CAMEROON: POPULATION GROWTH AND LAND RESOURCES

A Case Study

by

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CAMEROON: POPULATION GROWTH AND LAND RESOURCES

ABSTRACT

This paper was prepared as background to an overview paper examining the consequences of rapid population growth on labor productivity in agriculture in sub-Saharan Africa (see Technical Note No. 85-19a). It is one of several case studies prepared (studies on Sudan and Nigeria are forthcoming). The paper reviews Cameroon's demographic situation, looks at the many different components involved in agricultural production (land availability, labor, land laws, input systems, etc.) and the implications of continued rapid population growth for agricultural production. It also examines fuelwood supplies and consumption, and whether sufficient resources exist to meet the future demands of a growing population without deforestation.

Cameroon is one of sub-Saharan Africa's wealthiest countries, with a GNP per capita of US$810 in 1984. The country's vast resources and ecological diversity are the main reasons for its strong performance. It produces a wide variety of agricultural products, has large unexploited forestry reserves, considerable livestock-raising potential, and oil, natural gas, hydroelectric and mineral resources. Land is abundant, but less than one-fifth of potentially cultivable land is currently being cropped.

The population of Cameroon was estimated to be 10 million at the end of 1985. It is characterized by high and increasing fertility, declining mortality and an uneven geographical distribution. Nearly 40 percent of the population is urban; the proportion of urban dwellers is expected to increase to at least 60 percent by the year 2000.

Given its considerable natural resources, Cameroon has the potential to support a certain increase in population with adequate planning. However, it has begun to experience problems with land degradation and deforestation in areas where demand on the resources has become excessive. This implies that the country's supporting capacity and its ability to maintain (or improve) the present standard of living may diminish quickly if some action in the areas of population policy and land management is not taken. By addressing these problems now, Cameroon may be able to ward off serious problems as it moves into the next century. Reducing the rapid rate of population growth, stemming rural-to-urban migration and encouraging settlement in less densely populated regions would help to redistribute demand and alleviate some of the pressures on currently over-exploited resources. This will require careful management of resources, including job-creation in rural areas, and commitment to improving transportation, output prices, research and extension service systems as well as population education and family planning service availability.

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I. **Resources**

Cameroon is one of sub-Saharan Africa's wealthiest countries: 1984 GNP per capita was $810. The country's vast resources and ecological diversity are the main reasons for its good performance. Cameroon's real output growth has accelerated over time with the annual GDP increase rising from 4.5% (1971-76) to 8.6% in the period when oil production began (1976-81). Even before the onset of oil production it was widely recognized as exceptional amongst African countries, enjoying a strong agricultural sector, near self-sufficiency in food, a high credit standing and unusual political and social stability. In 1984, it was regarded as having considerable economic potential given its ability to produce a wide variety of agricultural products, its large, unexploited forestry reserves, considerable livestock-raising potential, and natural gas, hydroelectric and mineral resources.

Cameroon covers an area of 475,000 km$^2$. Land is abundant, but less than one-fifth of potentially cultivable land is currently being cropped. Its ecological diversity enables production of a wide variety of agricultural products. Until 1978 (which marks the advent of oil production), agriculture was the mainstay of the economy accounting for most foreign exchange earnings (71% of total export value) and 32% of GDP. Its share has declined since then: in 1983 agriculture (including fishery and forestry) represented 25% of exports and 24% of the GDP. During the period 1978-82, it is estimated that total agricultural production may have increased by 3.5%-4.0%. Agriculture will likely regain prominence in the Cameroonian economy as oil revenues decline. 1/

Forest reserves are plentiful: 67% of the total land area is forest or woodland. Dense tropical forest covers 17.5 million ha, making it one of the largest reserves in the world. Cameroon also has extensive mineral and oil resources; it became an oil producer in 1978. Oil production soon attained a dominant position in total exports (63% in 1982) and accounted for a significant portion of the total GDP in 1981 (11%). Oil production is expected to peak in the mid 1980's at 7.6 million tons, and slowly decline thereafter until supplies are exhausted by the mid 1990's.

II. Demographic Characteristics of Cameroon

The population of Cameroon was estimated to be 10 million at the end of 1985. It is characterized by high and increasing fertility, declining mortality and an uneven geographical distribution of the population. In 1983, the crude birth rate was 46 per 1,000 and the total fertility rate was 6.5; the crude death rate was 15 per 1,000 and the infant mortality rate was 116 per 1,000 live births. The average annual rate of population growth has been increasing and is now 3.2%. Life expectancy at birth is about 54 years. Nearly 40% of the population is urban. The potential for continued rapid population growth--nearly a doubling of the population by the year 2000--is great. The age structure of the population has been growing increasingly younger: in 1980, 44% of the population was under age 15 and 4% age 65 and over; the dependency ratio was 91. This trend will continue with further increases in fertility and declines in mortality.

2/ West Africa Regional Projects Department, 1983.

