

**COOPERATIVE AGREEMENT ON HUMAN SETTLEMENTS  
AND NATURAL RESOURCE SYSTEMS ANALYSIS**

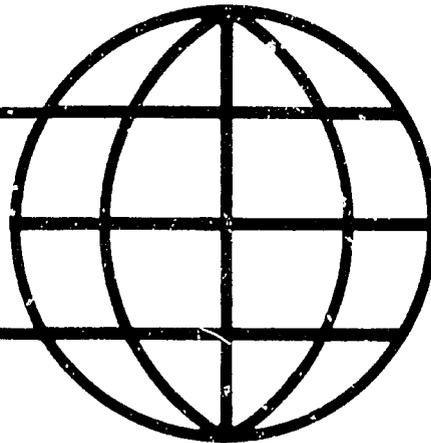
THE CAMEROON URBAN FUNCTIONS IN  
RURAL DEVELOPMENT PROJECT:  
COUNTRY AND REGIONAL PROFILE

THE UFRD CAMEROON PROJECT TEAM

with the assistance of

E. Perry

Rural Marketing Centers Working Group  
Clark University/Institute for Development Anthropology  
Cooperative Agreement (USAID)



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## CAMEROON

Cameroon is located in Central West Africa and occupies a total surface area of 475,000 square kilometers. Its population in 1982 was approximately 8.6 million. It is bordered on the northwest by Nigeria, on the northeast by Chad, on the east by the Central African Republic, on the south by the Congo, Gabon and Equatorial Guinea and on the west by the Atlantic Ocean (Map 1).

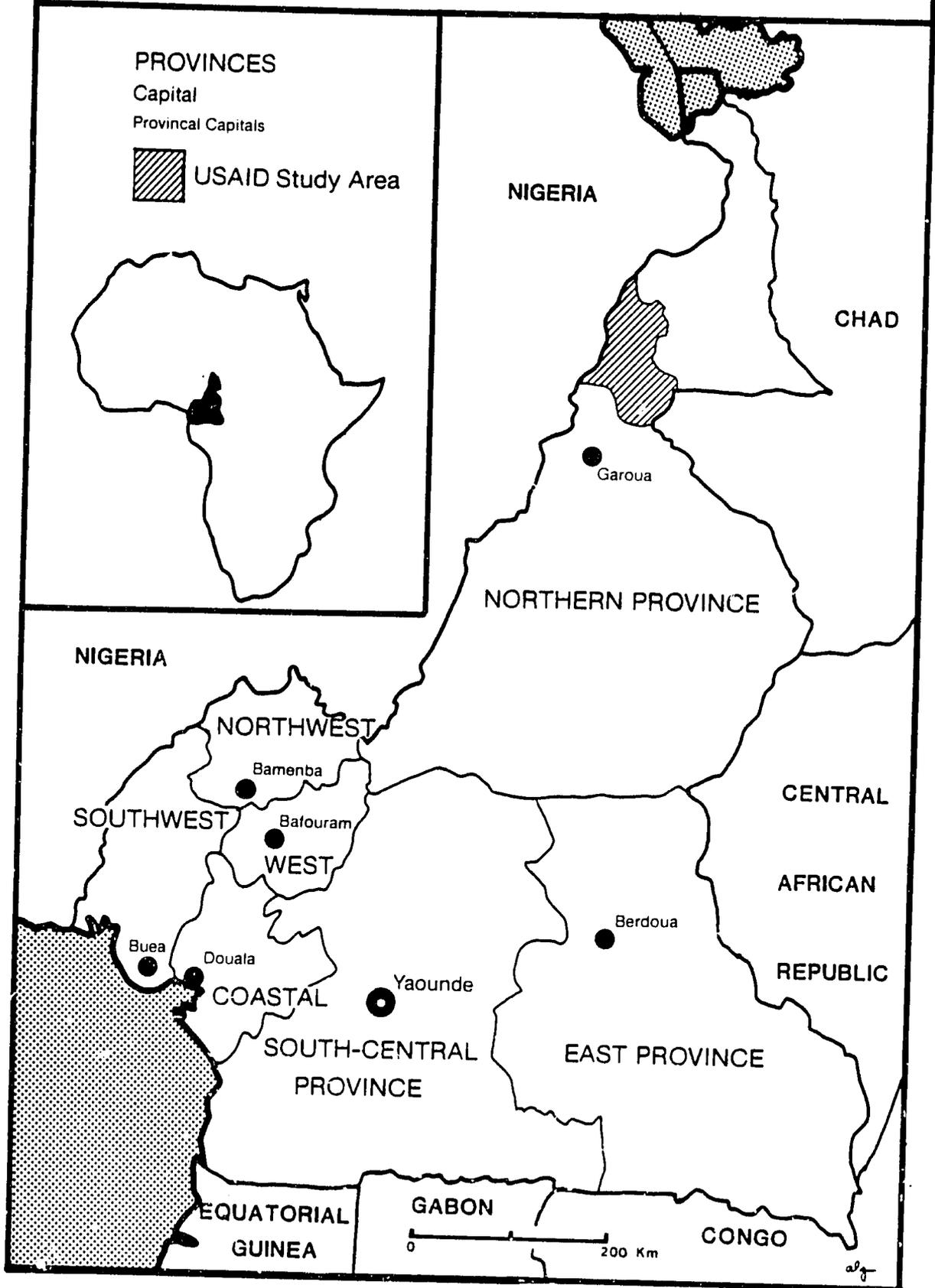
### Population

The national population density at the time of the last census was an average of 16.5 inhabitants per square kilometer. Due to expected population increases, density in 1982 should reach approximately 18 persons per square kilometer.

The distribution of the national population varies considerably between the seven provinces. The North is the most populated province with about 29 percent of Cameroonians residing there. The comparable figures for the other provinces based on 1976 data are: Center-South, 19 percent; Western, 14 percent; North-West, 13 percent; Littoral, 12 percent; South-West, 8 percent; and, 5 percent in the Eastern Province. There is also great variability in population density between provinces, ranging from 3.1 persons per square kilometer in the East to 69.8 in the West. Spatial distribution of the population is imbalanced so that three-quarters of the country's inhabitants occupy only one-fifth of its total surface area. Long-distance internal migration is mainly directed to the major urban centers of the country. As a result of such rural-urban migration, the rural population shows a deficit of males in the 15-54 age group.

MAP 1

# THE UNITED REPUBLIC OF CAMEROON



In 1976 there were forty-three centers having a population of more than 10,000 inhabitants. This portion of the urban population accounts for 1,840,000 persons, which is 24 percent of the entire population (overall, at the time of the last census, 1976, 29 percent of the population was urban). Douala (458,426 inhabitants) and Yaounde (313,706 inhabitants) contain 39 percent of the urban population. As major centers of production, distribution and decision making, these two centers form the top of a national hierarchy of centers that tie the rest of the country to economic, political, administrative and communication linkages. At an intermediate level in this hierarchy are seven centers with influence over corresponding regional areas. They are Nkongsamba with a population of 79,000 inhabitants in 1976; Garoua with 69,000; Bamenda with 67,000; Bafoussam with 62,000; Bertoua with 17,000; Ebolowa with 17,000; and Kumba with 59,000. These centers are important because they possess administrative and commercial functions. In general, the Cameroonian settlement hierarchy is remarkably balanced, since no one city dominates the system and since it includes a relatively large number of medium-size and smaller urban centers. The overall urban population has grown at estimated rates surpassing 6 percent a year.

### The Economy

With an average GDP of US \$460 per person in 1978 and an annual growth rate of 5 percent (1976-78), Cameroon ranks as one of the more economically productive countries in Africa. The economy is based on agriculture, fishing, livestock raising and forestry, industries that employ 80 percent of the active population and constitute 35 percent of the country's US \$3.15 billion GDP in

1978. Secondary and tertiary activities account for 7 and 14 percent, respectively, of active employment and 15 and 53 percent, respectively, of GDP.

