographie 200 000° et 500 000° | – | 34 | 330 | 333 | 336 | 1 033 |
| Total 3.2.1. | 100 | 456 | 1 161 | 1 377 | 821 | 3 915 |
| 3.2.2. Urbanisme et Habitat | | | | | | |
| 3.2.2.1. Urbanisme | | | | | | |
| Plan urbanisme Bozola et Niaréla-sud | 28 | – | – | – | – | 28 |
| Shémas directeurs 6 villes | 53 | 53 | 54 | 53 | 53 | 266 |
| Shémas directeurs 8 centres urbains | 25 | 25 | 37 | 37 | 37 | 161 |
| Réhabilitation quartiers Bamako | 7 | 7 | 14 | 7 | 7 | 42 |
| Aménagements 2 000 ha Bamako | 8 | 8 | 8 | 8 | 8 | 40 |
| Assainissement Kati | – | 10 | 20 | – | – | 30 |
| Assainissement Koulikoro | – | 15 | 15 | – | – | 30 |
| Assainissement zone industriel Bamako | – | 112 | 112 | 102 | – | 326 |
| Aménagement urbain Bamako : square Lumumba | 68 | – | – | – | – | 68 |
| Aménagement urbain Bamako : dalles de traverses | 110 | 150 | 160 | 90 | 28 | 538 |
| Aménagement urbain Bamako : espaces verts | 3 | 3 | 6 | 5 | 3 | 20 |
| Aménagement urbain Bamako : rénovation grand marché | – | – | – | 750 | 750 | 1 500 |
| Aménagement urbain Bamako : caniveaux | 624 | 794 | 499 | 336 | 12 | 2 265 |
| Assainissement Bamako | 30 | 29 | 29 | – | – | 88 |
| Entretien voirie Bamako | 179 | 179 | 179 | 179 | 179 | 895 |

| PROJETS | 1981 | 1982 | 1983 | 1984 | 1985 | Total Plan |
|---|---|---|---|---|---|---|
| Equipement voirie Mopti | 105 | – | – | – | – | 105 |
| Equipement transports collectifs Bamako | – | 500 | – | – | – | 500 |
| 3.2.2.2. Habitat | | | | | | |
| Centre technologie approprié | 290 | 343 | 344 | – | – | 977 |
| Construction 1 333 logements | – | – | 657 | 3 087 | 3 087 | 6 831 |
| Construction 2 000 logements | – | – | 500 | 3 690 | 3 098 | 7 288 |
| Réhabilitation Magnambougou | – | 670 | 400 | 500 | – | 1 570 |
| Infrastructure «hors site» Magnambougou | 316 | – | – | – | – | 316 |
| Réfection voies bitumées et trottoirs Bamako | 212 | 425 | – | – | – | 637 |
| Marchés et édicules Bamako | 194 | 111 | – | – | – | 305 |
| Etude «Projet urbain» du Mali | – | 150 | 192 | – | – | 342 |
| Caisse foncière de Bamako | 40 | 40 | 40 | – | – | 120 |
| Nouvelles voies bitumées Bamako | – | – | 1 900 | 2 200 | 2 100 | 6 200 |
| | 2 292 | 3624 | 5 166 | 11 044 | 9 362 | 31 488 |
| 3.2.3. Bâtiments et équipements publics. | | | | | | |
| 3.2.3.1. Administration territoriale | | | | | | |
| Gouvernorat Tombouctou | – | – | 100 | 100 | 100 | 300 |
| Gouvernorat Koulikoro | – | 200 | 300 | – | – | 500 |
| Constructions circonscriptions | – | – | – | 100 | 200 | 300 |
| Constructions et équipements arrondissements | – | – | 100 | 100 | 100 | 300 |
| Pénitenciers agricoles | – | – | – | 100 | 100 | 200 |
| Equipement arrondissements frontaliers | – | 100 | 50 | – | – | 150 |
| Equipement service protection civile | – | – | – | – | 100 | 100 |
| Véhicules circonscriptions administratives | – | – | – | 500 | 500 | 1 000 |
| Emetteur-récepteurs réseau administratifs | – | – | 100 | 200 | 300 | 600 |
| 3.2.3.2. Administration judiciaire | | | | | | |
| Complexe Justice Bamako | – | – | 100 | 200 | 300 | 600 |
| Palais de justice cercle | 3 | 31 | 61 | 81 | 50 | 226 |
| Palais de justice région | – | 30 | 33 | 20 | 40 | 123 |
| Palais islamique | – | 400 | 400 | 600 | 600 | 2 000 |
| 3.2.3.3. Administration des Affaires étrangères | | | | | | |
| Ambassade Caire | – | 100 | 350 | 250 | 200 | 900 |
| Ambassade Accra | – | 150 | 200 | 200 | 150 | 700 |
| Ambassade Bonn | – | 50 | 60 | 60 | 30 | 200 |
| Ambassade Paris | – | 300 | 450 | 375 | 375 | 1 500 |
| Ambassade Pékin | – | 50 | 100 | 50 | 50 | 250 |

| PROJETS | 1981 | 1982 | 1983 | 1984 | 1985 | Total Plan |
|---|---|---|---|---|---|---|
| 3.2.3.4. Bâtiments et équipements autres administrations | | | | | | |
| Achèvement Assemblée Nationale | – | 1 151 | – | – | – | 1 151 |
| Immeuble ministère du Plan | – | – | 63 | 450 | 473 | 986 |
| Services régionaux du Plan et de la Statistique | 75 | 67 | 165 | 75 | 67 | 449 |
| Direction Nationale cartographie et de topographie | – | – | 61 | 350 | 350 | 761 |
| Services régionaux de l'urbanisme et de la construction | 120 | – | – | – | – | 120 |
| Bâtiment Air-Mali | – | – | 240 | 480 | 480 | 1 200 |
| Immeuble administratif Regie chemin de fer | – | 500 | 500 | 500 | 500 | 2 000 |
| Nouvelle prison Bamako | – | – | – | 50 | 50 | 100 |
| Laboratoire d'hygiène publique et d'assainissement | 103 | 124 | – | – | – | 227 |
| Bureau cellule «onchocercose» | 30 | 30 | – | – | – | 60 |
| Bureau «projet urbain» | 45 | 220 | 20 | – | – | 285 |
| Bureau «société immobilière» | 22 | – | – | – | – | 22 |
| Équipement sports et jeunesse | 15 | 25 | 25 | – | – | 65 |
| Bureau des domaines | 43 | 77 | – | – | – | 120 |
| Nouvelle Voirie Bamako | 238 | 728 | – | – | – | 996 |
| Total 3.2.3. | 694 | 4 333 | 3 478 | 4 841 | 5 115 | 18 461 |
| TOTAL PROJETS TRAVAUX PUBLICS | 3 086 | 8 413 | 9 805 | 17 262 | 15 298 | 53 864 |
| 3.3. ACTIONS DE BASE INFRASTRUCTURE COMMUNICATION ET TRAVAUX PUBLICS | | | | | | |
| TOTAL PROJETS ACTIONS DE BASE | – | 456 | 91 | 1 368 | 1 824 | 4 559 |
| TOTAL PROJETS SECTEUR INFRASTRUCTURE COMMUNICATION ET TRAVAUX PUBLICS | 32 996 | 55 495 | 55 285 | 64 491 | 48 002 | 256 269 |

