



**AgEcon** SEARCH  
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

*The World's Largest Open Access Agricultural & Applied Economics Digital Library*

**This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.**

**Help ensure our sustainability.**

Give to AgEcon Search

AgEcon Search  
<http://ageconsearch.umn.edu>  
[aesearch@umn.edu](mailto:aesearch@umn.edu)

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

V. DRACHOUSOFF\*

## AGRICULTURAL CHANGE IN THE BELGIAN CONGO: 1945-1960†‡

### I. INTRODUCTION

The Republic of the Congo, with an area exceeding 890 thousand square miles, is one of the world's largest nations situated within the tropics. It extends from about 5° N. to 13° S. latitude and from 13° to 31° E. longitude (Map 1).

*Relief.*—The center of the country has the form of a basin, ranging from 1,100 to 1,600 feet in elevation, and stretching out on both sides of the Congo River. This Central Basin is fringed by peripheral plateaus differing considerably in aspect and elevation: to the west the Crystal Mountains and the massif of the Cataracts (2,500 to 3,100 feet), to the south the Kwango, Kasai, and Katanga plateaus (3,000 to 5,900 feet), and to the north the plateaus of the Uele and Ubangi (2,300 to 3,300 feet).

On the east is a plateau sloping westward from the Mitumba Mountains, beyond which lies the chain of great lakes on the Congolese border—Albert, Edward, Kivu, Tanganyika. The lakes lie in a gigantic rift (Graben) between the Mitumba chain and mountains on the western borders of Uganda, Rwanda, Burundi, and Tanganyika. Peaks well above 10,000 feet rise on either side of the rift; the highest are the Ruwenzori Mountains (16,800 feet) north of Lake Albert. Volcanic formations, some extinct and others still active, occur north of Lake Kivu.

*Hydrography.*—Nearly all the Congo's territory is drained by the Congo River, nearly 3,000 miles in length and discharging on the average 40,000 cubic meters per second. With its course and its tributaries extending over great distances on both sides of the Equator, the Congo has a remarkably regular flow; the relation between the minimum and maximum flow is 1:3 in contrast with a ratio of 1:20 for the Mississippi.

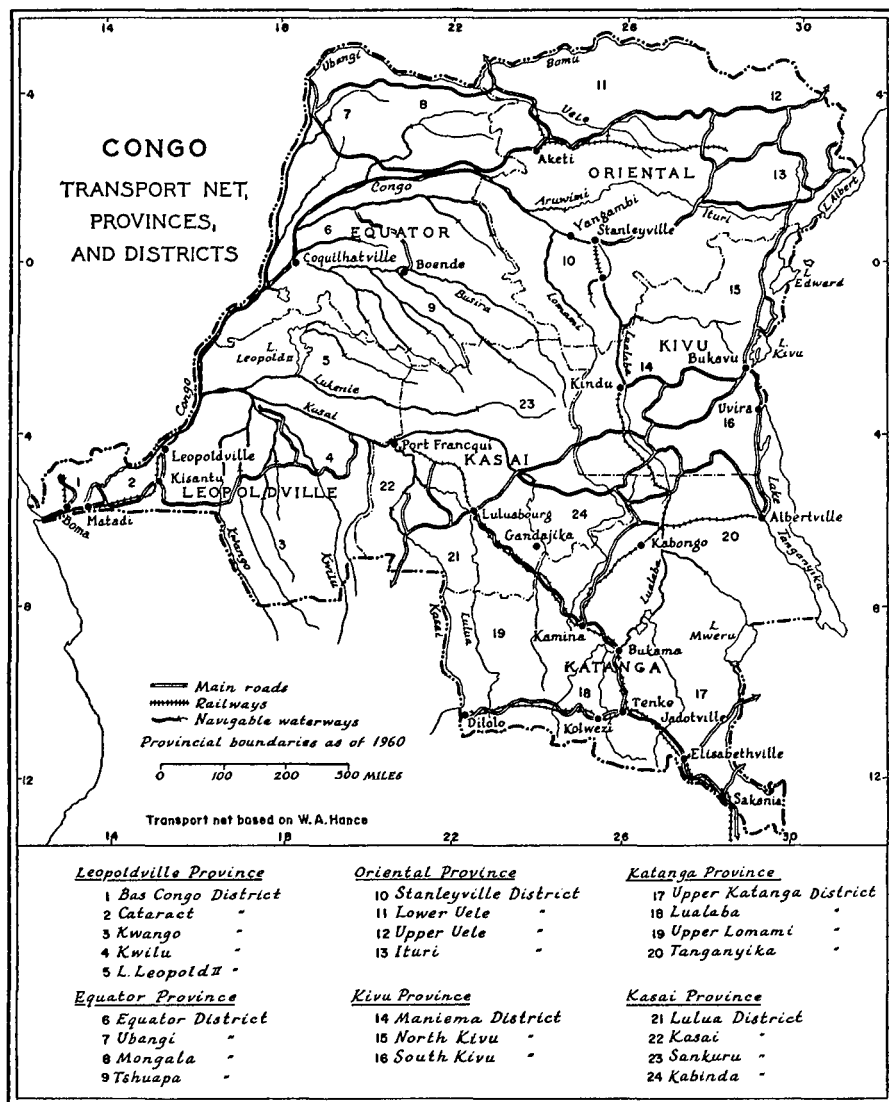
The navigable network of the Congo and its tributaries, divided into four

\* Translated by Bruce F. Johnston.

The author, Mr. Drachoussoff, formerly Director of Agriculture in Leopoldville Province in the Congo, is Director of the Société d'Études Agronomiques et de Réalisations, "AGRER," Brussels.

† This is the fifth of a series of studies of agricultural achievement in the countries of tropical Africa during the fifteen years following the end of World War II. Special thanks are due Miss Rosamond H. Peirce for her review of the statistical information and to Dr. M. K. Bennett for his editing of the manuscript. Grateful acknowledgement is made to the Carnegie Corporation of New York for a grant to the Food Research Institute of funds which made these studies possible. The Corporation is not, however, the publisher or proprietor of this publication and is not to be understood as approving by virtue of its grant any of the statements made or views expressed herein.