Projections. Trends in mortality, fertility and migration will determine the extent and rate of future population growth. A set of three projections for the period 1980-2015 quantifies the impact of population growth (see Table 1). In these, international migration was assumed to be nil and a continued decline in mortality was projected. Fertility is assumed to increase for the rest of this decade in all projections, reaching a TFR of 7.0 by 1990. The projected trend in fertility is varied after 1995. At the current rate of population growth, the population would double every 22 years; in this decade alone, 3.3-3.4 million people will be added.

Table 1. PROJECTED POPULATION SIZE AND GROWTH RATES, 1980-2015

<table>
<thead>
<tr>
<th>Projection</th>
<th>Total Population (in millions)</th>
<th>Annual Rate of Population Growth (Per cents)</th>
<th>Doubling Time at Rate (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>8.7</td>
<td>12.1</td>
<td>17.5</td>
</tr>
<tr>
<td>B</td>
<td>8.7</td>
<td>12.1</td>
<td>17.2</td>
</tr>
<tr>
<td>C</td>
<td>8.7</td>
<td>12.1</td>
<td>15.4</td>
</tr>
</tbody>
</table>

2. Population Distribution

Urban/Rural Population. Cameroon is currently the fourth most urbanized country in West Africa with nearly 40% of the population now residing in urban areas. The pace of urbanization has been swift: in 1960, only 14% of the population was living in urban areas; the average annual urban growth rate was 7.4% during the 1970's (compared to about 1% in rural areas). Forty percent of the urban population live in two cities: Douala, the major port and industrial center and Yaounde, the capital.\(^4\)

Although the pace of urbanization is expected to taper off over the next 20 years, the proportion of urban dwellers is expected to increase to at least 60% by the year 2000.

Regional Distribution. The population is unevenly distributed throughout the country and densities by province range from 4 to 82 per km\(^2\) (see Table 2). The uneven distribution is especially striking when the rural population is studied separately. For example, in low density areas, less than one-quarter of the rural population occupies 75% of the land, while slightly more than half of rural dwellers are concentrated in 10% of the rural areas. High densities (50-200 persons/km\(^2\)) are found in 3 areas in particular:

- high plateau of West Province and southern part of North-West Province: this is the most densely populated rural area. Volcanic soil is highly fertile and climate is healthy. Agriculture is intensive on the slopes;

- area around Yaounde: home to many immigrants;

- Mandara Mountains and the banks of the Longoue River in North Province: these areas are relatively secure because of surrounding mountains and marshes; agriculture is intensive.

Table 2. POPULATION DISTRIBUTION BY PROVINCE, 1982

<table>
<thead>
<tr>
<th>Province</th>
<th>Population Distribution Percent</th>
<th>Area (thousands of sq. km)</th>
<th>Density (population/sq. km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central South</td>
<td>19.5</td>
<td>118</td>
<td>14.0</td>
</tr>
<tr>
<td>North</td>
<td>29.3</td>
<td>165</td>
<td>15.0</td>
</tr>
<tr>
<td>East</td>
<td>4.8</td>
<td>111</td>
<td>3.7</td>
</tr>
<tr>
<td>Littoral</td>
<td>11.8</td>
<td>22</td>
<td>45.3</td>
</tr>
<tr>
<td>West</td>
<td>13.6</td>
<td>14</td>
<td>82.0</td>
</tr>
<tr>
<td>North West</td>
<td>12.8</td>
<td>18</td>
<td>60.0</td>
</tr>
<tr>
<td>South West</td>
<td>8.2</td>
<td>28</td>
<td>24.4</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
<td>476</td>
<td>17.7</td>
</tr>
</tbody>
</table>


3. Land Features and Population

Ecological Zones. The population distribution corresponds at least to some degree with the agricultural potential and climatic suitability of the five ecologically diverse regions found in Cameroon. The location of these ecological zones is shown in Table 3.

Table 3. ECOLOGICAL ZONES BY PROVINCE*

<table>
<thead>
<tr>
<th>Province</th>
<th>Southern Forest</th>
<th>Central Savanna</th>
<th>Western Highlands</th>
<th>Northern Plains</th>
<th>Western/Coastal Highlands</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central-South</td>
<td>70</td>
<td>20</td>
<td>-</td>
<td>-</td>
<td>10</td>
<td>100</td>
</tr>
<tr>
<td>Littoral</td>
<td>20</td>
<td>-</td>
<td>10</td>
<td>-</td>
<td>70</td>
<td>100</td>
</tr>
<tr>
<td>South-West</td>
<td>10</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>90</td>
<td>100</td>
</tr>
<tr>
<td>West</td>
<td>-</td>
<td>-</td>
<td>100</td>
<td>-</td>
<td>-</td>
<td>100</td>
</tr>
<tr>
<td>North-West</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>100</td>
</tr>
<tr>
<td>East</td>
<td>60</td>
<td>40</td>
<td>-</td>
<td>60</td>
<td>-</td>
<td>100</td>
</tr>
<tr>
<td>North</td>
<td>-</td>
<td>40</td>
<td>-</td>
<td>22</td>
<td>-</td>
<td>100</td>
</tr>
<tr>
<td>CAMEROON</td>
<td>35</td>
<td>27</td>
<td>7</td>
<td></td>
<td>9</td>
<td>100</td>
</tr>
</tbody>
</table>