## IV. Secteur social et administratif

(millions FM)

| PROJETS | 1981 | 1982 | 1983 | 1984 | 1985 | Total Plan |
|---|---|---|---|---|---|---|
| 4.1. DEVELOPPEMENT EMPLOI ET TRAVAIL | | | | | | |
| Projet secteur non structuré | 50 | 330 | 620 | – | – | 1 000 |
| Réforme administrative 3° phase | 204 | 265 | 279 | 265 | 129 | 1 142 |
| TOTAL PROJETS DEVELOPPEMENT EMPLOI ET TRAVAIL | 254 | 595 | 899 | 265 | 129 | 2 142 |
| 4.2. DEVELOPPEMENT DE LA FORMATION | | | | | | |
| 4.2.1. Enseignement fondamental | | | | | | |
| Equipement écoles ruralisées | – | 100 | 200 | 200 | 200 | 700 |
| Equipement cantines scolaires | 16 | 16 | 16 | 16 | 16 | 80 |
| Inspections primaires | 50 | 50 | 50 | 50 | 50 | 250 |
| Total 4.2.1. | 66 | 166 | 266 | 266 | 266 | 1 030 |
| 4.2.2. Alphabétisation | | | | | | |
| Opération Mali-Sud | – | – | 250 | – | 250 | 500 |
| Opération OACV | 131 | 131 | – | – | – | 262 |
| Opération riz-Ségou | 50 | – | 50 | – | 50 | 150 |
| Opération riz-Mopti | 10 | 10 | 10 | 10 | 6 | 46 |
| Opération Haute-Vallée | 28 | 28 | 28 | – | – | 84 |
| Opération Mil-Mopti | 50 | 50 | 21 | – | – | 121 |
| Opération Mil-Kaarta | 80 | 80 | – | – | – | 160 |
| Opération pêche-Mopti | 15 | 15 | 15 | – | – | 45 |
| Projet ODEM | 20 | 20 | – | – | – | 40 |
| Projet coopératives Gao-Tombouctou | 25 | 25 | – | – | – | 50 |
| Alphabétisation fonctionnelle des femmes | 23 | 20 | 20 | 20 | 10 | 83 |
| Projet alphabétisation et post-alphabétisation Dioïla | 55 | 50 | 50 | 25 | 25 | 205 |
| Recherche linguistique-évaluation | 19 | 19 | – | – | – | 38 |
| Introduction langues nationales dans l'enseignement | – | 50 | 50 | 50 | 100 | 250 |
| Achèvement Centre d'alphabétisation | – | 200 | – | – | – | 200 |
| Projet alphabétisation des cadres | – | 113 | 100 | 50 | 50 | 313 |
| Total 4.2.2. | 506 | 811 | 594 | 145 | 491 | 2 547 |
| 4.2.3. Enseignement normal | | | | | | |
| Equipement IPN | – | 200 | 100 | 100 | 100 | 500 |
| Equipement imprimerie IPN | – | – | – | 100 | 100 | 200 |
| Equipement écoles normales | – | 200 | 200 | 200 | 200 | 800 |
| Extension école normale San | – | 100 | 100 | – | – | 200 |

| PROJETS | 1981 | 1982 | 1983 | 1984 | 1985 | Total Plan |
|---|---|---|---|---|---|---|
| Extension école normale Koulikoro | – | 100 | 100 | 100 | 200 | 500 |
| Agrandissement Banankoro | – | 100 | 100 | 100 | 100 | 400 |
| Agrandissement IPEG Diré | – | 100 | 100 | – | – | 200 |
| Transfert des IPEG en zone rurale | – | – | – | 300 | 450 | 750 |
| Construction nouveaux IPEG | – | – | 300 | 600 | 600 | 1 500 |
| Total 4.2.3. | – | 800 | 1 000 | 1 500 | 1 750 | 5 050 |
| 4.2.4. Enseignement secondaire général et technique | | | | | | |
| Laboratoire Lycée Askia-Mohamed | – | 50 | 50 | – | – | 100 |
| Complexe Lycée Technique-ECICA-Ségou | – | 200 | 500 | 500 | 500 | 1 700 |
| Extension mécanique-auto centre formation professionnelle | – | 200 | 200 | 100 | – | 500 |
| Centre formation professionnelle Gao | – | 200 | 500 | 500 | 500 | 1 700 |
| Centre formation professionnelle Kita | – | 200 | 500 | 500 | 500 | 1 700 |
| Lycée technique agricole Koutiala | – | – | 100 | 100 | 200 | 400 |
| Lycée technique agricole Niafunké | – | – | 100 | 100 | 200 | 400 |
| Transformation lycée Bougouni en lycée agricole | – | – | – | – | 50 | 50 |
| Transformation lycée Nioro en lycée agricole | – | – | – | – | 50 | 50 |
| Transformation lycée Dioila en lycée agricole | – | – | – | – | 50 | 50 |
| Enseignement agricole : centre Baguineda | – | 105 | – | 100 | 100 | 305 |
| Enseignement agricole : centre coton Fatoma | – | 94 | – | 100 | 100 | 294 |
| Enseignement agricole : centre N'Kouroula | – | 104 | – | 100 | 100 | 304 |
| Enseignement agricole : centre Dioro | – | 102 | – | 100 | 100 | 302 |
| Enseignement agricole : centre El Oualadji | – | 103 | 100 | 200 | 200 | 603 |
| Enseignement agricole : centre Diambacourou | – | 103 | 100 | 200 | 200 | 603 |
| Enseignement agricole : centre M'Pessoba | – | 103 | 100 | 200 | 200 | 603 |
| Transformation des CAR | – | 633 | – | – | – | 633 |
| Santé et A.S : centre formation éducateurs pré-scolaire | 50 | 150 | – | – | – | 200 |
| Santé et A.S. : école infirmiers 1° cycle Mopti | – | – | – | – | 100 | 100 |
| Santé et A.S. : école infirmiers 1° cycle Tombouctou | – | – | – | 50 | 100 | 150 |
| Santé et A.S. : école secondaire santé Sikasso | – | – | – | 50 | 100 | 150 |
| Santé et A.S. : centre kinesethérapie | 200 | 200 | – | – | – | 400 |
| Santé et A.S. : centre application CCDC | 50 | – | – | – | – | 50 |