‡ A table of contents is given on p. 201.

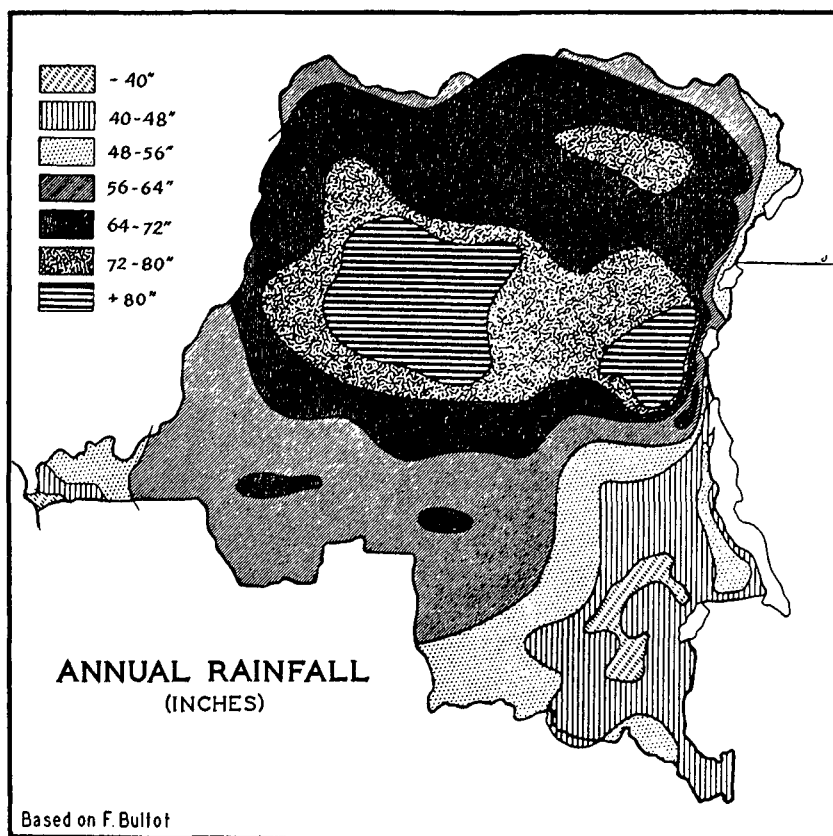


MAP 1

major reaches by rapids but connected by rail, is more than 8,700 miles in length, not counting the lakes. Some 1,750 miles are navigable by barges of more than 800 tons.

*Climate.*—The Congo lies wholly within the zone of warm climates and is characterized by an average annual temperature ranging at the highest from 77° to 79° F. in the central basin to a few degrees cooler on the peripheries, where altitude moderates the climate and lowers the temperature. Diurnal variations are moderate at the Equator and more marked in the south, particularly in Katanga.

For the most part, the climate of the Congo is more easily tolerated by Europeans than that of other tropical regions in Africa, such as the areas bordering



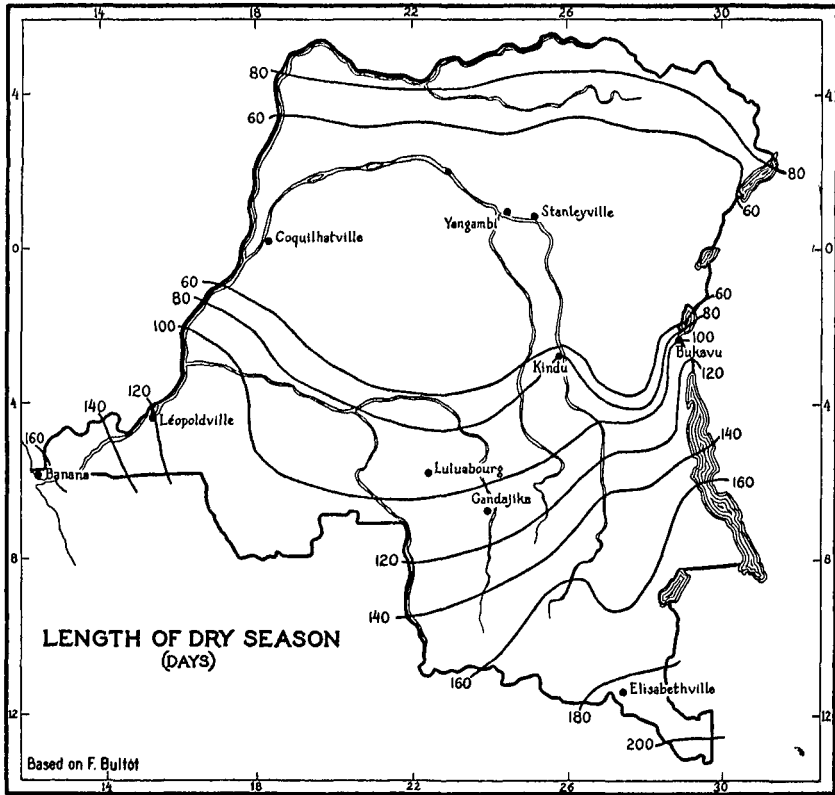
MAP 2

the Gulf of Guinea or the Indian Ocean; but it is nevertheless a rather difficult climate for those habituated to a temperate region, and it is not conducive to heavy labor.

Apart from a few localities of high elevation, the country is free of frost so that the rainfall regime is the decisive factor for agriculture. On both sides of the Equator in the Central Basin is a zone where the rainy season is nearly continuous through the year with two periods of maximum precipitation. The heaviest rainfall (more than 80 inches per year at low altitude) is to be found in the region of Boende, in the interior of the loop traced by the Congo River around the Central Basin (Map 2).

North and south of the Equator are to be found two zones tropical in climate but with a dry season that increases in length with distance from the Equator; in the Katanga this dry season exceeds six months (Map 3). Total annual rainfall is as low as 40 inches and even less where the Congo reaches the Atlantic and in central Katanga. A particularly rainy zone covers the western slopes of the Kivu Mountains, where the annual average exceeds 85 inches.