* Mission estimates

Sources for information on ecological zones: World Bank, 1979 and 1983.
The **Northern Plains** region is isolated from the rest of the country. One-quarter of the population lives here. Livestock are important, nomadic and transhumant pastoralism predominate. It is comprised of two zones: the northern zone has a harsher drier climate than the southern zone. The agricultural potential is less because, despite a substantial amount of fertile alluvial soils, the land around the Lake Chad area floods during the rainy season and about 200,000 ha consists of sol harde, a low lying, hardened alluvial soil on which little has been grown to date. Rainfall totals 400-800mm over 4 to 5 months. But population densities are fairly high, ranging from 20 to more than 70/km\(^2\) in hilly areas. In the center north, population pressure and climatic conditions have led to some land degradation. In the southern zone (Benoue) the climate is similar to the Guinea/Sudanian climate; its average rainfall totals 1,000-1,400mm over 6-7 months. The vegetation is primarily tree savanna. The agricultural potential is high, with soils presently supporting cultivation of maize and rice, and sorghum, millet and beans which are intercropped with groundnuts and/or cotton as cash crops. Population density in this zone is about 5 persons/km\(^2\).

The **Central Savanna** region is one of the least populated in the country, with densities less than 5/km\(^2\). Livestock is the main resource of the area. Soils are generally of moderate potential. It also has two zones: the Adamaoua plateau is an isolated area covering 67,000 km\(^2\). Nomadic cattle grazing is characteristic, fertile red and partly volcanic soils predominate, and there is little infrastructure; in the lower tree savanna found in northern Central-South and Eastern Provinces, the climate is equatorial with 1500-1600mm of rainfall annually. The traditional farming system is food crop; there is some erosion in hilly areas.
The Western Highlands correspond to West and Northwest Provinces. It is an area of fertile volcanic and alluvial soil and adequate rainfall which gives it high potential for development. This region covers only 6% of the total land area but contains about 30% of the population. Forty percent of the 252,000 smallholders cultivate holdings of less than 1 ha.

The northern zone is comprised of the Bamenda grasslands. Population density is about 80/km². Annual precipitation averages 2500 mm; an abundance of dark fertile soils of volcanic origin exist. Arabica coffee and maize are grown extensively but many areas are grass covered. The potential for cattle raising and mixed farming is excellent. In the southern zone density exceeds 200/km² in some areas e.g., the Bamileke area (West Province) where almost all suitable land is cropped; constant cultivation on fairly steep slopes presents potential erosion problems. Further east, land remains available for development.

The West and Coastal Lowlands include parts of Southwest, Littoral and Central-South Provinces. This is where most of the country's forest and wildlife reserves are located. Most of the population lives around Mt. Cameroon along the main roads. Annual rainfall exceeds 2500mm. Cropping patterns are dominated by robusta coffee in Littoral and food crops elsewhere. Cultivation is done by intercropping either coffee and food crops or food crops only.

The fifth region is the Southern Rain Forest which extends mainly into Central-South and East and partially in Littoral and South-West Provinces. Average rainfall here is 1400-1900mm. Soils are only of moderate potential. Food crops, cocoa, coffee and rice are grown. The stability of food crop yields has depended on short growing periods of 2-3
ears followed by a long fallow (10 years). In some areas where population density has increased to over 60/km$^2$ e.g., in Lekie, fallow periods have shortened and soil degradation has set in. Population densities vary widely, ranging from 60/km$^2$ around Yaounde area to 12-20/km$^2$ 100 km from Yaounde, to close to 1/km$^2$ in Southeast. The road network is primarily geared toward reaching Yaounde. Earth roads predominate making travel difficult in the rainy season.

4. Population Movement

Internal Migration. The uneven population distribution has been exacerbated by 3 major internal migration flows:

1) Movement in West Province. This movement has been the most significant in shaping the current distribution pattern of the country. Demographic pressure on already intensively cultivated land led to emigration of the rural Bamileke people to the southwest either to the economic capital of Douala or the rich agricultural region of Mouno.

2) The West-East Movement. Another flow has been from Douala toward Yaounde; many migrants have settled in Yaounde.

3) The North-South Movement. This movement entails: a rural exodus toward the large cities of the south, with or without a temporary stay in such towns as Maroua, Garoua and Ngaoundere en route; migration of whole families from extreme north toward the area designated for rural colonization in the North-East Benoue project; migration of cattle herds toward East Province; and labor migration toward the agro-industrial complexes in the south.