| PROJETS | 1981 | 1982 | 1983 | 1984 | 1985 | Total Plan |
|---|---|---|---|---|---|---|
| Santé et A.S. : rénovation école infirmiers Point-G | – | – | – | – | 100 | 100 |
| Santé et A.S. : rénovation école secondaire santé | – | – | – | 100 | 50 | 150 |
| Santé et A.S. : centre féminin de formation pratique | – | – | 80 | 80 | 76 | 236 |
| Santé et A.S. : centre formation de Ouélésébougou | – | 137 | 137 | – | – | 274 |
| Travail : centre formation ONMO | – | 425 | 810 | 445 | – | 1 680 |
| Total 4.2.4 | 300 | 3 109 | 3 277 | 3 525 | 3 576 | 13 787 |
| 4.2.5. Enseignement Supérieur | | | | | | |
| ISRA | – | 500 | 500 | 1 000 | 1 000 | 3 000 |
| ENI : extension | – | 115 | 100 | 100 | 100 | 415 |
| ENI : laboratoire | – | 146 | 100 | 100 | 100 | 446 |
| ENI : projet UNESCO | – | 93 | 200 | 200 | 200 | 693 |
| Centre universitaire des sciences de la santé | – | – | – | – | – | PME |
| Ecole de médecine : 3° phase | – | – | 250 | 250 | 500 | 1 000 |
| Ecole des Hautes études pratiques | – | 500 | – | – | – | 500 |
| Extension IPR Katibougou | – | 250 | 250 | 250 | 250 | 1 000 |
| Centre des auditeurs de Justice | – | 20 | 20 | 30 | 30 | 100 |
| Total 4.2.5 | – | 1 624 | 1 420 | 1 930 | 2 180 | 7 154 |
| 4.2.6. Projets communs | | | | | | |
| Directions régionales de l'éducation | 230 | 382 | – | – | – | 612 |
| Restructuration Lycée-Ecole Normale de Badalabougou | – | 500 | – | 500 | – | 1 000 |
| Total 4.2.6 | 230 | 882 | – | 500 | – | 1 612 |
| TOTAL PROJETS DEVELOPPEMENT FORMATION | 1 102 | 7 392 | 6 557 | 7 866 | 8 263 | 31 180 |
| 4.3. DEVELOPPEMENT DES SPORTS, DES ARTS ET DE LA CULTURE | | | | | | |
| Archives nationales | – | 100 | 100 | 100 | 100 | 400 |
| Musée du sahel | – | 100 | 100 | 100 | 100 | 400 |
| Palais Culture de Ségou | – | 200 | 100 | 100 | 100 | 500 |
| Institut National des Arts | – | 100 | 100 | 100 | 100 | 400 |
| Village artisanal | – | 82 | 50 | 50 | – | 182 |
| Bibliothèque Nationale | – | 100 | 100 | 100 | 100 | 400 |
| Palais des Pionniers | – | 250 | 250 | 250 | 250 | 1 000 |
| Camps Soufroulaye | – | 200 | 100 | 100 | 100 | 500 |
| Chantier des jeunes | – | 50 | 50 | – | – | 100 |
| Equipement maison des jeunes | – | 30 | 30 | – | – | 60 |
| Stades nouveaux | – | 250 | 250 | 250 | 250 | 1 000 |
| Stades omnisports | – | 105 | – | – | – | 105 |
| Institut National de Sport | – | 200 | 100 | 100 | 100 | 500 |
| Sport scolaire et médico-sportif | – | – | 50 | 50 | – | 100 |

| PROJETS | 1981 | 1982 | 1983 | 1984 | 1985 | Total Plan |
|---|---|---|---|---|---|---|
| TOTAL PROJETS SPORTS-ARTS-CULTURE | – | 1 767 | 1 380 | 1 300 | 1 200 | 5 647 |
| **4.4. DEVELOPPEMENT SANTE ET ACTIVITÉS SOCIALES** | | | | | | |
| **4.4.1. Médecine générale et soins de santé primaire** | | | | | | |
| Région de Kayes | – | 374 | 374 | 373 | 373 | 1 494 |
| Région de Sikasso | – | 248 | 219 | 300 | 300 | 1 067 |
| Région de Ségou | – | – | 400 | 500 | 500 | 1 400 |
| Région de Mopti | 342 | 300 | 300 | 300 | 400 | 1 642 |
| Région de Gao | – | 286 | 300 | 300 | 300 | 1 186 |
| Région de Koulikoro | – | 100 | 115 | 115 | 115 | 445 |
| Région de Tombouctou | – | 400 | 450 | 450 | 450 | 1 750 |
| Bamako : développement sanitaire général | – | 100 | 183 | – | – | 283 |
| Bamako : Point-G | – | 60 | 100 | 200 | 240 | 600 |
| Bamako : Gabriel Touré | – | – | – | – | 600 | 600 |
| Bamako : Hôpital Kati | – | – | – | 90 | 90 | 180 |
| Bamako : polyclinique | – | – | – | 500 | 500 | 1 000 |
| Total 4.4.1. | 342 | 1 868 | 2 441 | 3 128 | 3 868 | 11 647 |
| **4.4.2. Services spécialisés de Santé et services sociaux** | | | | | | |
| Office Malien de Pharmacie | – | 1 000 | 1 000 | – | – | 2 000 |
| Hygiène publique et assainissement | – | 75 | 75 | 75 | 75 | 300 |
| Soins dentaires | – | 214 | 214 | 414 | 444 | 1 256 |
| Santé familiale | 90 | 90 | 113 | 113 | 114 | 520 |
| Institut Recherche Santé Publique | – | 100 | 300 | 300 | 300 | 1 000 |
| Programme des affaires sociales | – | – | – | 250 | 250 | 500 |
| Institut Jeunes Aveugles | – | – | – | 250 | 250 | 500 |
| Services handicapés physiques | – | – | – | 200 | 300 | 500 |
| Centre rééducation délinquants | – | – | – | 100 | 100 | 200 |
| Soutien aux activités des services spécialisés | – | – | 75 | 143 | 143 | 361 |
| Total 4.4.1. | 90 | 1 479 | 1 777 | 1 845 | 1 946 | 7 137 |
| **4.4.3. Etude et actions sanitaires** | | | | | | |
| Etudes des charges recurentes santé | 10 | 40 | – | – | – | 50 |
| Renforcement de la capacité gestion | – | 300 | 150 | – | – | 450 |
| Plan de salubrité rurale | – | – | – | – | 300 | 300 |
| Programme élargi vaccination | – | 218 | 218 | 218 | 218 | 872 |
| Lutte maladie diarrhéique | – | – | 120 | 120 | 120 | 360 |
| Lutte paludisme | – | – | 120 | 120 | 120 | 360 |
| Lutte bilharziose | – | 300 | 90 | 90 | 90 | 570 |
| Lutte onchocercose | 75 | 130 | 130 | 130 | 130 | 595 |
| Actions ophtalmologiques | 130 | 130 | 130 | 130 | 130 | 650 |
| Programme de recherche santé publique | – | – | 120 | 120 | 120 | 360 |
| Total 4.4.3. | 215 | 1 118 | 1 078 | 928 | 1 228 | 4 567 |