Except in the districts with the highest elevations, where temperature becomes a limiting factor, the Congolese climate is generally suitable for agriculture. Nevertheless, irregularity of rainfall in the regions lying at some distance



MAP 3

from the Equator increases the agricultural risks, and during the relatively long dry season farming activity is negligible.

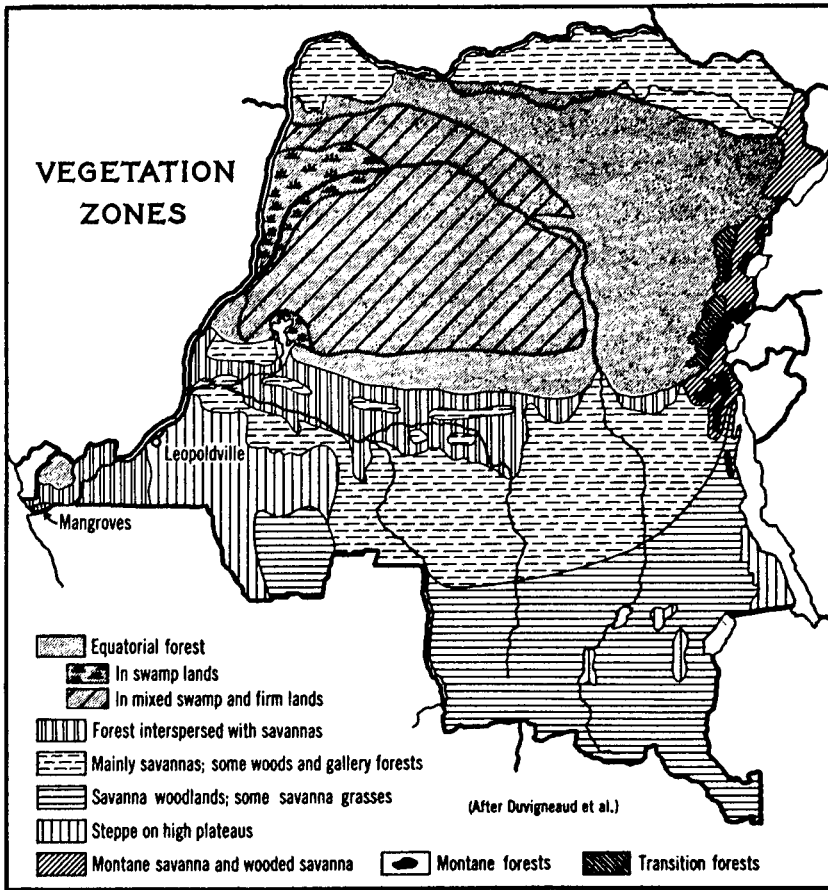
*Vegetation.*—The vegetation of the Congo is divided, broadly speaking, into forest and savanna but includes a variety of vegetation zones, as shown in Map 4. The forest areas, the most extensive in Africa, include the great equatorial rain forest on dry land and in swamps, the tropical forest of Mayombe far west near the Atlantic, the great gallery forest north and south of the Central Basin, the mountain forest of Kivu, and the dry savanna forests of Kwango and Katanga.

The origin of the savannas south of the equatorial forest regions where the natural vegetation would clearly be climax forest is a subject of lively controversy. They probably result chiefly from variation of climate in the course of time and the effects of human action in clearing and burning the natural cover.

*Soil.*—The soils of the Congo are generally poor, even those under equatorial forest, but they can give excellent yields when they are managed rationally and moisture supplies are adequate.

Certain regions, however, contain stretches of very fertile land: the alluvial and colluvial formations on calcareous schists (the Cataracts and South Kasai); certain red soils of the plateaus (Uele and Ubangi); the immature soils on basic rock (Mayombe, Ituri); and the volcanic soils of Kivu. By contrast, the aeolian sands of South Kwango are virtually sterile.<sup>1</sup>

<sup>1</sup> See 1, p. 29, for a provisional soil map of the Congo.



MAP 4

Reproduced from W. A. Hance, *The Geography of Modern Africa* (Columbia University Press, New York and London, 1964), p. 309.

Clearing carried out thoughtlessly and bad cultural practices lead rapidly to deterioration of soil fertility; and the effects of climate may render this process irreversible.

*Population.*—As of the end of 1959, the indigenous population of the Congo was enumerated as 13,864,421, of which 78 per cent were living in traditional rural environments (*milieu coutumier*). The Bantu-speaking ethnic groups occupy the bulk of the Central Basin as well as its western, southern, and south-eastern peripheries. The north and northeast of the country are occupied by Sudanic and Nilotic populations. Pygmy or pygmoid tribes live in scattered parts of the Central Basin and in the Ituri District. Arabized villages are encountered in the regions formerly occupied by Arabs in Maniema District and near Stanleyville.

The population of European origin at the end of 1959 amounted to 115,157. This number included 1,900 agricultural settlers and a larger number of agricultural technicians working in the administration, with INEAC (*Institut Na-*

*tional pour l'Étude Agronomique du Congo*),<sup>2</sup> and on commercial plantations and livestock ranches (4, 1959).

*Congolese agriculture.*—The agriculture of the Congolese population can be divided into three basic types, the agriculture of the low altitude savanna zones, the agriculture of the forest, and the agriculture of high altitude regions.

The agriculture of the low altitude savanna areas is mainly devoted to the cultivation of annual crops and is characterized by a relatively short cycle of cultivation (two to three years on good soils under traditional practice), followed by a fallow period, the duration of which varies according to the availability of arable land. European administration favored the expansion of industrial crops (cotton, and urena for coarse fiber) as well as food crops in the zones that provision industrial centers. In the *paysannats*<sup>3</sup> the government agricultural specialists introduced more rational crop rotations and higher yielding varieties, and regularized the duration of the fallow period.