The composition of Cameroonian exports has been overwhelmingly dominated by agricultural products. Trade figures for 1978 reveal the relative importance of the leading commodities based on their percentage contribution to the total value of exports. Thus, cocoa beans account for 25 percent; robusta coffee, 20 percent; cocoa by-products, 11 percent; timber, 9 percent; arabica coffee, 8 percent; aluminum and aluminum semi-processed goods, 4 percent; bananas, 3 percent; tobacco, 3 percent; ginned cotton, 2 percent; and rubber, 1 percent. In 1978 principal imports included, by order of importance, finished and semi-finished intermediate goods, capital equipment, petroleum products and manufactured consumption goods. On balance Cameroon has remained a net importer. However, on the strength of its food and fiber production, exports typically offset nearly 90 percent of the value of its imports. In 1973-74 the country was a net exporter realizing a CFAF 28 billion surplus. Cameroon's principal trading partner is France.

The development which could alter the picture of an agriculture-dominated and net importing economy is the exploitation of offshore petroleum reserves since 1978. The impact of the development is difficult to measure; reliable production and export data is not readily available. The 1980 World Bank Economic Memorandum projected that the impact of oil and other new industrial projects would be on the order of 7.5 percent additional annual growth in the industrial sectors. The most recent indications are that petroleum production is vastly more substantial than previously anticipated. From 800.00 MT of crude oil in 1978, production in 1981 is reported to have surged to 4.3 million MT for a current value of CFAF 300 billion (World Bank 1980b).

Given that 60 percent of the production is controlled by Cameroon, petroleum would represent roughly a 20 percent increase to the GDP, if these figures are reliable. Unless a dramatic increase in imports were to ensue, the development of oil would certainly ensure that Cameroon would be net exporter in the 1980's.

The composition of the industrial sector is similarly dominated by agriculture insofar as most manufacturing is agro-industrial, consisting of grain milling, edible oil production, sugar refining, and brewing. The principal non-agricultural based industries are the aluminum industry, the nascent petroleum industry, textiles and shoes, and chemicals and construction material production.

Foreign investment has a substantial stake in major industries. Foreign capital controlled 65 percent of Cameroonian industry in 1980, 34 percent of which was French. Upper level management is dominated by foreign nationals, with only 15 percent of corporate directors holding Cameroonian citizenship (Jeune Afrique 1981).

According to the World Bank, the outlook for growth in the agricultural and industrial sectors is favorable in the first half of the 1980's. However, long-term growth will depend on how successful Cameroon is in developing its vast natural resources, especially agricultural, forestry and mineral resources. This will include the development of human resources and maintenance of physical assets in addition to institution building.

In 1980-81 budgetary expenditures totalled CFAF 163.2 billion which was an increase of 26 percent over the previous fiscal year. The inflation rate was about 9 percent in 1979; however, there are some indications that it has raised since then (Jeune Afrique 1981).

### National Development Strategy

In the context of existing population and economic conditions, the Cameroonian national development policy has been founded upon principles of autocentric development, which stresses the use of existing resources in achieving desired growth, and of "planned liberalism," an encouragement of private investment and multilateral aid while occurring within the framework of the government's five year plan.

The Cameroonian development strategy is presented in the fourth (1976-81) and fifth (1981-86) 5 year plans for each branch of the administration. Of particular importance is an emphasis in the fifth plan on the development of natural energy resources, such as petroleum and hydroelectric power. Wood industries and other processing plants for primary products (e.g., cocoa, fruits, vegetables and sugar cane) are also to be promoted. The government intends to continue favoring industrial development by promoting an atmosphere of confidence, by encouraging external trade and business relations and particularly by revising the existing Investment Code (Cameroon, Government of. 1980d).

Overall, Cameroon's development strategy attempts to achieve a balance between promoting agriculture and industry. Because of this, no major reorientations for social service policies are announced in the fifth plan. Rather, social projects are largely conceived of to respond to the growing demand for all public services from education, health, housing and transport to sports, information and culture. The six major objectives of agricultural policy based on the fifth plan are as follows:

- i) master production factors by agriculturalists;
- ii) reinforce agricultural extension;
- iii) delineate a national food crop program;
- iv) upgrade internal marketing structures;
- v) develop the "modern sector"; and
- vi) improve conservation with a more rational exploitation of national forest and wildlife resources (Cameroon Tribune 1981).

Industrial development follows much along the lines expressed in the Investment Code. While still awaiting the revision of this code, it seems clear that large industry, much of which is foreign financed, will continue to flourish under a graduated schedule of fiscal advantages favoring the largest firms. Forestry industries, tourism and small enterprises will also continue to be given specific advantages. Plans to promote small entrepreneurs and artisans have been given special attention in the Bafoussam speech and in the five year plan, but acting upon these measures is yet to be realized.

## THE NORTHERN PROVINCE

With the objectives of the fifth plan in perspective, the North Province of Cameroon has been designated as part of a UFRD project zone. Cooperation between the Cameroonian government and planners with a UFRD orientation may lead to a more effective realization of the fifth plan goals for development in both the economic and social sectors in the North.

The Northern Province represents the essential bounds for the UFRD project. It is bounded by the Eastern, Center-South and Western provinces to the south, by the Northwest Province and Nigeria to the west, and by Chad and the Central African Republic to the east (Map 1).

### Population

The estimated total population of the Northern Province is 2,266,000 and is growing at an average annual rate of 1.5 percent. This low rate of population growth is due to relatively high mortality and low fertility rates. Inhabitants of the North account for 20 percent of the country's migrants with two-thirds of these leaving the province. While there appears to be a significant flow of migrants to neighboring Nigeria, this situation remains undocumented. For the most part intra-provincial population movement occurs over short distances (i.e., to a neighboring arrondissement), affecting little the spatial distribution of the region's population. Population densities vary from two persons per square kilometer in Tchollire arrondissement to ninety-one in the arrondissement of Meri. This imbalance can be explained by

circumstances of history. The nineteenth century Fulbe conquest, combined with onchocerciasis and sleeping sickness, contributed to low population levels.

Eighty-five percent of the province's population was rural in 1976 with 79 percent residing in settlements of less than 5,000 inhabitants, of which there were 4,283. Thus, the North is the least urbanized province in the country falling well below the national urban average of 29 percent. Urban averages vary considerably within the province ranging from 25 percent in the Adamaoua Department to 2 percent in the Mayo Tsanaga Department.

The main centers are Garoua, the provincial capital, with a current estimated population of 93,100; Maroua, the former colonial capital with a population estimated at 100,900; Mgaoundere with an estimated population of 58,800; Guider with 24,000; Meiganga with 20,000; Kousseri with 18,000; Banyo with 16,300; Yagoua with 14,700; and Kaele with 14,300. Overall, the nine major urban centers' population growth has averaged 7.1 percent per annum, exceeding the national average of around 6 percent. The growth of these centers has been mainly the result of immigration and has meant a surplus of males in the 15-54 age group in these towns.

### The Economy

The average annual income per inhabitant in the Northern Province was estimated to be between CFAF 15,000 and 20,000 in 1979. As in the case of the national economy, the Northern Province is dominated by the agricultural sector with 57 percent of the active population employed in agriculture, forestry, fishing and livestock. Manufacturing, extractive industries and construction attract 3 percent of the population while 7 percent are engaged in service industries. As of 1974 the North possessed only about 4 percent of the

country's modern sector employees (Table 1). The employment picture varies considerably from one area of the province to another, showing industrial productive sector employment (i.e., manufacturing, extractive industries and construction) concentrated in the major centers of Garoua and Maroua.

Cotton ginning, cotton oilseed pressing, rice hulling and leather tanning are the major agro-industries at present. Principal non-agricultural industries are textile milling, cement and limestone production and brewing and bottling. Possible industrial development within the next ten to twenty years includes:

- a sugar refinery in the vicinity of Lagdo;
- a tomato canning plant also in the Lagdo area;
- a fruit processing unit in Maroua;
- a groundnut oil extractor with a capacity of 100,000 tons;
- a livestock feed processing plant in the Garoua region;
- a machine parts plant;
- a rice huller in Kousseri;
- an onion processing plant in Kousseri.