Rural-Urban Migration. The reasons for the rural exodus being experienced are numerous. Income differentials between agricultural and non-agricultural sectors provide great incentives particularly to the
young. The most mobile members of farm families (unmarried young men and, to some extent, young women) traditionally receive a relatively small part of the cash income of the farm. Available information indicates that the majority of farm families (those with farms of less than 1 ha) earn less than half of what a single, non-agricultural worker in the lowest category earns. Only those with holdings of more than 2.5 ha equal or surpass the earnings of a single, low category urban worker.\(^6\) Regional disparities in farm incomes reflect regional differences in cropping patterns, population densities and natural resources. Per capita farm incomes in the cocoa and coffee producing areas of the south were around US$260 in 1982, whereas in the Western Highlands (maize and coffee) and in parts of the Northern Province (mainly sorghum) where population densities exceed 200/km\(^2\), they were as low as US$160. These incomes compare poorly to the national per capita income of about $810 (1984).\(^7\)

Other factors provide impetus for migration: the lack of easily marketable cash crops (i.e., cash crops are expensive to market and perishable) and a decline in the real price of coffee and cocoa\(^8,9\); pervasive poverty in rural areas: in 1981, about 40\% of the rural population was living in absolute poverty\(^10\) (the corresponding proportion in Yaounde and Douala was 15\%); the land tenure system, under

\(^6\) World Bank, 1983.
\(^7\) West Africa Regional Projects Department, 1984.
\(^8\) English, 1985.
\(^9\) Price policies may not be very effective because the lowest income farm families on small holdings produce little to sell and the most mobile farm family members receive only a small part of the farm's cash income.
which young people can own land only after the father's death and then land is distributed equally among all (typically numerous) heirs creating a miniaturization of farms; the lack of economic and social amenities in rural areas; and the limited access of smallholders to inputs and credit.

International Migration. This has not been a significant component of population growth in Cameroon. There has been very little emigration of Cameroonians. However, there has been some immigration of Nigerians, because of ill-defined boundaries with Nigeria, and Chadian refugees in the extreme north. The 1976 Census found that foreign nationals totalled about 3% of the population, two-thirds of whom were Nigerians.11/

III. Implications of Population Growth for Agriculture

It would appear at first glance that given the vast array of resources and availability of land in Cameroon, population is not a critical problem nor will it be one in the near future. Data from the Food and Agriculture Organization (FAO) seem to support this notion and show that compared to other African countries, Cameroon will be able to support its growing population far longer than many of its neighbors: 21 sub-Saharan African countries will have exceeded the population supporting capacity of their land by the year 2000; Cameroon may not reach its capacity until 2050.12/

However, what these data fail to point out is that to support its burgeoning population, Cameroon's abundant (but not inexhaustible) land will have to be brought into production very quickly. Progressively marginal land will have to be tilled and fallow periods shortened in order to feed the growing population. The effort and cost to bring this land into production will likely increase as more and more marginal land is cultivated. Investment in infrastructural and technological development will be needed. The population will have to be more evenly distributed in order to cultivate land that is at this time sparsely populated or unoccupied. All of these actions require planning, and proper planning requires considerable lead time. It is Cameroon's rapidly growing population and its commensurate needs that threaten the lead time needed for optimal development of the land.

For Cameroon, the issue is less the size of the population and whether adequate land and potential food resources are available in the country, but rather what rate of population growth and what population distribution are compatible with the government's objectives for balanced growth and socio-economic progress. Some would say that a growing population can result in improved economies of scale and provide the needed manpower and demand to more efficiently exploit its resources. But can continued development and exploitation of resources keep pace with the rate of population growth: can infrastructural and technological improvements needed to expand agricultural productivity and further utilize mineral and forestry resources occur quickly enough to at least maintain (let alone improve) the current standard of living for the growing population; can sufficient amenities, incentives (e.g., through pricing), credit and extension services (already limited), etc., be made available so as to make
life in rural areas attractive and competitive with the quality of life (be it real or perceived) in urban areas?

Perhaps the most significant population issue for Cameroon is that of distribution. Uneven distribution can lead to overexploitation of resources, damaged soil fertility and deforestation in some areas and underutilization of resources in other areas. It can cause an imbalance in the labor force and a maldistribution of demand for resources. Cameroon's population is rapidly becoming urbanized. Much of this growth is attributable to migration and may be problematic, if current trends continue, for both urban and rural areas. The rapidly growing urban population will place increasingly heavier demands on the urban infrastructure requiring employment and services (especially education and health, where quality has already suffered from quantitative growth) and on the rural infrastructure for food. Assuming continued growth of population and continuation of present migration trends, it is projected that one active rural person will have to feed 6-7 persons in the year 2000 compared to 3-4 in 1976.13/ Provision of services to the urban population may consume much of the capital needed for investment in the rural infrastructure in order to expand cultivation. Continued migration will further drain the rural workforce of its most vital members. As explained below, the land tenure system, which is fostering miniaturization of farms and consequently depressing incomes, also encourages outmigration.

The uneven distribution of the rural population could also create obstacles to agricultural productivity and development. Areas with high density e.g., parts of the Northern Plains, are already beginning to experience land constraints to expanding agricultural activity. Some areas

13/ World Bank, 1983.
with low density such as the Southern Rain Forest and Central Savannah, suffer from labor shortages.\textsuperscript{14/}

Cameroon's resources are vast today but the dominant one, oil production, will likely be exhausted by the mid 1990's. This eventuality is one which Cameroon must prepare for. When that source of revenue dries up, population will become a more salient issue. It should therefore be recognized that a continuation of today's rapid population growth rate and uneven geographic distribution could have implications for future development and improvements in Cameroon's living standards.