In the years shortly before independence, intensification of agriculture and mechanization were tried with some success in such particularly favorable regions as South Kasai, the Bas Congo, and North Katanga. In addition, livestock were introduced into some of the *paysannats* with good results.

The cycle of cultivation and the fallow periods are longer in the forest zone than in the savanna. The rotations and mixtures of annual crops or semi-perennial crops (bananas) were systematized and improved in the *paysannats* (Babua, Turumbu, etc.). Numerous programs for the planting of perennial crops were drawn up and implemented.

In the high-altitude regions, the traditional farming consists essentially of food crops; government policy was directed at raising productivity while at the same time struggling to conserve the soil and to rationalize the traditional livestock husbandry. Farmers were also encouraged to establish perennial crops yielding a cash return, such as tea and Arabica coffee.

*European agriculture.*—The large- and medium-sized European agricultural enterprises, whether operated by companies or by individual farmers, are or were primarily engaged in the production of export crops, in cattle raising, and in truck gardening. Where cotton is grown and where there are vast stands of wild oil palms, private enterprise provides for the ginning of the cotton and the processing of palm fruit and palm kernels delivered by Congolese producers. In reflection of the highly varied geographical and ecological conditions, agriculture in the Congo is similarly diversified and had managed, up to 1960, to supply sufficient food for the population and also to furnish substantial quantities of agricultural products for local factories and for export.

*Distribution of commercialized agricultural production between Congolese and Europeans.*—There is a considerable degree of polarization of agricultural production in the Congo. Certain crops are grown almost exclusively by the Congolese: manioc (cassava), peanuts, maize, rice, beans, cooking bananas (plantains), cotton, urena, and in general all of the annual crops. Others are cultivated both by the Congolese and by European settlers: tobacco (767 tons

<sup>2</sup> INEAC is the organization responsible for agricultural research in the Congo.

<sup>3</sup> The *paysannats indigènes* were agricultural settlement schemes where special efforts were made to improve traditional farming methods.

marketed by Congolese and 409 tons by non-Congolese in 1959); truck crops (13,318 tons by Congolese and 3,806 tons by non-Congolese in 1959); and palm oil with the palm fruit coming about equally from European plantations and from outlying groves.

Still other products have been almost exclusively the domain of the European plantations, although participation by Congolese increased progressively in the years following 1945. The production by Congolese and non-Congolese of the major products in this category in 1959 was as follows in metric tons (see Tables 7 and 8 below):

Product	Non-Congolese	Congolese
Coffee .....	52,179	8,512
Sweet bananas .....	28,625	19,132
Tea .....	3,510	132
Rubber .....	36,324	4,087
Cocoa .....	4,480	34

Sugar was produced exclusively by two European companies from cane cultivated on their own plantations; sugar cane cultivated by the Congolese was sold only as cane.

*Trends of industrial and agricultural production.*—The first Ten-Year Plan was in the economic domain the most notable accomplishment of the postwar period, and led to a general increase in the level of living of the population. At the same time, however, it accentuated the gap that existed between the salaried worker and the agricultural producer and between European and Congolese agricultural output.

From 1950 to 1956 (the most prosperous year of the postwar period) the percentage increases in the value of output of the major sectors of the economy were as follows (8):

Sector	Increase 1950-56
Gross national product .....	81
Manufacturing industry .....	158
Mining .....	51
European agriculture .....	97
Congolese agriculture .....	20

The extent to which these increases in the value of output were influenced by price changes is indicated roughly by the rise in the Leopoldville cost of living index, which increased by 18 per cent during the same period.

It should be added that the infrastructure of the paysannats was well advanced by 1959 and that the first effects of the psychological and technical changes associated with that agricultural revolution were making themselves felt. A rapid acceleration in the productivity of the Congolese farmers was therefore anticipated.

As will be seen later, the increase in the commercialized production of Congolese farmers manifested itself in food crops as well as in industrial crops, a logical consequence of the increase in the number of consumers dependent upon



purchased food. In contrast, production of food crops by Europeans had somewhat diminished, whereas their production of industrial crops in 1959 represented a threefold increase in value as compared to 1947-49.

If it had been possible to implement the second Ten-Year Plan (1960-70) under normal conditions, one would probably have witnessed a slowing down in the rise of European production and a huge increase in the commercialized production of the Congolese population. The present economic difficulties have not permitted this. The large plantations have been able, in spite of great difficulties, to maintain their activity, but the plantations of individual settlers, the paysannats, and more generally the Congolese rural population, have passed through a serious crisis, the end of which is still difficult to foresee.

## II. CHANGES IN THE ORGANIZATION OF PRODUCTION

Much the greatest part of the agricultural area in the Congo is farmed by Congolese under traditional systems of land tenure. Most of this area is devoted to food crops although tree crops destined for export registered a sharp increase between 1949 and 1959 (Table 1). The available data indicate that the total crop area increased by approximately 10 per cent during this period. Owing to the way in which many of the crops are grown in irregular, scattered fields, and other problems that complicate the preparation of crop statistics in tropical Africa, these estimates are subject to a considerable margin of error. The figures for

TABLE 1.—AREA FARMED BY CONGOLESE UNDER TRADITIONAL  
LAND-TENURE SYSTEM, 1949 AND 1959\*  
(Hectares)

Crop	1949	1959	Crop	1949	1959
Cereals			Fruits		
Wheat	3,726	3,107	Bananas		
Maize	334,292	356,692	(plantains)	157,542	232,968
Paddy rice	150,687	152,902	Sweet bananas <sup>a</sup>	—	5,753
Others	92,867	82,830	Others	...	1,466
Roots and tubers			Other annual crops		
Potatoes	2,540	3,204	Peas, beans	83,838	135,196
Sweet potatoes	63,060	56,069	Truck crops	1,000	3,605
Manioc	649,508	632,202	Sugar cane	—	941
Others	4,827	3,062	Tobacco <sup>b</sup>	86	1,087
Oil seeds			Pyrethrum	...	167
Peanuts	223,566	262,262	Perennial crops		
Sesame	19,953	18,362	Robusta coffee	4,276	{ 19,013
Planted oil palms	48,317	62,053	Arabica coffee		
			Cocoa	240	248
Fibers			Tea	—	121
Cotton	304,581	368,382	Rubber	20,852	11,096
Urena and Punga	19,791	9,958	Cinchona	66	2,680

\* Data from *La Situation économique . . .* (1950 and 1959) (see 4 for complete reference); data for 1945 are not available.