The actualization of these projects will depend on the availability of local and external financing.

Major constraints to expanded industrial production are:

1. Limited purchasing power of the region's population;
2. Lack of trained laborers;
3. Geographic isolation from national and international markets and centers of production.

Outside of those areas where cotton and irrigated rice are grown, most crops are cultivated for personal consumption. Sorghum and millet are the

TABLE 1

MODERN SECTOR EMPLOYMENT BY PROVINCE (1974)

PROVINCES	EMPLOYEES	%
LITTORAL	105,737	47.8
EAST	4,139	1.9
NORTH	8,079	3.6
WEST	7,172	3.2
CENTER-SOUTH	44,772	20.2
NORTHWEST/SOUTHWEST	55,471	23.3
TOTAL	221,370	100.00

Source: IBRD (1980(b))

basic food crops of the North and occupy 77 percent of land under cultivation. Between 1969 and 1974 these two crops registered negative rates of production because of existing drought conditions. Since that time production growth rates have been positive. However, production has not kept pace with consumption and in 1980 a deficit of 50,000 tons was estimated. Other major food crops include groundnuts, maize, cassava and rice grown respectively on 22, 10, 7 and 3 percent of cultivated land. With the exception of rice, traditional methods of agricultural production are used. Cotton is the most important cash crop since it provides an important source of income to significant numbers of cultivators. It occupies 17 percent of the total surface area cultivated in the North and 92 percent of all land under cash crop cultivation. After a short drop in the early 1970s, production has rebounded to attain a level of 80,000 tons in 1979-80, its highest mark since 1969-70. This increase is due to abundant rainfall and an intensified system of cultivation. In general, agriculture potential tends to be constrained by a lack of basic and applied research, uncertain rainfall, low levels of technical development and a lack of production inputs.

Livestock raising is carried out by nomads or semi-nomads and by the sedentarized population. As estimated 2 million cattle, two-thirds of the national total, are found in the North. Nationwide cattle production accounted for CFAF 15,147 million in 1978. Problems associated with meat production include traditional methods of production, low levels of commercialization and increasing conflicts between herders and cultivators.

NORTH CAMEROON: THE UFRD PROJECT REGION

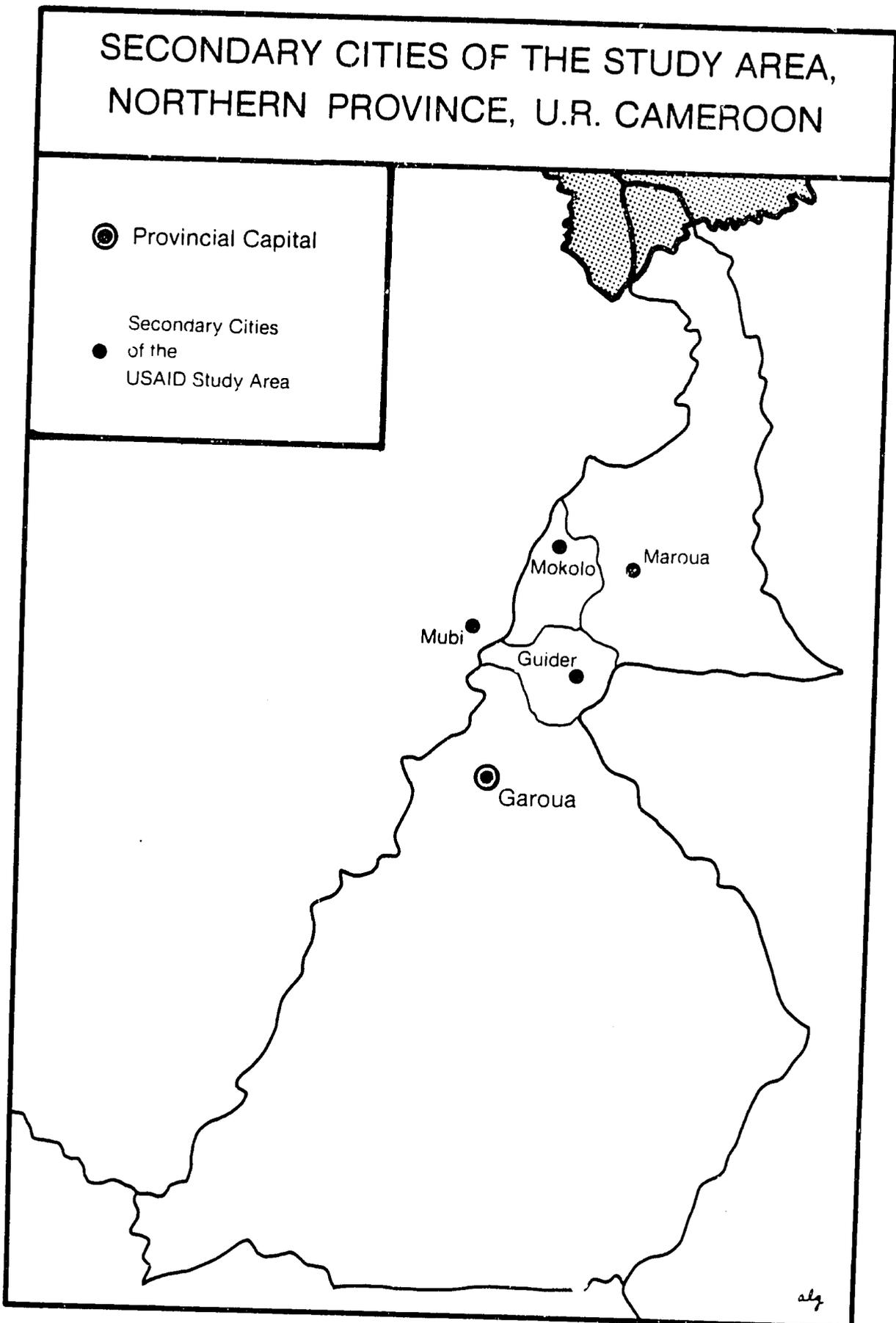
UFRD is a method of regional planning which emphasizes spatial socio-economic relations linking rural development to the hierarchy of cities, towns and villages of a region and linking the hierarchy of a region to the national system of cities and towns. Within this framework, the UFRD project "region" is somewhat more extensive than the "core" area circumscribed by the arrondissements of Mokolo and Bourrah in the Department of Mayo Tsanaga and the arrondissement of Mayo Oulo, Guider and Figuil in the Department of Mayo Louti, bounded on the south by the Garoua arrondissement in the Benoue Department, on the east by the Diamare Department, on the north by the Koza arrondissement in the Mayo Tsanaga Department and to the west by Nigeria and lying between 11° and 9° 30' north latitude and between 13° 20' and 14° 10' east longitude (Map 2). The "region" includes this core area but in addition it also contains Maroua and Garoua which dominate the hierarchy of urban places in North Cameroon and, perhaps to a lesser extent, Douala and Yaounde, which dominate the national system of cities.<sup>1</sup>

The definition of the project "region" in North Cameroon underscores a key dimension of the UFRD approach; one which stresses that there is a significant relationship between what happens in the largest of urban centers and what can be made to happen in the smallest of rural villages.

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<sup>1</sup> This method of defining a non-contiguous region is not an inherent characteristic of UFRD. For example, had the project area been designated as all of the Northern Province, or any smaller area which contained Garoua and Maroua, the project region would have more closely resembled the conventional concept of a region as a single circumscribed area. The atypical definition above results only from an area having been selected which excluded Maroua and Garoua.