The preceding highlights a number of the problems that are impairing the expansion of the agricultural sector needed to keep pace with the rapidly growing population, and points out the problems that the uneven distribution of the population creates for the agricultural sector as well as the economy as a whole. These issues, including land tenure, labor and infrastructural development, are discussed in more detail below. First, a synopsis of the production systems operating in the agricultural sector is given.

1. \underline{Production Systems}

Approximately 2.5 million ha, or 16\%, of Cameroon's cultivable area is cultivated. The prevailing practice of rotating cultivation and leaving land fallow to preserve soil fertility is the main reason for the low level of cultivable land use. Little draught power and only simple farming tools are used, so much of the farm work is done manually. Length of fallow needed to maintain soil fertility varies by region: in the

\textsuperscript{14/} World Bank, 1979.
forest zone, about 8-12 years and in the savanna 4-7 years are required after each cropping. In some areas in the West, North and Central-South, where rural population density exceeds 30/km², land is already a constraint to expanding production. In these areas the fallow period has been reduced to 4 years which threatens soil fertility.

Regions with the largest areas of cultivated land do not coincide with areas of population concentration (see Table 4). However, even under prevailing production systems which require fairly large areas of land, potentially cultivable land is still available in most provinces.

**Table 4. DENSITY AND CULTIVATED LAND BY PROVINCE**

<table>
<thead>
<tr>
<th>Provinces</th>
<th>Density (1982 pop./km²)</th>
<th>Cultivated Land, 1972 (km²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>North</td>
<td>15</td>
<td>33,209</td>
</tr>
<tr>
<td>East</td>
<td>4</td>
<td>5,392</td>
</tr>
<tr>
<td>Central South</td>
<td>14</td>
<td>15,396</td>
</tr>
<tr>
<td>Coastal</td>
<td>45</td>
<td>2,277</td>
</tr>
<tr>
<td>West</td>
<td>82</td>
<td>3,706</td>
</tr>
<tr>
<td>North &amp; South-West</td>
<td>60</td>
<td>8,324</td>
</tr>
<tr>
<td>Cameroon</td>
<td>18</td>
<td>68,304</td>
</tr>
</tbody>
</table>


Food crop production is done primarily on small scale farms. Monocropping, intercropping and mixed cropping are all practiced.

**Smallholder Sub-Sector.** This sub-sector consists of 926,000 farms and accounts for 93% of agricultural output. Eighty-one percent of these farms are smaller than 2.5 ha which comprises 52% of land under

15/ World Bank, 1983.

16/ Ibid.
cultivation; 19% are 2.5-10.0 ha.\textsuperscript{17} The typical farm supports 4-8 people, 2-3 of whom are active. About 1.5-3.0 ha of cultivated land is subdivided into 3-4 fields. Usually 0.5-1.0 ha is devoted to export (cash) crops; subsistence food crops are cultivated on the remaining area. Expansion of production (about 3-4% per annum) seems to have at least kept pace with population growth as no serious food shortages have occurred.\textsuperscript{18}\n
\textbf{Plantation Sub-Sector.} Approximately 100,000 ha are cultivated in this sub-sector which employs about 40,000 people. It is made up of a public and a smaller, private sector, and accounts for about 7% of agricultural output.

2. \textbf{Labor Force}

More than 70% of the labor force is employed by the agricultural sector.\textsuperscript{19} Where densities are below 30/km\textsuperscript{2} and levels of mechanization are low, labor shortages become a constraint to expansion of cultivated land. The rain forest and western highlands have experienced labor shortages for tasks depending on manual labor. The Southern Rain Forest is an area where the shortage is a result of the exodus of potential young farmers who, in this case, have no access to cocoa land (the area's main cash crop). The population has aged as a result of migration, affecting labor productivity.

\footnotesize
\textsuperscript{17} World Bank, 1979.
\textsuperscript{18} World Bank, 1983.
\textsuperscript{19} West Africa Regional Programs Department, 1984.
The growing imbalance between the urban and rural populations and the age of the rural work force remaining after migration has become a constraint to growth of the agricultural sector at least in the short term. The proportion of the population living in rural areas is expected to shrink to less than half by the year 2000 and given that rural-to-urban migration involves mostly young adults (and more males than females), the rural labor force will become smaller, older and predominantly female. The larger urban population will likely create increasing demand for marketed foodstuffs in urban areas which means that generating production above the level required to sustain rural families, and marketing it, will become an increasingly important concern.

The rate of outmigration and consequent urban population growth is rapid, and improvements in urban infrastructure and provision of services have thus far not kept pace with urban population growth, and unemployment is already a problem in urban areas. In 1976, 16% of the labor force was classified as unemployed in Yaounde, and 21% in Douala; this situation has likely deteriorated over the subsequent years.