<sup>a</sup> For export.

<sup>b</sup> Excluding tobacco for home consumption.

manioc, by far the most important food crop, and for bananas and sugar cane are probably understated.

The agricultural area in European farms and plantations increased more, 25 per cent between 1949 and 1959, and by nearly 50 per cent between 1945 and 1959 (Table 2). As of 1959 the area farmed under the legally defined land tenure system accounted for a little less than 15 per cent of the total agricultural area; the holdings of a small number of Congolese farmers were included in the 314,000 hectares that were under the written land tenure code in that year. Perennial export crops, especially oil palms and coffee, dominated European agricultural production in the Congo. The area in tea and cocoa increased rapidly after 1945 whereas the area in rubber showed a small decline as a result of the abandonment of old plantations and of some planted hastily during the war.

The livestock population is relatively small except for the large number of sheep and goats on Congolese farms. The statistical data shown in Table 3 suggest that the number of goats and sheep nearly tripled between 1945 and 1959, but this results largely from more adequate statistical coverage in the latter year. The cattle population nearly doubled over the same period with the largest increase taking place on European farms, which accounted for approximately half of the reported number of cattle in 1959. Cattle-raising in the past was largely concentrated in the Kivu and Ituri districts, but in other areas it has spread considerably as a result of improved veterinary services and control measures against the tsetse fly that have reduced the hazard of trypanosomiasis and other diseases. Pork is not of much importance in Congolese diets, and the number of pigs is small.

TABLE 2.—AREA FARMED BY EUROPEANS AND CONGOLESE UNDER WRITTEN  
LEGAL TENURE CODE, 1945, 1949, AND 1959\*  
(Hectares)

Crop	1945	1949	1959
Oil palms .....	93,542	103,354	135,182
Aleurites (tung) .....	928	2,356	...
Sisal .....	734	873	604
Sweet bananas .....	2,373	6,237	11,985
Other fruits .....	517	...	945
Truck crops .....	440	410	428
Sugar cane .....	2,480	2,896	6,104
Tobacco .....	...	137	475
Pyrethrum .....	1,510	2,657	2,453
Derris .....	264	193	...
Robusta coffee .....	37,777	55,553	69,549
Arabica coffee .....	12,537		
Cocoa .....	7,002	16,338	17,338
Tea .....	387	959	4,605
Rubber .....	48,889	57,813	47,937
Cinchona .....	1,659	5,612	...
Perfume plants .....	992	1,560	750

\* Data from *Rapport . . . pendant l'année 1945*, and *La Situation économique . . .* (1950 and 1959) (see 3 and 4 for complete references).

TABLE 3.—NUMBERS OF LIVESTOCK OWNED BY CONGOLESE AND EUROPEANS, 1945, 1949, AND 1959\*

Item	Owned by Congolese	Owned by Europeans	Total
Sheep and goats			
1945	926,217	17,110	943,327
1949	1,446,477	40,360	1,486,837
1959	2,756,581	23,911	2,780,492
Cattle			
1945	313,627	200,601	514,228
1949	381,854	255,552	637,406
1959	552,524	482,525	1,035,049
Hogs			
1945	186,147	28,178	214,325
1949	117,666	40,934	158,600
1959	318,528	49,888	368,416

\* Data from *Rapport . . . pendant l'année . . .* (1945 and 1949) and *La Situation économique . . . 1959* (see 3 and 4 for complete references).

### *Agriculture Under Traditional Tenure Systems*

Agriculture carried out under the traditional systems of land tenure is characterized by great variation. It includes small groups that still rely on food gathering, much larger numbers who practice various types of shifting cultivation, and a smaller number who practice farming systems that have been modified and intensified considerably. Paralleling these variations in the form of agricultural organization are large differences in the degree to which agricultural production has been commercialized.

*Food gathering economies.*—Hunting and gathering economies have practically disappeared. Only small isolated groups continue to rely heavily on hunting and gathering, usually exchanging some of their game, fish, or forest products for other foodstuffs or for a few manufactured items. Whereas in 1945 one could still consider that the pygmy tribes and the Batchok of South Kwango practiced this type of economy, gathering had become a secondary activity even for these groups by 1959. Nevertheless, one cannot consider all of these populations as definitely fixed in their mode of life. The hunters or fishermen, whether they are Pygmies or Bantu-speaking or Sudanic peoples, continue to live a nomadic life for weeks during hunting or fishing expeditions. Their stabilization remains fragile and they could readily return to a nomadic, gathering economy in a period of disorder or economic depression.

*Traditional shifting cultivation.*—Tondeur (14) gives the following definition of shifting cultivation (or *agriculture nomade*):

The method of cultivation principally utilized in tropical regions consists of felling some or all of the trees in an area, burning the dead trees and cultivating the clearing for a year or two, after which the cultivator moves on to another piece of land where he repeats the same operation.

The farming carried out by a family is never practiced in a continuous manner on the same land. In the forest, the felling of trees is partial, the trees which are too large or too difficult being left standing; the debris is burned by a running fire<sup>4</sup> or, more rarely, piled in a heap and burned. Planting is in soil that has been partially cleared but not necessarily cultivated.

In the savanna, the land may be cleared before burning or it may be burned first. The soil is lightly hoed and often ridged, especially if it is heavy or moist.

*Crop associations and rotations.*—Cultivation in the forest nearly always involves mixed cropping, but the staggered time of planting of different crops characterized by different growth periods (from three months for rice to two, three, or four years for bananas) means that this sequence of crops is a rotation of sorts.