MAP 2



## Population

The core project area of the subdivisions of Mokoio, Bourrah, Mayo Oulo, Guider and Figuil covers an area of 7,328 square kilometers and had a population in 1976, according to the national census, of 473,901 persons. The population can be divided into groups so that 225,520 males and 248,381 females constitute a sex ratio of 91:100 males to females. When the 1976 population of the urban centers of Garoua and Maroua are added to that of the core area, the total population of the project zone increases to 601,246 with 290,218 males and 311,028 females and an increased sex ratio of 93:100 males to females.

By applying an annual growth rate of 1.5 percent, the average annual rate at which population is growing in the Northern Province, to the core project area, it is estimated that the population stands at 513,700 today. A population of this size produces an average population density of 70 persons per square kilometer, one well above the national and provincial averages, and establishes the area as one of the most densely populated in Cameroon. When the estimated populations of Maroua and Garoua are taken into account, the population of the project area increases to 707,700.

The average population density obscures differences in density that exist between different subregions of the core area. For historical reasons the northern, more mountainous part of the zone is the most densely populated. For example, the canton of Matakam-Sud exhibits a density of 102.7 persons per square kilometer. The general tendency is for densities to decrease as a function of distance from the more mountainous areas. Table 2 shows the population distribution for the region.

TABLE 2: POPULATION DISTRIBUTION FOR UFRD PROJECT ZONE  
BY ARRONDISSEMENT, CANTON AND MAJOR CENTERS (1976)

Arrondissement	Canton	Population	Density Inh/Km <sup>2</sup>
(1)	(2)	(3)	(4)
Garoua - Center		59.544	
Maroua - Center		62.600	
Guider - Center		16.053	59.9
Guider - Rural		29.452	
	Douroum	3.766	52.3
	Figuil	7.629	49.2
	Golombé	21.774	30.3
	Guidar Est	5.143	37.0
	Lam	13.509	40.6
	Lihé	4.111	54.1
	Mayo Loué	4.633	46.3
	Mousgoy	18.387	34.2
Mayo Oulo	Dazal	1.841	19.0
	Doumo	3.882	50.4
	Guirviza	3.743	37.8
	Mayo Oulo	19,413	28.4
	Daba Independant	9.413	38.9
	Peske-Bori	6.633	27.3
Mokolo	Boula	4.455	44.6
	Gawar	8.252	35.1
	Hina Marbak A	15.244	32.0
	Hina Marbak B	1.811	20.7
	Matakam Sud et Mokolo	107.787	102.7
	Mofou Sud	10.778	53.9
	Mogode	32.674	44.4
	Mokong	15.491	98.0
	Zamai	2.648	29.1
Bourrah	Bourrah	4.214	33.4
	Guili	11.648	36.9
	Tchévi	11.861	54.4

In 1976 only 5.3 percent (25,021) of the core project area population was classified as urban and the remaining 94.7 percent (448,835) as rural. When the centers of Garoua and Maroua are included, the percent urban rises to 25.7 (152,411) with the percent rural decreasing accordingly to 74.7 (488,835). With a total of 679 villages and only seven urban centers, the village/urban center ratio is relatively high, 98 to 1. The seven urban centers are Garoua, Maroua, Guider, Mokolo, Figuil, Mayo Ouio and Bourrah.<sup>1</sup>

### Settlement Pattern

Two principal types of settlements exist in the project region. The first is confined to the more mountainous zones and is most notable amongst the ethnic groups of the Mafa, Mofou and Kapsiki. It consists of a non-nucleated distribution of dwelling units, or sarés, scattered over terraced hillsides. The saré is an agglomeration of structures connected by stone or mud walls. This pattern of settlement developed as a refuge for population fleeing the Fulbe invasion of the lowlands. It is suggested by some that this pattern is indicative of an individualistic attitude characteristic of the Mafa, Mofou and, to a lesser extent, Kapsiki.

The second type of settlement is predominant in the plains and lowlying areas of the project zone. This structure is characterized by the existence of the strong central nucleus of compounds concentrated around a central place. This central place is composed of the village chiefs' saré and, where they

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<sup>1</sup> Urban is defined by the Cameroonian government as all administrative headquarters (province, department, arrondissement, district) and other centers of at least 5,000 inhabitants possessing some urban infrastructure (e.g., hospital, train station, junior high school).

exist, the school, health center and market. This central core is surrounded by the sarés of the other village residents.

The land use pattern is typically characterized by the exploitation of the terrain that is close to the saré in the farming of "saré gardens." This phenomenon is, however, less widespread in urban centers, where houses are closer to one another. Saré gardens are usually located within a range of between a few meters and one or two kilometers from the saré. The crops that are planted here include for the most part sorghum, groundnuts, vegetables, pepper and tobacco. Located thus near the saré, a "saré garden" benefits from more care in terms of manure and labor and have been known to produce relatively high yields. Other village crop production activities, those which occupy the most of a villager's time, take place at greater distances from the village.

### Ethnic Groups

The project area is characterized by its remarkable ethnic diversity. There are eleven major groups, including the Mafa, Mofou, Kapsiki, Hina, Guiziga, Bana, Daba, Goude, Fali, Guider and Foulbé.

The Mafa (Matakam) is the largest ethnic group. They numbered approximately 100,000 in 1966 (Boutrais 1973; Podlewski 1966). The Mafa are located mainly around Mokolo (center) extending north. The Mafa subgroups found in the project zone are: the Bulahay to the south of Mokolo; the Mabass to the northwest of Mokolo on the Cameroon-Nigerian border; and the Hide inhabiting Tourou and its immediate surroundings (Boutrais 1973; Lambert 1950; Martin 1968).

The Mofou number about 42,000 persons. Of these, 19,000 are found in Mokolo sub-division (Podlewski 1966). Authentic Mofou presently inhabit the

north of the Diamare plateau. The people now called Mofou in the former division of Margui-Wandala, who are related to the Mafa, should be called Mokong.

The Kapsiki (or Margui) numbered 25,000 in 1973. The Kapsiki and the Higi of Nigeria, form one main ethnic group (Van Beck 1973). The former comprises two subgroups. The first, the western group, comprises 18 villages which lack a common ancestral origin. The second subgroup, referred to as the eastern group, is of Goudoul origin and comprises 16 villages. The Kapsiki territorial settlement is centered in the plateau area south of Mokolo.

The Hina, numbering between 7,000 and 10,000 in 1966, are sometimes identified with the Daba (Lamber 1950; Podlewski 1966). They are separated from the latter only by the Foulbé inhabiting the valley of Mayo Louti. The Hina subgroups are the Hina Dastou, the Hina Wisini, the Hina Gouzi, the Hina Manta, the Hina Marbourg, the Hina Nigi, and the Zarak and the Mogodore. The Hina are found mainly in Hina Marbak and Hina Vinde to the southeast of Mokolo.

Few Guiziga inhabit the project zone. Those few that do are to the southeast of Mokolo towards the Diamare division (Pontie 1973). The Bana occupy among others, the village of Douroum, Guili, Gamboura and Tchevi in the Bourrah subdivision (Hurault 1958).

The Daba, with a population of 22,000 persons in 1966, are distributed over three divisions: Mayo Louti, Diamaré and Mayo Tsanga. They are to be found mostly in the centers of Popologozon and Mandama, the groupement of Daba Independant, the Matalao-Tima mountain axis (8,500 persons) and the canton of Mousgoy (5,500 persons) (Podlewski 1966). Some Daba are scattered in Libe, Douroum and Mayo Oulo cantons, as well.

The Goude, numbering 15,000 persons in 1966, are divided into two subgroups: the Tchede and the Motchekina. The Goude are located mainly in

Boukoula, Tchévi, Guirviza, and Doumo (Dizain 1954; Podlewski 1966). The Fali form a homogeneous population in Mayo Oulo subdivision (Boulet 1975). Here they are concentrated in Peske Bori, Bossoum and Kangou (Dizain 1954). An important clan of the Fali were the Djimi which numbered 600 persons in 1950 (Lambert 1950). They are found in the canton of Bourrah.

The Guider population, 40,000 persons in 1966, is the fusion of Moukdare, Mousokio, Mambaya clans all of the same territorial origin, plus the Guiziga and Mundang (Boulet 1975; Lestringent 1966; Podlewski 1966).