It is estimated that over the 5 year period of the Fifth Plan (1981-86), the increase in formal sector wage employment will be only about one-third of the increase in the working population. By the year 2000, 2 million additional non-agriculture jobs will have to be created to avoid massive urban unemployment. Thus, not only does the geographic imbalance of the labor force reduce productivity in the rural sector,

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20/ Population, Health and Nutrition Department, 1984.
21/ West Africa Regional Programs Department, 1984.
it also places a tremendous burden on the urban infrastructure and increases the demand for employment opportunities.

3. Land Tenure

Farm size is generally very small. This is largely the result of the land tenure system operating in Cameroon. This system is contributing to outmigration from rural areas: these migrants perceive their chances of inheriting a sizeable farm as remote and know that acquisition of land through titling is a long, arduous process.

Customary land holding rights regained pre-eminence over statutory land laws following independence in 1960. The havoc this created prompted the President to enact modern law in 1964. This opened up accessibility to land titling to everyone. Demand for titling has increased, but the process is slow: obtaining a title usually takes from 2 to 7 years. In 1983, only one-tenth of requests for title were processed. Demand is pronounced in the cities and growing in the rural market-oriented areas of central and western Cameroon.

Traditional land laws governed by tribal customs continue to exist with tacit approval by the government. Characteristics of this system include: 1) claims to land based on religious ties to land; 2) special rights accorded first occupants, their successors or village chiefs in distribution of land among clan or village members. These rights seek to protect production potential for future generations; 3) individual clan members are entitled to usufruct of land.

Superimposed on these traditional rights is modern law differentiating between national, private, public and governmental land. Tribal land and that cultivated by groups is national land; its users are

allowed to carry out customary practices and apply for land title. Private ownership is obtained by acquiring land title. Unoccupied land can be claimed by an individual or development societies for development purposes. Public land includes rivers, lakes and areas of public use. Land for direct government use can be diverted from either public or national land, or expropriated from private land if it serves the public interest.

Despite the existence of adequate land resources, accessibility to land is limited. Serious problems are emerging from the dualistic land tenure system. These include: the reduction of farm size in densely populated areas resulting from equitable distribution of property among all heirs; given the typically large number of heirs, the size of holdings rapidly shrinks, which depresses income. The difficulty young farmers face in acquiring land if their father is still alive—they usually cannot establish a farm on their own—is another problem. The complicated procedures involved in obtaining land titles puts ownership beyond the reach of most small farmers unless considerable assistance from local extension services is available (it often is not). Most farmers, therefore, continue to follow the traditional system. Security of tenure is not readily available for urban dwellers because of cumbersome land transfer procedures. This constraint to private investment is further aggravated by limited resource availability for medium and long term credit financing. The ultimate effect of the dualistic system is that it impedes agricultural development. It does so by preventing smallholder credit programs; creating obstacles to settlement of young farmers and increases in the size of smallholders farms; and precluding revision of the tax system. The shrinking farm size is an impetus to migration to urban areas. The system is
also not conducive to enticing farmers to invest in land improvements if they do not own the land and may have to leave it, or if the land owner demands the return of the improved land.

The transformation of subsistence agriculture into market-oriented agriculture increases the market value of the land. This, and rapid population growth change the relationship between people and the land. Studies indicate that in the rain forest, the shifting cultivation system along with bush fallow and the traditional land distribution system can only function, with soil fertility maintained, when the rural population density is below 30/km². Above that, land becomes scarce, soil fertility diminishes and farmers tend to establish their own land rights as the traditional system fails. As the urban population grows demand for land, especially for housing, will be driven up. Subsistence cultivation will lead to inflated land values and will intensify pressure for acquiring land titles for legal ownership of land.

4. Inputs

Studies in food supply systems show a pattern in the evolution of agriculture from hunting and gathering to more intensive use of land, e.g. multiple cropping. The progression is characterized by increased labor inputs and typically the use of increasingly sophisticated mechanization: from burning fields, to use of the hoe, plow and animal power, to tractors and fertilizers needed to maintain soil productivity and to support intensified land use.

24/ This phenomenon is particularly acute in Cameroon, compared to other West African countries, because of a very high concentration of the rural population in a few areas.

In some areas of Cameroon where rural population density is over 30/km², land scarcity is constraining production growth. In other areas, low density and labor shortages hinder expansion of cultivated land. Thus far, these factors have not prompted a steady progression in the agricultural transition: use of early stage inputs predominates, along with the use of chemical fertilizers. The hoe, axe and machete are the only tools commonly used. There is limited use of sprayers and chain saws; only 3% of smallholders use ploughs.26/ The simpler equipment is generally produced in Cameroon; tractors are imported. After-sale servicing is virtually nonexistent.