Pure cropping is practiced in two contrasting situations: when the soil is too poor to be used for anything but a tolerant plant such as manioc or millet or, in the opposite case, for profitable crops such as cotton, urena, or beans. Rotations in the strict sense, that is to say the planting of one crop after the harvest of the preceding in a regular sequence, are less frequent than the staggered planting mentioned previously.

*Fallowing.*—Usually mixed cropping (or a pure culture on poor soil) is followed by fallow, the duration of which varies according to the vegetation, soil, climate, and especially the density of population. (Beans planted as a catch crop during the dry season between the regular cultural cycle are an exception.) A fallow can last from 2 to 15 years, occasionally more, and comes to an end when the cultivators decide, according to the appearance of the vegetation, that the fertility of the soil has been reconstituted. In populated areas the cycles are short. This facilitates reopening of the land and avoids too great a dispersion of the fields of a community, but it progressively degrades the land. Formerly, this impoverishment of the land was corrected by periodically changing village sites. After several years of cultivation followed by short fallows, the village was moved and a similar cycle was begun in a new location. The village might be moved back to the first locale after one or several generations.

This system was disrupted as the population became fixed following the establishment of colonial rule and with the considerable growth of population in recent decades. Consequently, it became necessary to restore soil fertility by improvement in the farming methods. The traditional agriculture does not restore plant nutrients to the soil but utilizes, when correctly applied, the accumulated natural fertility. It represents a state of equilibrium between the requirements for subsistence and the productivity of the land. This equilibrium is, however, fragile. When the population becomes particularly sparse or the economic situation and conditions of security deteriorate there is reversion to the hunting and gathering economy. When the population increases, becomes fixed, and extends its cultivated area, the fallows become too short and the fertility of the soil declines.

### *Modified Traditional Agriculture*

The effect of the introduction of European techniques and an exchange economy have been from the beginning quantitative rather than qualitative, leading

<sup>4</sup> A fire running quickly over the area and burning only the driest and most combustible parts without destroying much humus.

to an extension of the cultivated area without appreciable modification in farming methods. The imposition of compulsory cultivation of certain crops, one of the objectives of which was to improve cultural practices, did not alter the traditional system. Rather these crops formed separate blocks considered at times as "government fields" even though the cultivators freely disposed of the harvest. It was possible, however, to obtain some amelioration of farming methods: time of planting, proper spacing, the introduction of selected seeds, and similar changes. In spite of the expansion of the paysannats, the bulk of the cultivators in the Congo were (as of 1960) still practicing only slightly modified forms of the traditional agriculture. For this reason it seems useful to describe the agricultural systems characteristic of a few regions of the Congo.

*Agriculture in the Thysville region.*<sup>5</sup>—In order to understand the land tenure system underlying agriculture in this region (Map 1, district 2) it is necessary to define clearly the somewhat imprecise concepts of clan and village as they prevail among the Bakongo. The clan is a biological entity characterized by matrilineal descent and inheritance. The village is a geographic unit. The clans are dispersed by historical circumstances into numerous villages. Each village includes families belonging to different clans, one of which is the *principal* clan and proprietor of the land. The others are *secondary* clans and possess only rights of usufruct regulated by custom.

Property rights thus rest with the principal clan, which consists of a mystical unity of generations past, present, and future. Hence this right cannot be alienated by the living generation: sale of land is in reality only a temporary grant of usufruct.

Individual ownership of land does not exist. But the right to use the land is individual: the cultivator has the usufruct of trees that he plants, of the house that he builds, of the field that he has established. The usufruct sometimes extends to the fallow which follows the cultivation of a piece of land. The rights of usufruct can in fact be transmitted from generation to generation.

The clan has thus remained the basic factor in the landed property system. Even though factors related to village residence can acquire some importance, the concept of clan relationships always takes precedence in the case of conflict.

The rigidity which characterizes written codes does not exist for the traditional system of land tenure, which is quite flexible and adapts itself to circumstances, yet without departing from the fundamental principle of the matrilineal clan.

The principal crops around Thysville are manioc, bitter or sweet bananas, peanuts, and beans. Crops of secondary importance include yams, cocoyams, sweet potatoes, gourds, voandzeia (Bambara nuts), pigeon peas, sesame, maize, tobacco, tomatoes, potatoes, rice, and peppers. Urena, an African jute substitute, has practically disappeared except for the territory of Luozi.

The choice of land for clearing is generally based on the diameter of the trees, the appearance of the bush or grass cover, and the number of years of fallow. The fallow period is normally from three to nine years although three years is not sufficient to restore the fertility of the soil.

<sup>5</sup> For a more detailed discussion, see the author's earlier monograph (9).

Planting may take place during the first or second rainy season or during the dry season. In the first rainy season, October to December, rice, peanuts, manioc, maize, urena, and bananas are commonly planted. During the dry season, which extends from May through July, beans, potatoes, maize, or tobacco may be planted. Irregularity of rainfall often upsets the agricultural calendar: the plantings of the first season at times extend into January with the plantings of the second season beginning in February. In fact the time of planting is a compromise between the very irregular rainfall regime and the limited labor power of the cultivators. (It requires more than 50 days of work to hoe and ridge a hectare of savanna with heavy clay soil.) By force of circumstances planting is distributed throughout the year (except for the period July to September) which also permits the harvest period to be spread out and helps to alleviate periods of food shortage.

Agricultural work in the Thysville region is often done by small groups of men or women who exchange assistance for such operations as felling trees, preparing ridges, and planting. Each cultivator retains control of his field and disposes of its produce but provides food and drink to those who have assisted him and also lends assistance to them in turn. The work of clearing and felling trees is customarily reserved to the men, whereas other tasks are done by the women. But the men often help their wives during busy periods. Certain crops are reserved mainly to women (peanuts for example) and others are typically men's crops (tobacco, urena, and rice).

Workers other than members of the farm family are rarely employed, but this does occur among the planters of urena in Luozi territory who hire villagers who do not have land suitable for this fiber crop.