The Foulbé are found dispersed throughout the project area with larger concentrations located in the major urban centers.

Not only is the region extremely diverse ethnically, but there is little social contact between groups and even between villages of the same ethnic group. According to a study carried out by Podlewski covering the Mundang, Fulbe, Mandara, Guider, Hina, Daba and Mofu, except for the Mundang, the languages of other ethnic groups are spoken little and there is very little inter-group marriage. This situation is not, however, static. For example, in 1980 Fulfulde was spoken by 55 percent of heads of households in the Margui-Wandala Department and the Meri arrondissement (Campbell, Berry and Holtzman 1980).

Not only has the population of the zone begun adopting the language of the Fulbe, but the penetration of Fulbe custom and attitudes have contributed to greater homogeneity of the region. Furthermore, according to Martin and Vincent the Foulbé and most groups converted to Islam show more openness to change than is observed among non-Muslim groups (Martin 1970; Vincent 1970). With time it can be envisaged that the degree of interaction between ethnic groups will increase. With growing homogeneity, a sense of common interest should evolve making possible collective efforts to improve the regional welfare.

### MIGRATION: A PRELIMINARY STUDY

Due to the amplitude of migration in the project zone a special study was undertaken with the objective to evaluate its scope, direction and impact. Data were collected from both primary and secondary sources, the former being gathered as part of the preliminary survey based on group interviews in seventy-two villages. For the analysis that follows the sample villages have been grouped by administrative subdivision (Guider/Figuil, Mayo Oulo, Bourrah and Mokolo) and ecological zone (plateau, piedmont, mountains and plains). The villages surveyed and their subdivision and zone are listed in Tables 3 and 4.

#### Rates of Migration

Village groups were asked to enumerate how many people leave their communities every year in search of temporary employment. In 63 percent of the centers studied, ten or more persons reportedly migrate each year looking for seasonal work (Table 5). In only 17 percent of villages surveyed is there no seasonal labor movement. The highest rate was found in Mokolo arrondissement where more than 80 percent of the villages visited experience out-migration of at least ten persons a year. Significantly lower rates were recorded in the arrondissements of Mayo Oulo and Guider/Figuil where only 13 and 40 percent, respectively, of villages witness a temporary out-migration during the dry season that surpasses ten persons.

Disaggregation by ecological zone reveals that 71 percent of piedmont villages samples have a temporary migration of ten or more persons a year

TABLE 3: SURVEY VILLAGES BY ADMINISTRATIVE SUBDIVISIONGuider/Figuil Arrondissements

- |              |              |
|--------------|--------------|
| 1. Babouri   | 9. Tchontchi |
| 2. Sodjoy    | 10. Bassira  |
| 3. Libé      | 11. Biou     |
| 4. Mayo Loué | 12. Mousgoy  |
| 5. Figuil    | 13. Lam      |
| 6. Douroum   | 14. Guider   |
| 7. Batao     | 15. Bidzar   |
| 8. Sorawel   |              |

Mayo Oulo Arrondissement

1. Kombong
2. Bereng
3. Bossoum
4. Doumo
5. Mayo Oulo
6. Dazal
7. Dourbeye
8. Guirviza

Bourrah Arrondissement

1. Bourrah
2. Tchevi
3. Guili
4. Ouda
5. Gamboura
6. Boukoula

Mokolo Arrondissement

- |                 |               |                |
|-----------------|---------------|----------------|
| 1. Midere       | 15. Shougoule | 29. Wanarou    |
| 2. Boula        | 16. Roua      | 30. Libam      |
| 3. Roufta       | 17. Mokong    | 31. Membeng    |
| 4. Magoumaz     | 18. Sirakouti | 32. Mogode     |
| 5. Amsa         | 19. Wandai    | 33. Mazam      |
| 6. Zamalao      | 20. Sir       | 34. Ouro Tada  |
| 7. Hina Vinde   | 21. Zamai     | 35. Tourou     |
| 8. Vouzad       | 22. Rhoumzou  | 36. Kila       |
| 9. Goudour      | 23. Soulede   | 37. Ldama      |
| 10. Hina Marbak | 24. Mandaka   | 38. Baou       |
| 11. Mboua       | 25. Rhoumsiki | 39. Mokolo     |
| 12. Tchouvouk   | 26. Madakonay | 40. Gamdougoum |
| 13. Oudahai     | 27. Gawar     | 41. Mofou      |
| 14. Kortchi     | 28. Dimeo     | 42. Liri       |
|                 |               | 43. Douvard    |

TABLE 4: SURVEY VILLAGES BY ECOLOGICAL ZONE

Plateau

1. Libe'	11. Boukoula	21. Amsa
2. Douroum	12. Mokolo	22. Kortchi
3. Dourbeye	13. Wandai	23. Rhoumzou
4. Kombong	14. Baou	24. Sir
5. Dazal	15. Midire	25. Rhoumsiki
6. Bourrah	16. Soulede	26. Kila
7. Guili	17. Mandaka	27. Wanarou
8. Ouda	18. Mboua	28. Liri
9. Gamboura	19. Ouro Tada	29. Sirakouti
10. Tchévi	20. Mogode	

Piedmont

1. Mousgoy	8. Gawar
2. Madakonay	9. Membeng
3. Mazam	10. Mokong
4. Roua	11. Goudour
5. Tchouvouk	12. Boula
6. Hina Marbak	13. Zamalao
7. Hina Vinde	14. Zamay

Mountains

1. Bossoum	9. Oudahay
2. Guirviza	10. Shougoule
3. Doumo	11. Vouzad
4. Magoumaz	12. Roufta
5. Ldama	13. Gamdougoum
6. Libam	14. Mofou
7. Tourou	15. Dimeo
8. Douvard	

Plains

1. Guider	8. Tchontchi
2. Mayo Loue'	9. Bassira
3. Lam	10. Babouri
4. Batao	11. Sorawel
5. Figuil	12. Sodjoy
6. Bidzar	13. Mayo Oulo
7. Biou	14. Bereng

TABLE 5: SEASONAL MIGRATION BY SUBDIVISION

NUMBER OF PERSONS MIGRATING SEASON- ALLY TO FIND EMPLOYMENT	GUIDER		MAYO OULO		BOURRAH		MOKOLO		CORE PROJECT AREA	
	No.	%	No.	%	No.	%	No.	%	No.	%
10 +	6	40	1	13	4	67	34	81	45	63
1 - 9	7	47	3	38	0	0	5	12	15	21
None	2	13	4	50	2	33	4	9	12	17
No data	0	0	0	0	0	0	0	0	0	0
Total	15	100	8	100*	6	100	42	100*	72	100*

TABLE 6: SEASONAL MIGRATION BY ECOLOGICAL ZONE

NUMBER OF PERSONS MIGRATING SEASON- ALLY TO FIND EMPLOYMENT	PLATEAU		PIEDMONT		MOUNTAIN		PLAIN		CORE PROJECT AREA	
	No.	%	No.	%	No.	%	No.	%	No.	%
10 +	20	69	10	71	10	67	5	36	45	63
1 - 9	6	21	0	0	2	13	7	50	15	21
None	3	10	4	29	3	20	2	14	12	17
No data	0	0	0	0	0	0	0	0	0	0
Total	29	100	14	100	15	100	14	100	72	100*

\* Total percentages do not always add to one hundred due to errors in rounding.