The 5th Development Plan for the agricultural sector provides only limited financial support to the promotion of mechanization. It does, however, stress the importance of mechanization to increasing the productivity of a stagnant and possibly declining agricultural workforce. It recognizes the existing obstacles to mechanization arising from the size of farms, financial situation of farmers and the lack of skills and after-sale services. However, the Plan's support for extending use of mechanization has been limited to proposing the creation of heavy motorized land clearing brigades and motorized cultivation. No plans for promotion of animal traction are included.27/ Animal power is important at this stage of the agricultural transition because use of animals helps to maintain soil fertility as fallow periods become shorter; and it is an appropriate technology at this stage i.e., it is "economical" in that the returns will justify the costs involved. Present knowledge and experience

26/ World Bank, 1983.
27/ West Africa Regional Projects Department, 1983.
indicate that promoting animal traction would likely result in less economic and financial risk to the farmers than investing in sophisticated machinery and would have a greater chance of being integrated into existing farming systems (except in the tse tse region--the forest zone).

The most important non-labor inputs being used are fertilizer and agricultural chemicals. These inputs become increasingly important as the population grows and fallow periods become shorter. The present distribution system for these inputs, especially fertilizer, is seriously deficient and presents a handicap to expansion of agricultural productivity. Four-fifths of total fertilizer consumption goes to export crops. But fertilizer use on food crops has increased dramatically (because of improved terms of trade) since the early 1970's; use on food crops now accounts for 17% of total use, second only to coffee.28/

Cameroon's public policy in input supply has achieved a number of successes. For example, it closed a high cost domestic fertilizer producing plant rather than subsidize it heavily or burden farmers with high price fertilizer; and, as a result of subsidization, fertilizer and agricultural chemicals are now widely used, with farmers understanding the beneficial effects of these inputs on production. However, there are also several serious problems in this system; among them: persistent shortages of subsidized inputs and limited availability of services to farmers. The unavailability of adequate supplies at the appropriate time in the

28/ Fertilizer use in Cameroon exceeds that of a number of its neighboring countries. For example, the 1980/81 usage figures for Cameroon show that 17kg of fertilizer per active person in agriculture were used. The comparable figure for Upper Volta was 4kg/person in 1980. Berg and Associates, 1983.
agricultural year, not cost, is the principle constraint to modern input use. Financial and administrative problems of the subsidy program lead to reduced supply availability and delayed deliveries so that many smallholders do not have reliable access to inputs. Improper and/or inadequate instruction on proper use of chemicals is also a problem and can seriously damage crops.

5. **Extension Service and Credit Availability**

The availability of extension services and credit to smallholders is limited. The Ministry of Agriculture (MINAGRI) and development societies combined employ 2,500 extension workers in the field. However, these workers are unevenly distributed, lack on-the-job training and have limited technological expertise to pass on to the farmers. The majority of smallholders, therefore, have little or no access to efficient extension or input supply services. Only one-third of smallholders are estimated to have access to agricultural credit from FONADER (National Fund for Rural Development).[^29] It appears that in its distribution, the tendency has been to supply credit based on administrative criteria rather than in response to demand.

6. **Infrastructure**

Agricultural productivity has increased steadily over the years, although the rate of increase has slowed. Additional to problems already cited as impediments to growth (e.g., inefficiencies of the extension service and input supply systems, and the aging of the rural work force), is the poor condition of rural infrastructure. While infrastructural

[^29]: World Bank, 1983.
investments such as improvement of the road network and modernization and expansion of the railway system and port facilities have been made, these networks have not been extended at the pace needed to sustain economic development. Lack of village water supplies and an undependable transportation network continue to hinder growth of agricultural productivity. Transportation in the Northern Province is quite good from Douala, but large areas e.g., in the south Littoral and Northwest Provinces, remain isolated or are served by rudimentary roads. The transport system is hampered by poor construction and maintenance, limited mileage of tarred roads in rural areas, and slowness in expanding the urban road networks. All of this impedes distribution of inputs (especially during the rainy season) and extension services, and timely marketing of cash and food crops. Most importantly, it limits the extent to which the population can be easily redistributed away from densely populated areas. These problems also act as an impetus to the rural exodus.

7. **Adjustments in Agriculture Needed to Cope with Rapid Population Growth**

In Cameroon resources are available in abundance. The challenge is to exploit them wisely and quickly to keep pace with the rate of population growth. More than the present 16% of cultivable land cultivated will be needed for cropping, and farming intensity will need to be increased in order to satisfy the food demand of the growing populace. To achieve this, infrastructural support must be strengthened e.g., refine and augment the transportation network to improve dependability and timely delivery of inputs and services, movement of resources and to encourage migration to less dense areas; increase the supply of inputs and services
to allow for intensified cultivation while maintaining soil fertility; and improve accessibility of credit to smallholders.