Preparation of the soil in the savanna areas is often limited to burning the debris, an operation which may be preceded by clearing off the grass cover or followed by hoeing or ridging. In forest areas the trees are felled, then burned, and the soil is prepared for planting by a casual cleaning and hoeing.

Ridges are most often prepared on compact or marshy soils. Elsewhere sowing is done on the flat with only a limited mounding of the soil. A practice characteristic of the Bakongo in the savanna area is known as the *mafuku*. The *mafukus* are made after clearing by piling up the vegetation in small heaps 2 to 6 feet apart (depending on how vigorous the vegetative growth may be), and covering them with dirt and then burning the debris. Beans, peanuts, and manioc are planted on the *mafukus* formed in this way. It is a practice which exhausts the soil but which makes it possible to grow demanding crops on impoverished soils.

Seeds are generally planted individually except for urena, which is broadcast. Manioc is planted by inserting cuttings of the stem into the soil in various ways according to the variety, the area, the texture of the soil, and other factors.

The principal crops are weeded several times according to need. In practice, weeding is one of the bottlenecks of the crop cycle. As a result of abundant rainfall and neglect of prompt weeding, crops are often smothered by weeds with consequent reduction of yield. Frequently the capability to carry out weeding determines the size of the plots brought into cultivation.

Control of insect pests and plant disease is not systematic. At times infected

plants are destroyed, for example peanut plants attacked by rosette disease. Most commonly the farmer resigns himself to that which he cannot prevent.

The crop is generally harvested by the entire family. The harvest belongs to the head of the family except for fields established by wives and adolescent children for their own needs. In general, a fairly important part of the food crops is harvested and sold by the wives; the men reserve to themselves certain industrial crops recently introduced, such as tobacco and urena.

The crops are stored in various ways. Peanuts are dried (unshelled) and placed in special granaries, sometimes on stilts, where they are stored in sacks or in baskets. Beans are shelled, dried in the sun, and then bagged and placed in a granary. Seed beans are sometimes kept in a tightly closed calabash. Maize is stored on the cob in a place where it is exposed to the smoke of the hearth. Cultivators generally do not separate the part of the harvest destined for sale from the part reserved for their own food use. They draw on their reserves according to need; but seed is kept apart.

With regard to livestock, large animals are kept only in the centers of organized agriculture (*paysannats*). Small animals are not numerous except in certain areas where the raising of small stock has been systematically encouraged and where there are suitable market outlets (the Inkisi-Kisantu area, for example).

*Agriculture in the Central Basin (Lake Leopold II).*<sup>6</sup>—Regulations with respect to land rights, property, and usufruct are defined less rigidly around Lake Leopold II (Map 1, district 5) than in the more densely populated regions. But all land is the object of some sort of right—of cultivation, of gathering, of hunting, of fishing, of passage, etc.

The ethnic unit is the subtribe, composed of several villages and directed by a chief. The property of the subtribe is distributed among the villages and the families. One of the families, which tradition designates as the first occupant of the lands of the subtribe, is considered as the proprietor, or rather as the conservator, of these lands. Each subtribe has a chief of the land, a function not necessarily combined with the duties of political chief. In fact, the political chief may be a member of a conquering group which has assumed political dominance without disturbing the rights of property.

For reasons of convenience, there are subchiefs of the land at the village level. Although property rights are collective, usufruct is individual for everything which depends upon human labor (cultivation, stock raising, etc.). But the cutting of the fruits and other aspects of the exploitation of natural palm groves is free. Farm work in principle is individual, although mutual aid arrangements are common.

Cultivation of the forest is generally based upon a hamlet (which is usually occupied by a single extended family). The choice of location rests theoretically with the subchief of the land, but the custom is not always followed. Old forests can be cleared and exploited by all those who live in the village or hamlet. The secondary forest can be cultivated only by those who have cleared it in the first place or by their descendants.

<sup>6</sup> This section is based mainly on the monograph by J. L. Robert (12).

The clearing of the forest is only partial. Trees too large, too difficult, or having economic value or magic significance are left. Thus the forest climax is preserved and the natural regeneration assured.

Traditionally the system of cultivation consisted of an association of manioc, bananas, maize, and gourds followed by fallow. The introduction of cash crops such as rice, peanuts, and urena has led to the appearance of rudimentary rotations. A typical rotation is urena in pure culture followed by mixed cropping of rice, manioc, bananas, gourds, maize, and peanuts. In other rotation patterns urena in pure stand may be preceded by rice or manioc and then followed by a similar mixture of food crops.

There is a marked division of agricultural labor by sex. In general men participate only in clearing, although they participate in the cultural operations for cash crops such as urena, and especially in the preparation of the fiber.

The raising of small stock is very little developed. Where it occurs it is really a matter of "coexistence" rather than stock raising in the proper sense of the term.

*Agriculture in a mountainous zone: the farming system of the Bashi.*<sup>7</sup>—The Bashi live in an area surrounding Bukavu where the altitude ranges from 4,800 to 9,800 feet and the rainfall averages between 45 and 70 inches per year with three months of more or less well defined dry season. The majority of the population are Bantu-speaking cultivators, but there is a minority of Hamitic pastoralists, the Baluzi. The system of property is quite different from those previously described. The Mwami, a chief with absolute power, is master of the land and can concede landed fiefs to members of the nobility. These latter can do the same in relation to village chiefs who, for their part, distribute the land among the villagers.

The right of utilizing the land calls for the payment of a *kalinzi*, not a purchase price but a gift in recognition of the privilege of using the land. This land right is private and, in principle, hereditary.

Another and more fragile form of land right is the *bwigwarhire*, a tacit authorization for the use of land; it is revocable and applies to a block of land utilized by several cultivators. The *bwasa* is a rental contract of limited duration, and the *obuhashe* is an authorization of free use of land that is revocable and applies to food crops, dry season pasture, and lowlands.

The land unit commonly coincides with a hill. There are no villages, the population being dispersed in units consisting of the family hut and a banana grove. The banana groves cover the summits of the hills and their surface tends to increase from year to year. Food crops are planted on slopes that are not too steep and on the colluvial soils. The steeper slopes are reserved for pasture while the swampy lowlands are used for the dry season crops and pasture.