| PROJETS | 1981 | 1982 | 1983 | 1984 | 1985 | Total Plan |
|---|---|---|---|---|---|---|
| 4.4.4. Programme U. N. F. M. | | | | | | |
| Complexe social Ségou | – | – | – | – | 10 | 10 |
| Siège U. N. F. M. | – | – | – | 20 | 30 | 50 |
| Amélioration condition travail des femmes | – | – | – | – | 50 | 50 |
| Maternités et dispensaires à Doura | – | – | – | – | 10 | 10 |
| Total 4.4.4. | – | – | – | 20 | 100 | 120 |
| TOTAL PROJETS DE DEVELOPPEMENT SANTE ET ACTIVITES SOCIALES | 647 | 4 465 | 5 296 | 5 921 | 7 142 | 23 471 |
| 4.5. DEVELOPPEMENT DE L'INFORMATION | | | | | | |
| Renouvellement émetteurs Radio-Mali | 237 | 1 763 | – | – | – | 2 000 |
| Télévision en couleur | 500 | 500 | 400 | 300 | 300 | 2 000 |
| Stations régionales | – | – | – | – | 400 | 400 |
| Centre production radiophonique | 34 | 34 | 34 | 34 | 34 | 170 |
| Laboratoire maintenance émetteurs | – | – | – | 50 | – | 50 |
| Centre d'écoute radiophonique | – | – | – | – | 45 | 45 |
| Equipement A.M.A.P. | – | – | – | 50 | – | 50 |
| Centre «multimédia» Mopti | 78 | 79 | – | – | – | 157 |
| Equipements photographiques | 10 | – | – | – | – | 10 |
| Centres régionaux de presse | – | – | – | – | 75 | 75 |
| Imprimerie de presse | – | – | – | 100 | 100 | 200 |
| Laboratoire de développement des films | – | – | 100 | – | – | 100 |
| C. N. P. C | 150 | 150 | – | – | – | 300 |
| Equipements C. N. P. C. | 87 | – | – | – | – | 87 |
| TOTAL PROJETS DEVELOPPEMENT INFORMATION | 1 096 | 2 526 | 534 | 534 | 954 | 5 644 |
| 4.6. DEVELOPPEMENT PLAN ET STATISTIQUE | | | | | | |
| Recensement de la population | – | – | – | 1 000 | 1 000 | 2 000 |
| Assistance à la division Informatique | 320 | 288 | 230 | 289 | 205 | 1 332 |
| Programme enquêtes intégrées auprès des ménages | 706 | 532 | 526 | 526 | 574 | 2 864 |
| Enquêtes mortalité infantile | 35 | 9 | 15 | 9 | 9 | 77 |
| Projet d'assistance au Plan | 434 | 267 | 272 | 280 | 270 | 1 523 |
| Projet planification et démographie | 56 | 72 | 70 | – | – | 198 |
| Appui technique à la SNED | 344 | 387 | 355 | 309 | 275 | 1 670 |
| TOTAL PROJETS DEVELOPPEMENT PLAN ET STATISTIQUE | 1 895 | 1 555 | 1 468 | 2 413 | 2 333 | 9 664 |

| PROJETS | 1981 | 1982 | 1983 | 1984 | 1985 | Total Plan |
|---|---|---|---|---|---|---|
| 4.7. PROJETS DE BASE DEVELOPPEMENT SOCIAL ET ADMINISTRATIF | | | | | | |
| TOTAL PROJETS DE BASE . . . | – | 735 | 1 470 | 2 205 | 2 940 | 7 350 |
| TOTAL PROJETS D'INVESTISSEMENTS SECTEUR SOCIAL ET ADMINISTRATIF. . . . . | 4 994 | 19 035 | 17 604 | 20 504 | 22 961 | 85 098 |

| | | | | | | |
|---|---|---|---|---|---|---|
| TOTAL PLAN QUINQUENNAL 1981 - 1985 . . . . . | 127 259 | 206 113 | 214 166 | 210 625 | 178 241 | 936 614 |

## C. LIST OF PERSONS CONTACTED

| | |
|---|---|
| M. Adama Traoré | Director of BIAO, Bamako |
| M. Nassour Ouaidou | Sahel Institute |
| M. Kone Felix<br>Mme Maiga Fatimata<br>Mme Keita Olga<br>M. El Bechir Kane | Female Rural-Urban Migration Study Team. Social Science Researchers, Institut des Sciences Humaines, Bamako |
| M. Mamadou Keita | Director of Direction Nationale de l'Urbanisme et de la Construction, Bamako |
| M. Fade Diallo | Chief of Division, Aménagement du Territoire, Département du Plan, Bamako |
| M. Mamadou Touré | Technical Advisor, Ministère de l'Etat pour l'Equipement |
| M. Bibi Diawara | Chief of Population Division, Ministère du Plan |
| M. Daniel Berthé | Director of World Bank Projet Urbain |
| M. Mamadou Thiéro | Director, Division d'Aménagement du Territoire, Département du Plan |
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| M. Mamadou Sidibe | Directeur Adjoint, Chemin de Fer du Mali, Bamako |
| M. Mamadou Bah | Head of Statistics Division, Chemin de Fer du Mali |
| M. Souleymane Diallo | Head of Kayes Regional Office, Chemin de Fer du Mali |
| Père Guy Freu | Head of Development Projects, Catholic Parish, Kayes |
| M. Guido Cap | Dutch Volunteer, Operation Puit, Catholic Parish, Kayes |
| M. Traoré | Director of BIAO Branch Bank, Kayes |

| | |
|---|---|
| M. Amara Diakité | Professeur d'Enseignement Secondaire, Direction Régionale de l'Education |
| Dr. Soumaré Abdoulaye | Médecin Directeur, General Hospital, Kayes |
| Dr. Allaye Diallo | Médecin Coordonnateur pour la Région de Kayes, General Hospital |
| Dr. Bagoureissy Tall | Head Doctor, Circle of Yelimané |
| M. Tefourou Ouattara | Chef d'Exploitation, Energie du Mali, Kayes |
| M. François-Marie Yanaba | Regional Director, Eaux et Fôrets, Kayes |
| M. Isa Dambele | Regional Director, Division d'Urbanisme, Kayes |
| M. Camara | Civil Engineering Technician, Direction d'Urbanisme, Kayes |
| M. Samaké | Technician, Direction d'Urbanisme, Kayes |
| M. Moussa Sow | Mayor of Kayes Commune |
| M. Baba Coulibaly | Directeur, Centre Assistance Coopérative (C.A.C.) |
| M. Oumarou Ongoïba | Représentant d'Opérations Techniques, C.A.C. |
| M. Mamadou Bane Jr. | Vice President, Chamber of Commerce, Kayes |
| M. Dassé Bouaré | Chef de Zone, O.D.I.P.A.C. (Office pour le Développement Intégré des Productions Arachidières et Céréalières), Kayes Region |
| M. Doumbia | Head of Regional Office, Ministère du Plan, Kayes |
| M. Mamadou Diakité | Inspecteur Régional, Inspection du Travail, Kayes |

| | |
|---|---|
| M. Abdoulaye Traoré | Directeur Général, OVMSTM, Kayes |
| M. Daga Sanogo | Directeur Adjoint, Service Régional des Affaires Economiques, Kayes |
| M. Thomas Zerbo | Inspecteur du Service Economique, Kayes |
| M. Hamma Sissao | Chef du Commerce Intérieur, Kayes |
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| M. Ferdinand Grezaud | Head of Working Groups, Acquisition of Professional Practice, IPNETP, Abidjan |