(Table 6). This rate compares with percentages of 67 and 69 in the mountain and plateau zones, respectively. The plains area, where most seasonal work is found, showed the lowest rate of seasonal labor migration. In terms of absolute magnitudes it is perhaps the mountain area that is the origin of the greatest number of seasonal migrants. This is because of the relatively large numbers reported per village, which exceeds ten persons. This observation is confirmed in the Michigan State University (MSU) preliminary report a socioeconomic survey for the Department of Margui-Wandala and the arrondissement of Meri which states that "the Mandara Mountains are the origin of over one-half of the migrants in the survey."<sup>1</sup>

In order to gain an appreciation for the attractiveness of the core project area and its subareas, respondents were asked how many persons had moved to their village in the previous five years. It was discovered that in about one-half of the villages studied ten or more families had come to live over the preceding five years (Table 7). In six of the eight villages selected in the subdivision of Mayo Oulo, village groups stated that at least ten households had immigrated within the last five years. Still higher rates were recorded in the Bourrah subdivision where 83 percent of villages surveyed (five of six villages) had registered in-migration of ten or more households and where four of six had increased their populations through migration by fifty or more households. These relatively high levels of in-migration contrast with rates in the Mokolo subdivision, where only 37 percent of the villages had gained in the

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<sup>1</sup> Campbell, Berry and Holtzman (1980). While intended to measure seasonal and permanent migration flows, the result of the MSU survey was biased in favor of seasonal migration as only migrants from families which remained in the region were identified.

TABLE 7: IN-MIGRATION BY SUBDIVISION

NUMBER OF HOUSEHOLDS MOVING TO VILLAGES	GUIDER		MAYO OULO		BOURRAH		MOKOLO		CORE PROJECT AREA	
	No.	%	No.	%	No.	%	No.	%	No.	%
10 +	8	53	6	75	5	83	16	37	35	49
1 - 9	4	27	1	13	1	17	14	33	20	28
None	3	20	1	13	0	0	13	30	17	24
No data	0	0	0	0	0	0	0	0	0	0
Total	15	100	8	100	6	100	43	100	72	100

TABLE 8: IN-MIGRATION BY ECOLOGICAL ZONE

NUMBER OF HOUSEHOLDS MOVING TO VILLAGES	PLATEAU		PIEDMONT		MOUNTAIN		PLAIN		CORE PROJECT AREA	
	No.	%	No.	%	No.	%	No.	%	No.	%
10 +	16	55	6	43	4	27	9	64	35	49
1 - 9	8	28	4	29	5	33	3	21	20	28
None	5	17	4	29	6	40	2	14	17	24
No data	0	0	0	0	0	0	0	0	0	0
Total	29	100	14	100	15	100	14	100	72	100

excess of nine immigrant families and where 30 percent had gained none at all in the past five years.

According to ecological zones, 64 percent of plains villages sampled experienced in-migration of more than nine households as did 55 percent of plateau villages (Table 8). However, in absolute terms it appears that the plateau is more attractive with immigrant households numbering forty or more in 24 percent of the villages visited. The mountain zone is the least attractive to migrants as only four of fifteen centers studied were affected by in-migration surpassing nine households while 40 percent experienced none.

So as to obtain an indication where income generating activities are keeping pace with demand, villagers were asked how many people had left the village to live elsewhere in the previous five years. Fifty-eight percent answered that at least ten households had left (Table 9). Only three villages in a sample of seventy-two (4 percent) had not lost a single inhabitant to out-migration. While there does not appear to be significant variation in emigration between administrative subdivisions, when the project region is divided into ecological zones it becomes clear that the mountain zone is the most affected by out-migration (Table 10). Eighty percent of the mountain villages studied had lost at least ten families through emigration during the preceding five years. Moreover, in 75 percent of such villages the number of out-migrants exceeded twenty families with the village of Tourou reporting that approximately three hundred families had left since 1976. Such movement from the mountains in favor of the lowlands decreases the person/land ratio making it more difficult to maintain the mountain terraces and causing the abandonment of others. The result is a significant increase in soil erosion.

TABLE 9: OUT-MIGRATION BY SUBDIVISION

NUMBER OF HOUSEHOLDS MOVING OUT OF VILLAGES	GUIDER		MAYO OULO		BOURRAH		MOKOLO		CORE PROJECT AREA	
	No.	%	No.	%	No.	%	No.	%	No.	%
10 +	8	53	3	38	4	67	27	63	42	58
1 - 9	7	47	5	63	1	17	14	33	27	38
None	0	0	0	0	1	17	2	5	3	4
No data	0	0	0	0	0	0	0	0	0	0
Total	15	100	8	100	6	100	43	100	72	100

TABLE 10: OUT-MIGRATION BY ECOLOGICAL ZONE

NUMBER OF HOUSEHOLDS MOVING OUT OF VILLAGES	PLATEAU		PIEDMONT		MOUNTAIN		PLAIN		CORE PROJECT AREA	
	No.	%	No.	%	No.	%	No.	%	No.	%
10 +	16	55	7	50	12	80	7	50	42	58
1 - 9	11	38	6	43	3	20	7	50	27	38
None	2	7	1	7	0	0	0	0	0	0
No data	0	0	0	0	0	0	0	0	0	0
Total	29	100	14	100	15	100	14	100	72	100

### Origins of In-migrants

Village groups interviewed were asked from where most in-migrants had come. It was found that in-migration in the core project area is essentially intraregional, rural-rural and over short distances. This can be explained by the low level of development of the regions' communications infrastructure and of income generating opportunities. More long distance in-migrants from outside the core project area are most likely return migrants or, in the case of migrants from Nigeria or Chad, of the same ethnic group as those at the point of destination. The majority of migrants in 27 percent of the villages studied had come from the same region (i.e., the same canton) while 73 percent came from other regions (i.e., other cantons). Generally, however, "other regions" were no further than the neighboring canton. Examination of Tables 11 and 12 indicate that there is little variation in this pattern either between subdivisions or ecological zones.

### Destination of Out-migrants

Village groups were questioned as to where most seasonal migrants go to work during the dry season. In almost all villages where interviews were held (98 percent) seasonal migrants travel not just outside of their canton of origin but to areas located outside of the core project area (Tables 13 and 14). This finding provides strong evidence of the lack of off-season employment opportunities to be found in the region. Garoua and its surroundings are the destination of the majority of seasonal migrants in one-third of the villages surveyed. Almost the same number of villages (19) send most of their migrants to Nigeria where Mubi and its surroundings are the principal destination. The

TABLE 11: ORIGINS OF IN-MIGRANTS BY SUBDIVISION

ORIGIN	GUIDER		MAYO OULO		BOURRAH		MOKOLO		CORE PROJECT AREA	
	No.	%	No.	%	No.	%	No.	%	No.	%
SAME REGION (i.e., CANTON)	3	25	2	29	0	0	10	35	15	27
OTHER REGIONS (i.e., CANTON)	9	75	5	71	6	100	20	67	40	73
No data	0	0	0	0	0	0	0	0	0	0
Total	12	100	7	100	6	100	30	100	55	100

TABLE 12: ORIGINS OF IN-MIGRANTS BY ECOLOGICAL ZONE

	PLATEAU		PIEDMONT		MOUNTAIN		PLAIN		CORE PROJECT AREA	
	No.	%	No.	%	No.	%	No.	%	No.	%
SAME REGION (i.e., CANTON)	7	29	2	20	3	33	3	25	15	27
OTHER REGIONS (i.e., CANTON)	17	71	8	80	6	67	9	75	40	72
No data	0	0	0	0	0	0	0	0	0	0
Total	24	100	10	100	9	100	12	100	55	100

TABLE 13: DESTINATION OF SEASONAL MIGRANTS BY SUBDIVISION

DESTINATION	GUIDER		MAYO OULO		BOURRAH		MOKOLO		CORE PROJECT AREA	
	No.	%	No.	%	No.	%	No.	%	No.	%
SAME REGION (i.e., CANTON)	0	0	1	25	0	0	0	0	1	2
OTHER REGIONS (i.e., CANTON)	13	100	3	75	4	100	39	100	59	98
No data	0	0	0	0	0	0	0	0	0	0
Total	13	100	4	100	4	100	39	100	60	100

TABLE 14: DESTINATION OF SEASONAL MIGRANTS BY ECOLOGICAL ZONE

DESTINATION	PLATEAU		PIEDMONT		MOUNTAIN		PLAIN		CORE PROJECT AREA	
	No.	%	No.	%	No.	%	No.	%	No.	%
SAME REGION (i.e., CANTON)	0	0	0	0	0	0	1	8	1	2
OTHER REGIONS (i.e., CANTON)	26	100	10	100	12	100	11	92	59	98
No data	0	0	0	0	0	0	0	0	0	0
Total	26	100	10	100	12	100	12	100	60	100

majority of migrants from 63 percent of plateau villages active in the seasonal migration process, go to the Mubi area during the dry season. Aside from Nigeria and Garoua, the third major destination point for seasonal migrants from the area tends to be Maroua and its hinterland. Some village groups reported that migrants travel as far as Mbandjok and Yaoundé for seasonal work. The only place where the majority of seasonal migrants do not leave the region in search of employment is the village of Mayo Oulo. There young men go to work on the construction of the Guider-Mayo Oulo road.