The rural exodus is depleting the agricultural labor force of its most vital members. The Government should endeavor to stem this flow of migrants e.g., by taking action to reduce the urban and rural income differentials. Changes are needed to alleviate the problems caused by the land tenure system. Revamping the inheritance laws and the land titling procedures would make titled land more accessible to the average farmer. Such changes might help to make rural life more equitable and appealing, thereby reducing outmigration. The lack of a reliable and easily marketable cash crop has undoubtedly contributed to the shift of labor away from agriculture. Also, declining real prices for coffee and cocoa have led to diminished farmer interest in these crops. Improved agricultural incentives, such as a substantial increase in the price of coffee and cocoa, will be necessary to revive significant farmer interest in these crops and help stem the outflow of workers.30/

The West, North and Central South are already beginning to experience land constraints to expanding agricultural activity. Other areas with low density suffer from labor shortages. Some mechanism to induce resettlement in rural areas will be needed to expand land under cultivation and reduce labor shortages and avoid over-exploitation of areas already extensively cropped. In the 4th and 5th Plans, the government developed population distribution policies to promote balanced development among various areas of the country. The Plans proposed action programs

included a system of voluntary migration to regions presently
underexploited but that could be further developed. Some population shifts
have resulted from Government actions, but these have affected a relatively
small number of people.

IV. Implications of Population Growth for Fuelwood Supply and Demand

The obvious effect of rapid population growth on fuelwood supply
is the rapid increase in demand it will create. Cameroon relies heavily on
its forestry resources for energy, with about 90% of rural and 70% of urban
households using fuelwood for cooking.31/ Fuel substitution is unlikely to
happen as long as fuelwood and its use continue to be the least costly and
most widely available of any possible alternative fuels.32/ Will Cameroon
be able to handle a rapidly increasing demand for fuelwood?

1. Fuelwood Availability

Cameroon's forestry resources are plentiful compared to many
countries in the region. About 67% of its total land area is forest and
woodland; more than half of that area is dense tropical forest, one of the
largest reserves in the world. However, there are some problems with fuel-
wood availability; these problems are localized and vary by region. Most
of the forest resources are found in the south; proceeding north into drier
climates, the forest cover changes from dense tropical forest through the
Guinea savanna woodland to almost tree-less areas of the sahel savanna in
the extreme north. Because of this, northern Cameroon has begun to
experience fuelwood shortages and deforestation particularly around towns
and in densely populated settlements. This deforestation necessitates

31/ West Africa Regional Projects, 1981.
32/ Anderson and Fishwick, 1984.
greater time investment in fuel collection. In contrast, there is no shortage of wood supply in the south; there is, in fact, a problem of what to do with surplus wood resulting from conversion of forests to agricultural land.\textsuperscript{33} Here the weak infrastructure and poor transportation system inhibits the movement of resources.

Little information is available on the adequacy of wood supplies in meeting demand. Data for the North Province show that it is not possible to supply on a sustained yield basis all of the demand from existing forest reserves; supplies must come from overcutting of woodland capital. In heavily farmed areas where there are no significant areas of woodland remaining, fuelwood supplies come from abundant farm tree cover. Increased demand can quickly lead to destruction of these trees valuable for their soil protection, fruits, and fodder as well as fuel. The riverain woodland of the Logone-Chari region has a special problem: it is being cut to supply N'djamena, the capital of Chad, with fuelwood.

The woodland areas of the North are being depleted. Continuation of annual bush fires, indiscriminate lopping of trees for fodder and uncontrolled cutting for fuelwood and poles, mainly by nomadic graziers, exacerbated by an increasing demand by a rapidly growing population will lead to chronic and widespread shortages and higher prices.\textsuperscript{34}

2. \textbf{Adjustments Needed to Meet the Growing Demand for Fuel}

Cameroon has abundant forest stock, but it is not optimally exploited; region-specific shortages are already apparent. Deforestation is occurring near and around population centers while transport of ample

\textsuperscript{33} West Africa Regional Projects, 1981.

\textsuperscript{34} Fishwick, 1980.
supplies from the south is hampered by the poor road system. The growing population will further aggravate this situation: demand will be greater, more and more time will have to be spent gathering fuel as the reserves close to population centers are depleted. In cities, fuelwood prices will increase. The rapidly urbanizing population may further strain wood supplies as demand for building materials increases.

Efforts need to be made to stem further deforestation and improve the infrastructure which would facilitate movement and more equitable distribution of fuelwood throughout the country. At the same time the resource must be protected from over-exploitation to avoid further deforestation and subsequent land degradation throughout Cameroon. The Government must anticipate further demand of the growing population by encouraging tree planting and use of alternative fuels. The latter is a problem however: given the plentiful forestry resources, alternatives such as kerosene and electricity are still very costly.35/

V. Conclusion

Cameroon is endowed with considerable resources. It has the potential to support a certain increase in population given adequate planning. However, it has begun to experience problems with land degradation and deforestation in areas where demand on the resources has become excessive, and uncontrolled urban growth, which could become socially explosive. This implies that the country's supporting capacity and its ability to maintain (or improve) the present standard of living may diminish quickly if some action in the areas of population policy and land

35/ Fishwick, 1980.
management is not taken. By addressing these problems now, Cameroon may be able to ward off serious problems as it moves into the next century. Reducing the rapid rate of population growth, stemming rural-to-urban migration and encouraging settlement in less densely populated regions would help to redistribute demand and alleviate some of the pressures on currently over-exploited resources. This will require careful planning of resources, including job-creation in rural areas, commitment to improving transportation, output prices, research and extension service systems as well as population education and family planning service availability.
BIBLIOGRAPHY