USAID Bamako

| | |
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| Mr. David Wilson | USAID Mission Director, Bamako |
| Mr. Jim Anderson | Deputy Chief of Mission |
| Mr. Roger Simmons | Program Officer |
| Mr. George Huddleston | Head of General Development Office |
| Mr. Roy Haftorson | General Development |
| Mr.Gerald Cashion | Design and Evaluation |
| M. Mamadou Aw | " " " |
| Ms. Barbara Jones | Sahel Institute Liaison |
| Mr. Jon Anderson | General Development |
| M. Louis De Merode | Program Office |
| M. Boubacar Diallo | General Development |
| Mr. Richard Day | Assistant Program Officer |
| Mr. Emmy Simmons | Agricultural Economist, Sahel Development Planning Team |
| Ms. Susan Buchanan | General Development |
| Ms. Diane Ponasik | Agricultural Officer |

## D. BIBLIOGRAPHY

Demography/Socio-Economic Data

Alexander, Georg et al (Equipe Allemande) et Direction Nationale de l'Urbanisme et de la Construction. "Schéma Directeur d'Aménagement et d'Urbanisme; Description et Analyse de la Structure Socio- Economique et Spatiale de la Ville de Segou, Mali", Institut de Sociologie et de Développement, Université Libre de Berlin, October 1982.

Colvin, Lucie. "Mali", The Uprooted of the Western Sahel: Migrants' Quest for Cash in the Senegambia, Praeger, 1981, pp. 260-286; and "Migration & Public Policy in the Senegambia", pp. 317-343.

Condé, Julien and Michèle Fleury-Brousse. "Les Migrations Internationales en France: Le Cas des Maliens, Mauritaniens et Sénégalais: Etat de la Question", CILSS/OCDE/Ministère Français de la Coopération et du Développement, 1983.

Condé, Julien and Pape Syr Diagne et al. "Les Migrations Internationales Sud-Nord: Une Etude de Cas: Les Migrants Maliens, Mauritaniens, et Sénégalais de la Vallée du Fleuve Sénégal en France", Comité Inter-Etats de Lutte Contre la Sècheresse dans le Sahel, Draft, Bamako, December 1983.

De Jong, A.A. "Investigation Socio-Economique de la Ville de Djenné et Ses Environs: Rapport V, Evolution Urbaine au Sahel; Croissance Urbaine au Sénégal, au Mali, en Haute-Volta et au Niger: 1926-1976", Section de la Géographie Humaine des Pays en Voie de Développement, Institut Géographique, University of Utrecht, Netherlands, 1983.

Département de Géographie des Pays en Voie de Développement. "Le Rôle des Villes Secondaires et Tertiaires dans le Développement Régional (Mali): Un Programme Hollando-Malien de Recherches Socio-Géographiques 1982-85", Université Libre, Amsterdam, 1981.

212

Diarra, Ousmane and Sibiri Coulibaly. "Exode Rural dans l'Agglomération de Bamako: Evolution et Conséquences", FNSUP (Ecole Normale Supérieure), Mémoire, Bamako, 1982-83.

Direction Nationale de la Statistique et de l'Informatique, Ministère du Plan. "Indicateurs Démographiques", Bamako, Republic of Mali, July 1983.

Direction Nationale de la Statistique et de l'Informatique, Ministère du Plan. "Principales Caractéristiques de la Population Malienne à Partir des Résultats Définitifs du Recensement de 1976: Analyse de Recensement Tome I", Bureau Central de Recensement, Bamako, Republic of Mali, March 1982.

Direction Nationale de la Statistique et de l'Informatique, Ministère du Plan. "Recensement Général de la Population de Décembre 1976: Volume I - Série Population et Socio-Démographie; Volume II - Série Economique; Volume III - Répertoire des Villages", Bureau Central de Recensement, 1980.

Harris, Joseph. "Feasibility Report on the Historical Role of Migrations between Sahelian and Coastal States of West Africa", April 22, 1977 (under USAID Sahel Development Project, Contract No. AID/afr-C-1199, Work Order 4 with BLK Group Inc., 1730 M St. NW, Washington D.C.).

Harts-Broekhuis, E.J.A.; De Jong, A.A.; Tempelman, G.J. "Recherche Socio-Economique de l'Ensemble Urbain Mopti-Sévaré et sa Région (RESEMOS) - Cycle I: Rapport Préliminaire", Institut Géographique, University of Utrecht, Netherlands, 1983.

Harts-Broekhuis, E.J.A.; Romein, A.; Tempelman, G.J.; Verkoren, O. "Investigation Socio-Economique de la Ville de Djenné - Rapport 4: Les Mouvements Migratoires de la Population Urbaine", Institut Géographique, University of Utrecht, Netherlands, 1983.

Harts-Broekhuis, E.J.A., Tempelman, G.J.; Verkoren, O. "Investigation Socio-Economique de la Ville de Djenné et ses Environs - Rapport 1: Données de Base", Institut Géographique, University of Utrecht, Netherlands, 1980.

Horowitz, Michael/Research Foundation of State University of N.Y. "Social Anthropological and Rural Economic Studies in Mali: The Dukalamba Forest, and the Bandiagara Plateau", USAID Contract No. AID/afr-C-1045, August 1979.

Imperato, Pascal James. Historical Dictionary of Mali, The Scarecrow Press Inc., Metuchen N.J., 1977.

Keita, Rokiatou N'Diaye. Kayes et le Haut Sénégal: Les Etapes de la Croissance Urbaine, Tome I; La Ville de Kayes, Tome II; Kayes et sa Région, Tome III; Editions Populaires, Bamako, 1972.

Kliest, T.J., Kropmans, E.J., Tempelman, G.J.; Verkoren, O. "Investigation Socio-Economique de la Ville de Djenné et ses Environs - Rapport 3: Aspects Institutionnels de la Planification Rurale au Mali: le Cas du Cercle de Djenné", Institut Géographique, University of Utrecht, Netherlands, 1982.

Kliest, T.J., Tempelman, G.J.; Verkoren O. "Etude Socio-Economique de la Ville de San et ses Environs (ESES) - Cycle I: Rapport Préliminaire", Institut des Sciences Humaines, Bamako, 1982.

Kone, Yaouaga Felix and Arturo Parolini et al. "La Femme en Milieu Rural: Cercle de Kolokani, Mali - Etude dans une Perspective d'Anthropologie Appliquée", Institut des Sciences Humaines in collaboration with Terra Nuova Centro (Rome), Bamako, 1983.

RAPID (Resources for the Awareness of Population Impacts on Development). "Mali: The Effects of Population Factors on Social and Economic Development", The Futures Group, USAID Draft, 1983.