In contrast with permanent in-migration, out-migration occurs over relatively long distances and is interregional. While migration is still predominantly rural-to-rural, rural-to-urban outmigration is not insignificant. In all centers studies, with the exception of one, permanent out-migrants had gone to other regions during the preceding five years. It was reported that most of the out-migrants from the fourteen plains villages sampled had gone to the agricultural colonization projects near Garoua (e.g., Northeast Benoue Project). This destination makes sense in light of the fact that the major reason given for out-migration from this ecological zone is the search for cultivable land. Such relatively long distance movement is facilitated by a lack of physical barriers and a well developed road infrastructure linking the plains area of the project zone to the Garoua region. Furthermore, there is no information gap, as land colonization projects are well publicized by the provincial authorities throughout the region.

Of the fifteen villages surveyed in the mountain zone all but one saw the majority of their emigrants go to other regions. Eighty-seven percent emigrated to the plains with 46 percent of these moving to Nigeria. The ease with which people move to Nigeria can be explained in part by the short social

distance that exists, as people on both sides of the border share common ethnic and historical backgrounds.

There appears to have been an evolution in the migration process in the mountains of the project area. In 1966 Boulet reported that for the mountain village of Magoumaz migration was largely seasonal, affecting primarily the young men of the village (Boulet 1975). However, according to the results of our study, many mountain villages are being affected by a significant permanent out-migration involving heads of households and their families.

Emigrants from piedmont areas of the project zone move to the plains and urban centers in Cameroon and Nigeria. The plains areas attracting migrants from this zone are primarily those of the Diamare and the Benoue in Cameroon and the Maiduguri plain in Nigeria. In six of thirteen villages affected by emigration, the majority of migrants went to urban centers. In one village, Goudour, it was reported that most emigrants in the past five years had gone to Yaoundé. For the most part these were young single men who had left in search of work. In general, it can be said that the vast majority of migrants from this topographical zone move relatively long distances, leaving the core project area entirely.

In almost 80 percent of the villages studied on the plateau, the minority of emigrants over the past five years had gone to areas outside of the core project area. (In all centers surveyed in this ecological zone the majority of emigrants had left their canton of origin.) Of these villages, 71 percent sent one-half or more of their emigrants to Nigeria, where they have gone to the major centers and corresponding hinterlands located along the border. These places include Mubi, Mitchika, Madagali and Maiduguri. Those migrants from the plateau region that stay in Cameroon were found to move to Garoua and its

surroundings (often times to agricultural colonization zones), the piedmont area around Zamay and the Guider region.

#### Migration Determinants

Respondents were asked to give the major reason for seasonal migration from their village. Eighty-five percent of village groups said that people left in order to earn a cash income necessary for the payment of taxes, the buying of food during the soudure and for the payment of a bride price (Tables 15 and 16). Others (10 percent) evoked the lack of agricultural employment during the long dry season. In this regard, in the Guider subdivision and in the plains area a relatively high percentage of villages (46 and 42 percent, respectively) are affected by seasonal migration due to insufficient employment opportunities. The village group in Kortchi reported that the dry season was used to evaluate locations, especially in Nigeria, for future permanent migration. In Wanarou, villagers stated that young males migrated seasonally for the purpose of finding a wife. The magnitude of seasonal migration and the principal reason cited for such movement emphasizes the lack of income earning possibilities in the zone and the relative labor surplus that exists generally from November to May.

Concerning motives for in-migration, almost two-thirds (60 percent) of the village groups responded that the majority of people had migrated to their villages in search of land (Tables 17 and 18). In most cases this can be interpreted as meaning a search for more fertile land in response to low production. However, where immigrants had originated in the Mafa dominated areas of the mountain zone, it is probable that their reasons related more to problems of

TABLE 15: MAJOR REASONS FOR SEASONAL MIGRATION BY SUBDIVISION

REASONS	GUIDER		MAYO OULO		BOURRAH		MOKOLO		CORE PROJECT AREA	
	No.	%	No.	%	No.	%	No.	%	No.	%
TO EARN A CASH INCOME	7	54	4	100	4	100	36	92	51	85
LACK OF AGRICULTURAL EMPLOYMENT IN DRY SEASON	6	46	0	0	0	0	0	0	6	10
Other	0	0	0	0	0	0	3	8	3	5
No data	0	0	0	0	0	0	0	0	0	0
Total	13	100	4	100	4	100	39	100	60	100

TABLE 16: MAJOR REASONS FOR SEASONAL MIGRATION BY ECOLOGICAL ZONES

REASONS	PLATEAU		PIEDMONT		MOUNTAIN		PLAIN		CORE PROJECT AREA	
	No.	%	No.	%	No.	%	No.	%	No.	%
TO EARN A CASH INCOME	23	88	9	90	12	100	7	58	51	85
LACK OF AGRICULTURAL EMPLOYMENT IN DRY SEASON	1	4	0	0	0	0	5	42	6	10
Other	2	8	1	10	0	0	0	0	3	5
No data	0	0	0	0	0	0	0	0	0	0
Total	26	100	10	100	12	100	12	100	60	100

TABLE 17: MAJOR REASONS FOR IN-MIGRATION BY SUBDIVISION

REASONS	GUIDER		MAYO OULO		BOURRAH		MOKOLO		CORE PROJECT AREA	
	No.	%	No.	%	No.	%	No.	%	No.	%
IN SEARCH OF CULTIVABLE LAND	9	75	4	57	2	33	18	60	33	60
IN SEARCH OF EMPLOYMENT	0	0	0	0	1	17	0	0	1	2
TO BE REUNITED WITH FAMILY	1	8	2	29	0	0	1	3	4	7
IN SEARCH OF POTABLE WATER	0	0	0	0	0	0	3	10	3	5
Other	2	17	1	14	3	50	7	23	13	24
Undetermined	0	0	0	0	0	0	1	3	1	2
Total	12	100	7	100	6	100	30	100	55	100

TABLE 18: MAJOR REASONS FOR IN-MIGRATION BY ECOLOGICAL ZONES

REASONS	PLATEAU		PIEDMONT		MOUNTAIN		PLAIN		CORE PROJECT AREA	
	No.	%	No.	%	No.	%	No.	%	No.	%
IN SEARCH OF CULTIVABLE LAND	9	38	9	90	5	56	10	83	33	60
IN SEARCH OF EMPLOYMENT	1	4	0	0	0	0	0	0	1	2
TO BE REUNITED WITH FAMILY	1	4	1	10	2	22	0	0	4	7
IN SEARCH OF POTABLE WATER	2	8	0	0	1	11	0	0	3	5
Other	10	42	0	0	1	11	2	17	13	24
Undetermined	1	4	0	0	0	0	0	0	1	2
Total	24	100	10	100	9	100	12	100	55	100

land scarcity. This may also be the case for Mofou immigrants, who as a group exhibit relatively high rates of natural increase (Podlewski 1966).