Sabagh, Georges et al/Sahel Institute. "Consultants' Report on Evaluation of the Implementation of 'The Sahel Demographic Data Collection and Analysis Project' (625-0927) by the Sahel Institute Socio-Economic and Demographic Unit", supported by USAID Contract, 9/17/82.

Sahel Institute. "Aperçu sur les Villages Enquêtés", Comité Inter-Etats de Lutte Contre la Sècheresse dans le Sahel, Bamako, no date but probably 1982.

Sahel Institute. "L'Argent Envoyé par les Immigrés", no date but probably 1983.

Sahel Institute. "Mali 1975-81 Répartition (des Emigrés Maliens en France) par Régions d'Origine, Sexe, Classes d'Age, Professions et Résidences", computerized tables generated by surveys of Malian immigrants in France, no date but post-1981.

Sahel Institute. "Utilisation de l'Argent Envoyé par les Immigrés: Mali, Mauritanie, et Sénégal", no date.

Slits, Peter. "Kita: Pôle de Croissance ou Centre Urbain dans Une Economie Territoriale?" - Rapport de Base # 2, Département de Géographie Humaine des Pays en Développement, Université Libre, Amsterdam, September 1983.

Slits, Peter and F. Beyaard. "La Migration vers et dans la Ville de Kati: Une Etude sur les Mouvements Migratoires vers et le Processus d'Etablissement dans la Ville de Kati, Ville Régionale au Mali", Département de Géographie Humaine des Pays en Développement, Université Libre, Amsterdam, 1981.

Slits, Peter and R. Kriste. "Le Transfert de Services Administratifs de Bamako à Kati - Koulikoro: Rapport Final d'une Recherche Socio-Géographique", Département de Géographie Humaine des Pays en Développement, Université Libre, Amsterdam, 1981.

Slits, Peter and Mineke Laman. "La Région de Kayes: Un Premier Inventaire de Quelques Eléments Socio-Géographiques d'une Région Administrative dans l'Ouest du Mali" - Rapport de Base #1, Département de Géographie Humaine des Pays en Développement, Université Libre, Amsterdam, 1982.

215

Slits, Peter and A. Lenzen. "Les Marchés de Kati: Rapport Final d'une Recherche Socio-Géographique", Département de Géographie Humaine des Pays en Développement, Université Libre, Amsterdam, 1981.

Slits, Peter et al. "Kati: Développement Autonome ou Dépendant d'une Economie Urbaine - Etude sur les Rapports Economico-Spatiaux d'une Ville Tertiaire au Mali", Département de Géographie Humaine des Pays en Développement, Université Libre, Amsterdam, 1983.

Slits, Peter et al. "Koulikoro: Rapport de Synthèse de Quatre Etudes Sectorielles sur la Ville Régionale de Koulikoro au Mali", Département de Géographie Humaine des Pays en Développement, Université Libre, Amsterdam, 1980.

Steier, Francis. "Migration in West Africa and Development: A Review of Recent Research", REDSO/WA, U.S. Agency for International Development, Abidjan, February 1982.

Steier, Francis et al. "The Conditions of Agricultural Intensification in the West African Savannah", in Reyna, Stephen (ed.) et al. Sahelian Social Development, REDSO/WA, U.S. Agency for International Development, Abidjan, 1980, pp. 373-490.

Tempelman, G.J.; Harts-Broekhuis, E.J.A. "Etude Socio-Economique de la Ville de San (ESES), Cycle II, Rapport Préliminaire", Institut des Sciences Humaines, Bamako, 1982.

Tempelman, G.J.; Harts-Broekhuis, E.J.A.; Verkoren, O. "Etude Socio-Economique de la Ville de San et de ses Environs (ESES), Cycle III: Rapport Préliminaire", Institut Géographique, University of Utrecht, Netherlands, 1983.

Tempelman G.J.; Verkoren, O. "Investigation Socio-Economique de la Ville de Djenné et ses Environs, Cycle II, Rapport Préliminaire: Mouvements Migratoires et Commerce", Institut des Sciences Humaines, Bamako, 1980.

Touré Mme (née Camara, Oumou). "Conséquences Socio-Economiques de l'Aménagement de la Ville de Nara", Mémoire CNDC (Centre National de Formation pour le Développement Communautaire), 1979-80.

Van Der Pol-De Jong, A.A., Verkoren, O.; Tempelman, G.J. "Investigation Socio-Economique de la Ville de Djenné et ses Environs - Rapport II: L'Evolution Urbaine au Mali, 1926-1976, Quelques Aspects Quantitatifs", Institut Géographique, University of Utrecht, Netherlands, 1981.

Economic

BIAO Mali (Banque Internationale pour l'Afrique Occidentale/-Mali). "Exercice 1982", Bamako, 1982.

Bureau d'Etudes, de Conseils, et d'Interventions au Sahel (BECIS)/BIAO. "Introduction à l'Etude Economique et aux Transferts Monétaires dans la Région de Kayes", Bamako, August-December 1982.

Direction Nationale de la Statistique et de l'Informatique, Ministère du Plan. "Annuaire Statistique du Mali 1981", Bamako, August 1983.

Direction Nationale de la Statistique et de l'Informatique, Ministère du Plan. "Bulletin Mensuel de Statistique" #8, Bamako, August 1983.

Direction Nationale de la Statistique et de l'Informatique, Ministère du Plan. "Eléments de Conjoncture 2ème Trimestre 1983", No. 22, Bamako, October 1983.

Direction Nationale de la Statistique et de l'Informatique, Ministère du Plan. "Rapport de l'Enquête Agricole, 1980-81", Bamako, September 1983.

Direction Régionale du Plan et de la Statistique. "Gao Annuaire Statistique 1976-77", Bamako, May 1982.

Direction Régionale du Plan et de la Statistique. "Kayes Annuaire Statistique, 1973-76", Kayes, November 1982.

Direction Régionale du Plan et de la Statistique. "Koulikoro Annuaire Statistique 1980", Koulikoro, July 1983.

Direction Régionale du Plan et de la Statistique. "Mopti Annuaire Statistique 1978-79", Mopti, December 1981.

Direction Régionale du Plan et de la Statistique. "Segou Annuaire Statistique 1981", Segou, October 1983.

Direction Régionale du Plan et de la Statistique. "Sikasso Annuaire Statistique, 1978-79", Sikasso, September 1982.

Direction Régionale du Plan et de la Statistique. "Tombouctou Annuaire Statistique 1978-79", Tombouctou, October 1982.

Direction Régionale du Plan et de la Statistique/Direction Régionale de la Coopération. "Enquête Socio-Economique: Réalisée dans la Région de Gao en 1975", Gao, October 1977.

FAO. "Programme de Coopération FAO/Gouvernements - Plan d'Opérations", donor Italy, recipient Mali, Project "Programme de Développement Rural Intégré dans la Région de Kayes-Nord, Mali", no date.