Village groups were also asked to state the major reason for out-migration from their communities. As in the case of in-migration, the search for land was said to predominate with 33 percent of the groups interviewed citing this as the major factor in determining out-migration (Table 19). Twenty percent reported that the quest for employment was the most significant reason. The need for land is hardest felt in the mountain and plains zones where the majority of emigrants in 53 and 57 percent, respectively, of villages surveyed had left their communities for this reason (Table 20). In the plains, piedmont and plateau areas, the quest for revenue generating employment is significant in influencing the population to emigrate. However, only one village group interviewed in the mountains responded that this had been a major reason for migration out of the zone. This finding may be explained in part by the lack of integration of the mountain populations into the larger regional and national market economy. Other reasons mentioned stimulating out-migration included: the lack of drinking water, the absence of social infrastructure (e.g., schools and health centers), higher crop prices in Nigeria, greater commercial possibilities in Garoua, distance from an Islamized population concentration and harassment by local security forces. The latter is particularly significant in the plateau area along the Nigerian border.

### Migrant Characteristics

The majority of seasonal migrants in more than one-half (56 percent) of villages are employed for building or repairing housing. A significant number, the majority in 30 percent of the villages surveyed, work as agricultural

TABLE 19: MAJOR REASONS FOR OUT-MIGRATION BY SUBDIVISION

REASONS	GUIDER		MAYO OULO		BOURRAH		MOKOLO		CORE PROJECT AREA	
	No.	%	No.	%	No.	%	No.	%	No.	%
TO SEARCH FOR POTABLE WATER	0	0	0	0	0	0	4	10	4	6
TO SEARCH FOR EMPLOYMENT	4	27	3	38	2	40	5	13	14	20
TO BE REUNITED WITH FAMILY	0	0	0	0	0	0	1	3	1	1
TO SEARCH FOR CULTIVABLE LAND	8	53	2	25	0	0	13	32	23	33
Other	3	20	3	38	3	60	14	35	23	33
Undetermined	0	0	0	0	0	0	4	10	4	6
Total	15	100	8	100	5	100	41	100	69	100

TABLE 20: MAJOR REASONS FOR OUT-MIGRATION BY ECOLOGICAL ZONE

REASONS	PLATEAU		PIEDMONT		MOUNTAIN		PLAIN		CORE PROJECT AREA	
	No.	%	No.	%	No.	%	No.	%	No.	%
TO SEARCH FOR POTABLE WATER	2	7	2	15	0	0	0	0	4	6
TO SEARCH FOR EMPLOYMENT	7	26	3	23	1	7	3	21	14	20
TO BE REUNITED WITH FAMILY	0	0	1	8	0	0	0	0	1	1
TO SEARCH FOR CULTIVABLE LAND	6	22	1	8	8	53	8	57	23	33
Other	11	41	4	31	5	33	3	21	23	33
Undetermined	1	4	2	15	1	7	0	0	4	6
Total	27	100	13	100	15	100	14	100	69	100

laborers. Many of these work in the mousskouari fields around Garoua and Maroua. Others work in the same urban centers transporting firewood and water.

The heads of households and single adult males who have permanently migrated are primarily occupied in agricultural activity: 93 percent of in-migrants and 88 percent of out-migrants. Migration in the project area tends to be sex-specific. The pattern, however, varies according to the nature of the migration. Rural-to-rural, short distance migration is female-selective. In general, this is explained by the movement of women because of marriage. An analysis of the 1976 national census results for the Northern Province shows intra-rural migration in that region to be dominated by women with a sex ratio of 93 females for every 100 males in the case of intradepartmental migration.

Long distance, rural-to-rural and rural-to-urban migration that is economically motivated is heavily male-selective. Long distance migration is male selective, as demonstrated by the uneven sex ratio that exists in the core project area. According to the 1976 census, the total population of 473,901 persons is distributed between 225,520 males and 248,381 females. This constitutes a sex ratio of 91 males to 100 females. As there is no evidence that mortality is higher among males than females and as the sex ratio at birth is reasonably balanced, this uneven sex ratio can be explained by the permanent and seasonal out-migration of the male portion of the population.

Evidence of male predominance in rural-urban flows is obtained when the populations of the urban centers of Garoua and Maroua are added to that of the core area. This increases the total population of the project zone to 601,246 with 290,218 males and 311,028 females and increases the sex ratio to 93 males

for every 100 females. For the Northern Province the sex ratio of urban migrants is 16 males to 100 females (Beauvilain 1980).

The volume of male out-migration is particularly high in the 15-35 age group where the sex ratio in the core project area is 73 males to 100 females. The lack of females' participation in long distance, economically oriented migration can be explained by the influence of Islam in the region and the low levels of education attained by women, which makes them unqualified for many jobs.

Empirical research in Africa and elsewhere show that migration concentrates heavily on villagers between the ages of 15 and 30 (Connele, et al. 1976). In the case of the project area the trend is similar. As noted above, men aged 15-35 are especially active in the migration process. During the course of the survey this was confirmed as it was consistently reported that the young, particularly men, were most often seasonal migrants.

Leaving aside migration of women for reasons of marriage, single males tend to dominate the migration flow. The MSU study found that nearly one-half of the migrants in their survey are sons of the head of households themselves (Campbell, Berry and Holtzman 1980).

Many migration studies show a high degree of educational selectivity in migration patterns. The tendency to migrate increases with the acquisition of educational qualifications, though (unlike the young or the male) the educated comprise a minority of total migrants from most areas. In other words, educational level is positively related to out-migration. For the project area statistics on the educational status of migrants are deficient. However, in the research carried out by MSU it was found that "only one-third of the migrants had received any schooling and of those the average was between five and six years" (Campbell, Berry and Holtzman 1980). Thus, from this evidence it

appears that the selection mechanism in the migration process concentrates on both the uneducated and the better educated of the region.

### Conclusion

In general, the core project area is not a zone attractive to in-migrants. Of the seventy-two villages studied, 13 percent gained ten or more households from outside the core zone in the last five years while almost one-half (47 percent) lost at least the same number to regions outside the area. An analysis of the latest census revealed the same pattern. In 1976 for the former Department of Margui-Wandala out-migrants outnumbered in-migrants 24,723 to 17,210 thus registering a net out-migration of 7,513 persons. (This figure does not take into account those migrating to Nigeria which constitute a considerable flow from the department.) The Benoue and Mayo Louti Departments, on the other hand, showed an increase of 10,629 persons because of migration. However, most of these were absorbed in the Garoua subdivision which lies outside the core zone (Beauvilain 1980). Moreover, according to our survey results there is a tendency for the population to move from the Mayo Louti to the Benoue division.

Within the core project area migration is characterized by movement from the mountains to the lower lying plateau and plains areas. This redistribution of the population is due to land scarcity, poor soil quality, lack of employment opportunities, especially during the dry season, and lack of access to social infrastructure.

Present trends if unchanged will mean:

- Continued abandonment of mountain terraces, resulting in increased soil and water loss from mountain slopes;

- Increased rural-to-rural migration due to low production and subsequent search for land, causing reduced fertility of the region's soils through extensive and shifting cultivation practices;
- Increased migration to Garoua and Maroua occasioned by the expansion of their urban economies and the transformation of seasonal to permanent migration, leading possibly to overburdening urban facilities and services;
- Increased importance of out-migration to Nigeria.

The Government of Cameroon has expressed the desire to stabilize as much as possible the existing settlement pattern while directing those rural inhabitants who choose to migrate to smaller urban centers and agricultural colonization zones. The following recommended interventions are intended to respond to these concerns. They take into account the determinants and impacts of population movement in the region and are based on the results of empirical studies carried out in less developed countries (Rhoda 1979). In general, they attempt to increase income opportunities in the zone while facilitating out-migration for some. They include:

- Increase production of labor intensive, dry season (or late rainy season) crops;
- Technical inputs to agriculture to increase or at least maintain soil productivity;
- Provide improved health care and water supply;
- Support enterprises at lower levels of the urban hierarchy;
- Soil conservation measures for mountain areas abandoned through out-migration;
- Continued implementation of land colonization projects;
- Interventions in education, roads and communications to facilitate some out-migration.

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