Jourdain, Robert. "Analyse des Résultats du Recensement du Secteur Non Structuré de la Ville de Bamako", International Labor Organization WEP 2-33/ Doc. 8, Geneva, 1978.

Ministère du Plan. "Plan Quinquennal de Développement Economique et Social, 1981-85", Bamako, September 1981.

Nihan, Georges et al. "Le Secteur Non Structuré 'Moderne' de Bamako: Esquisse des Résultats de l'Enquête et Propositions pour un Programme d'Action", International Labor Organization, WEP 2-33/ Doc. 15, Geneva, 1979.

Platon, Pierre (with translation by Melville Wallace). "Mali 1980 - The Malian Economy at the Beginning of a New Decade", Marchés Tropicaux et Méditerranéens, Paris, December 1979.

Republic of Mali. "International Conference of Donors for the Economic Recovery and Development of the Republic of Mali - Volume I: Summary Report", December 1982.

Republic of Mali. "International Conference of Donors for the Economic Recovery and Development of the Republic of Mali - Volume II, Presentation of Projects", December 1982.

Service Régional des Affaires Economiques. "Rapport d'Activité de l'Année 1983", Kayes, Mali.

World Bank. "Accelerated Development in Sub-Saharan Africa: An Agenda for Action", Washington D.C., 1981.

World Bank. "Economic Memorandum on Mali", Report No. 3200-MLI, Washington D.C., June 30, 1981.

World Bank. "Mali Special Economic Study: Planning Institutions and the 1974-78 Plan", Report No. 3333-MLI, Washington D.C., June 30, 1981.

World Bank. "Mali: Urban Development Project", No. P-2595-MLI, Washington, D.C., June 1979.

World Bank. "Project Completion Report: Mali Second Highway Project (Credit 383-MLI) and Third Highway Project (Credit 599-MLI)", Washington D.C., July 1983.

World Bank. "Project Performance Audit Report: Mali Integrated Rural Development Project (Credit 491-MLI)", November 1980.

World Bank. "Project Performance Audit Report: Mali Office du Niger Technical Assistance Project (Credit 854-MLI)", Washington D.C., March 1983.

World Bank, Resident Mission in Mali. "Programme de la Banque Mondiale au Mali", Bamako, January 1983.

DRD

Energy

"Capturer le Soleil", Construction Afrique, no date but 1983 or 1984, pp. 65-68.

"Dossier: Les Energies Nouvelles et Renouvelables", Le Courier No. 71, January - February 1982, pp. 49-91.

Molle, J.F. "Le Charbon Végétal dans les Pays en Développement" La Division "Energies Renouvelables", CEMAGREF, ANTHONY, France, 9 pp.

World Bank. "Report and Recommendation of the President of the International Development Association to the Executive Directors on a Proposed Credit of SDR 7.1 Million to the Republic of Mali for a Biomass Alcohol and Energy Efficiency Project", Report No. P-3605-MLI, Washington D.C., May 26, 1983.

221

Private Voluntary Organizations

Kap, Guido. "Rapport des Campagnes '82 et '83: Projet de Puits, Secama, Kayes", Secours Catholique Malien, Diocèse de Kayes, Kayes, October 1983.

Regional Planning

Direction Nationale de la Planification, Ministère du Plan. "Schéma d'Aménagement du Delta Central en 5ème Région: Rapport de Mission 1er au 10 Novembre 1982 (Version Définitive)", Bamako, January 1983.

Direction Nationale de la Planification, Ministère du Plan. "Termes de Référence: Schéma Directeur d'Aménagement du Delta Central en 5ème Région", first draft, no date but probably 1983.

Division Aménagement du Territoire, Direction Nationale de la Planification, Ministère du Plan. "Avis de Réunion: Schéma d'Aménagement de la 5ème Région", Bamako, November 16, 1983.

Division Aménagement du Territoire, Direction Nationale de la Planification, Ministère du Plan. "Note sur le Point de la Situation du Schéma Directeur du Delta Central en 5ème Région, au 3 Novembre 1983", Bamako, November 15, 1983.

Transport

Direction de la Planification et du Contrôle, Direction Générale de la Régie du Chemin de Fer du Mali. "Bulletin Annuel Statistique: Exercice 1982", Bamako, 1983.

Direction Nationale des Travaux Publics, Ministère des Transports et Travaux Publics. "Situation des Projets Routiers Inscrits au Plan Quinquennal de Développement Socio-Economique du Mali, 1981-85", no date but current as of January 1984.

Direction Nationale des Travaux Publics, Ministère des Transports et Travaux Publics. "Comptages Routiers 1980: Ensemble du Réseau" Bamako, 1980.

Direction Nationale des Travaux Publics, Ministère des Transports et Travaux Publics. "Comptages Routiers 1981", xerox of handwritten tables collected in Bamako, January 1984.

Direction Nationale des Travaux Publics, Ministère des Transports et Travaux Publics. "Comptages Routiers: Trafic de 1982 - Ensemble du Réseau", xerox of handwritten tables collected in Bamako, January 1984.

Direction Nationale des Travaux Publics, Ministère des Transports et Travaux Publics. "Rapport d'Activité de la Direction Nationale des Travaux Publics pendant la Période du 22 Septembre 1982 au 22 Septembre 1983", no date, but probably 1983.

Division des Etudes Générales et de la Statistique, Direction Générale de la Régie du Chemin de Fer du Mali. "Bulletin de Statistique - 1er Trimestre 1983", Bamako, 1984.

Office National des Transports, Ministère des Transports et des Travaux Publics. "Rapport Annuel d'Activité de l'Office National des Transports", Bamako, 1982.

Republic of Mali, Ministère des Transports et des Travaux Publics. "Projet Urbain du Mali: Groupe Huit", World Bank, no date, post 1977.

Société d'Etudes Pour le Développement Economique et Social (S.E.D.E.S.) (Paris)/Ministère des Transports et des Travaux Publics, Office National du Transport. "Plan du Transport du Mali, 1980-1994", V.VI - "La Demande de Transport", Nov. 1979 SEDES and Diwi Bureaux d'Etudes, xerox of transport maps.

S.E.D.E.S. and Louis Berger International Inc. Développement Intégré de la Région du Liptako Gourma, Deuxième Phase Synthèse - Le Désenclavement Intégré du Liptako Gourma, UNECA, 1976.

275

Urbanism

Assemblée Nationale. "Loi Proposée: Portant Institution des Schémas Directeurs d'Aménagement d'Urbanisme et des Plans d'Urbanisme Sectoriel en République du Mali", 1982 or after (no date).

Cohen, Michael et al. "Urban Growth and Economic Development in the Sahel", World Bank Staff Working Paper No. 315, Washington D.C., January 1979.

Direction Nationale de l'Urbanisme et de la Construction/Ministère des Transports et des Travaux Publics. "Schéma Directeur d'Aménagement et d'Urbanisme de la Ville de Koulikoro et Environs", Bamako, March 1982.

Direction du Projet Urbain du Mali, Ministère de l'Intérieur. "Etude du Développement Urbain de Bamako: Programmation Décennale des Investissements", Bamako, no date but current as of January 1984.

Direction du Projet Urbain du Mali, Ministère de l'Intérieur. "Projet Urbain du Mali: Exécution (Projet du Rapport Final)", Bamako, June 30, 1983.

Gouvernorat du District de Bamako, Ministère de l'Intérieur. "Cahier des Charges et Réglement du Lotissement de Magnambougou: Réhabilitation et Parcelles Neuves", Projet Urbain du Mali, no date but 1983 or '84.

"Habitat: Opération Test à Bamako", Construction Afrique, No. 33, December 1982, pp. 72-75.

Kone, Drissa. "Organisation Spatiale et Processus de Croissance d'Une Capitale Régionale - L'Exemple de Sikasso au Mali", Mémoire de Maîtrise, Université de Paris VIII, Institut d'Urbanisme de l'Académie de Paris, Paris 1979.

Le Ministre de l'Intérieur, Mali. "Opération Expérimentale ACA à Banconi, District de Bamako", request for financing submitted to Agence de Coopération et Aménagement (ACA) for upgrading in the squatter area of Banconi, no date but 1982 or '83.

Linetzky, Jean-Christophe and William Mane. "Vivre à Bamako", Construction Afrique, no date but 1983 or '84, pp. 20-24.

MIT Center for Policy Alternatives. "A Framework for Evaluating Long Term Strategies for the Development of the Sahel-Sudan Region: Annex 3 - Industrial and Urban Development", by Ray McPherson, December 1974.

Secrétariat Général du Gouvernement/Présidence de la République. "Loi No. 82-122/AN-RM: Déterminant les Principes Fondamentaux Relatifs aux Conditions d'Attribution des Terres du Domaine Privé de l'Etat", February 4, 1983.

World Bank. "Republic of Mali: Mali Urban Development Project-Staff Appraisal Report", Urban Projects Department, Report # 2444-MLI, Washington D.C., May 21, 1979.

221

Urban Plans

Direction Nationale de l'Urbanisme et de la Construction. "Les Grandes Orientations de la Politique Nationale de l'Urbanisme et de l'Habitat dans le Cadre de l'Aménagement du Territoire", Ministère des Transports et des Travaux Publics, Republic of Mali, January 1981.

Direction Nationale de l'Urbanisme et de la Construction. "Schéma Directeur d'Aménagement et d'Urbanisme de Bamako et Environs: Rapport Provisoire d'Etude", Ministère des Transports et des Travaux Publics, Republic of Mali, April 1979.

Direction Nationale de l'Urbanisme et de la Construction. "Schéma Directeur d'Aménagement et d'Urbanisme de Bamako et Environs: Rapport Programme", including maps of "Equipements", "Réseau Général de Voirie" and "Le Zonage", Ministère des Transports et des Travaux Publics, Republic of Mali, May 1981.

Direction Nationale de l'Urbanisme et de la Construction. "Schéma Directeur d'Aménagement et d'Urbanisme de Segou et Environs", Ministère des Transports et des Travaux Publics, Republic of Mali, August 1983.

Direction Nationale de l'Urbanisme et de la Construction. "Schéma Directeur Sommaire d'Aménagement et d'Urbanisme de Sikasso et Environs", Ministère des Transports et des Travaux Publics, Republic of Mali, July 1983.

USAID Project Documents

Arid Lands Information Center, Office of Arid Lands Studies, University of Arizona. "Environmental Profile of Mali", funded by USAID and prepared for the U.S. Man and the Biosphere Secretariat, Department of State, Washington D.C., May 1980.

Cable to: Dakar, Bamako, Abidjan for REDSO/WCA. Subject: "AID/W Technical Review of OMVS IDP (625-0621), 9/1/83 McDonald draft, 0597M.

"Country Development Strategy Statement - Mali: FY 1985", January 1983.

Development Associates, Inc. "Evaluation Report: Operation Mils-Mopti", USAID, Sept. 1982. IQC No. PDC-1406-I-01-1140-00 Work Order No. 1.

Gannett Fleming Corddry and Carpenter Inc. in association with ORGATEC (Société Africaine d'Etudes Techniques, Dakar Sénégal), "Organisation pour la Mise en Valeur du Fleuve Sénégal (OMVS): Assessment of Environmental Effects of Proposed Developments in the Senegal River Basin - Partial Report for Socio-Economics", approx. 8/15/79.

Khan, Akhter Hameed. "Rural Development in Mali: A Trip Report - April 5 - 26, 1978", for USAID Bamako, Michigan State University, 1978.

"Mali Mission's First Rough Draft of Revised IDP Component" - as of September 5, 1983 by Simmons and Ponasik.

PADCO/USAID Office of Housing. "Senegal Urban Development Assessment", Washington D.C., August 1983, (Draft).

Ponasik Diane. Memo: "Review of Latest Version of Italian Project for First Region", January 11, 1984.

"Project Paper: Operation Haute Vallée (688-0210)", 1978.

"Project Review Paper: First Region Integrated Rural Development in Mali", Bamako, December 1976.

Roush, James. "Final Report on the Evaluation of Operation Haute Vallée, Mali: Volume 1", Development Associates, Arlington, VA., 1981.

USAID/OMVS. "Integrated Development Project No. 625-0621, Volume II: Project Paper - Mali National Program", USAID/RBDO, Dakar, December 1983.

Maps

Diakité, Cheick Hamela. "Ville de Kayes", 1:5,000 scale, Service Topographique de Kayes, Kayes, February 14, 1983.

Direction Nationale des Travaux Publics, Ministère des Transports et des Travaux Publics. "Carte du Réseau Routier Classé", Bamako, 1976, 1:50 km. scale.

Energie du Mali. "Ville de Kayes: Plan Général B.T.", 1:5,000 scale, No. Kayes 2001, January 11, 1973.

Etudes Topographiques E. Geoffroy. "Kayes", 1:5,000 scale, Rufisque, no date but probably around 1960 or earlier.

Institut Géographique National. "Carte de l'Afrique à l'Ouest au 1:500,000 - Kayes", Sheet No. ND-29-NO, Paris, 1974.

Institut Géographique National. "Carte de l'Afrique à l'Ouest au 1:200,000 - Kayes", Sheet No. ND-29-XIII, Paris, 1974.

Institut Géographique National. "Carte Internationale du Monde, 1/1,000,000: Bamako ND-28/29", Paris, 1964.

Institut Géographique National. "République du Mali", 1:2,500,000 scale, 2nd Edition, Paris, July 1971.

Office Malien de Tourisme, République du Mali. "Plan de Bamako" 1:100 scale, no date.

Touré, Mamadou and Yves Monnier et al. Atlas du Mali, Editions Jeune-Afrique, Paris, c. 1980.

USAID. "USAID Development Projects in Mali", Bamako, no date but appears to be current to 1983.

World Bank. "Republic of Mali: Mali Urban Project - Population Distribution", IBRD 13985, 1:100 km. scale, January 1979.