The combination of crops grown is related to the needs of the family during the course of the year. There is little effort to seek maximum productivity. The patterns of cropping are extremely variable depending on soil conditions and climatic hazards.

The farming system recommended by Hecq called for putting the land into

<sup>7</sup> For a more detailed account, see the monograph by J. Hecq (10).



fallow as soon as yields decline, planting sweet potatoes at the beginning of the rotation following fallow or pasture, and alternating leguminous crops and cereals. These practices are often rendered difficult, however, by the excessive density of the population.

Cattle raising is a major activity among the Bashi. The ratio of animals to adult males is approximately 0.8. The cattle are not regarded as a source of income but are esteemed mainly for their exchange value, especially for payment of bride wealth. In fact cows pass from one master to another like coins and this makes rational stock raising impossible. During the 1950's, however, commercial sales of cattle to Maniema District assumed increasing importance.

The agricultural-pastoral system of the Bashi constitutes a complete system, but it offers little scope for improvement because of the complications arising from the system of land rights and the customs with respect to succession and bride wealth. Excessive consumption of banana beer reduces physical resistance and weakens the dynamism of the population. The area devoted to food crops has declined from year to year; there has been expansion of the area planted to bananas but they are used mainly for beer and are scarcely to be classified as a food crop in this district. Although livestock are numerous, they are in competition with man for the available resources and accelerate the degradation of the soil rather than constituting a source of economic wealth.

*Rationalized Agriculture: the "Paysannats" (Agricultural Settlement Schemes)*<sup>8</sup>

Introduction of an exchange economy had favorable effects from an economic point of view—creation of wants, opening of markets, increase of production, and diversification of the activities of the population. But with respect to conservation of the soil, effect on productivity, and psychological and technical changes among the cultivators, the results were less favorable.

Congolese farmers reacted to enlarged economic incentives by extending cultivated area rather than by improving farming methods. The pressure to expand cash crops together with the growth of population resulted in expansion of the cultivated area that led to shortening of the fallow period and impoverishment of the soils. The waste of labor associated with shifting cultivation and the poor organization of production, as well as the existence of labor bottlenecks in the cultural cycle and post-cultural operations, continued to restrain the area that could be planted by an average family to 1.0–1.5 hectares per year.

Conscious of the limits that traditional methods of nomadic farming imposed on the development of agriculture, the Agricultural Service and INEAC endeavored to improve traditional agriculture without upsetting it drastically. This was to be accomplished by assuring a more regular use of the land, longer and more appropriate rotations, regular spacing, and the use of higher yielding and more nutritious varieties.

The device chosen was the so-called paysannat, or agricultural settlement scheme. Establishment of the paysannats stemmed from the necessity to rein-

<sup>8</sup> This section follows closely the present author's chapter on this topic in 6.

force dispersed extension activities, inevitably superficial, by a more intensive and comprehensive program of agricultural improvement.

The state of knowledge in 1945 concerning agricultural techniques in the tropics did not permit the large-scale application of permanent and intensive systems of cultivation. Several premature trials of that nature had resulted in failure. Moreover, one could not contemplate mechanization of indigenous farming because tractor production was barely recovering from the war, and the Congo was not equipped with the commercial and technical infrastructure which is indispensable for economic utilization of mechanical equipment.

For these reasons the first formulas for the establishment of paysannats were an adaptation of the "Bantu system" of farming. That system, as defined by Jurion, "rests on a very limited preparation of the soil, a cultural cycle of short duration, the planting of a mixture of crops, and a period of natural fallow of varying duration according to the region but always long . . ." (11).

The systematic allocation of fields (*lotissements*) represented a rationalization of the traditional system and a compromise between agronomic considerations, the capacity of the soil for natural regeneration, and the state of evolution of the local population.

Staner (13) gives an excellent general description of this approach:

An area of adequate fertility is first surveyed and studied from the standpoint of its land tenure and political regime. The land is then divided into parallel bands or corridors in which the cultivators are installed side by side. The cultivators continue their clearing and cultivation from year to year according to a suitable rotation. The first field cleared is left in fallow at the end of the rotation of crops, and this process is continued until after some twenty years the cultivator returns to his initial field which will be entirely regenerated by the prolonged fallow period. This system includes several variations according to the region and the degree of evolution of the local population.

The allocation of the fields can be individual and for an extended period or the allotment may be done on a family or clan basis and thus require an allocation each year to the individuals within the group.

In any event there is no final allocation of property rights for the benefit of the occupant. The individual allotments represent a right of usufruct, indefinite in time but defined in space. In this way the traditional principle of the indivisibility of the land is respected. Since the dispersion and seminomadism of the population constituted the fundamental obstacle to the harmonious development of agriculture, the device of allocating and rotating fields in a systematic manner presents the enormous advantage of stabilizing the rural population, at the same time respecting the traditional agricultural system. Moreover, it permits the population to increase its productive potential by facilitating the introduction of improved techniques and thus increasing productivity.

The intervention of the administration was not limited to the systematic layout of the fields and insuring that the prescribed rotations and agricultural calendar were followed. In fact, the concentration of the fields increased the danger of insect and pest damage, and considerable work was called for in order to protect the growing crops. Moreover, technical progress had to be supplemented by

TABLE 4.—AREA UNDER PRINCIPAL CROPS DECEMBER 31, 1958, IN PAYSANNATS  
PRIMARILY RAISING PERENNIAL CROPS IN THE BELGIAN CONGO\*  
(Hectares)

Crop	Leopold- ville	Equa- tor	Orien- tal	Kivu	Ka- tanga	Kasai	Total
A. AREA IN PRODUCTION							
Oil palms	12,020 <sup>a</sup>	15,581	10,217	4,214	895	13,807	56,734
Robusta coffee	607 <sup>a</sup>	1,557	1,489	588	—	11,631 <sup>a</sup>	15,872
Arabica coffee	—	—	212	2,772	154	—	3,138
Rubber	328 <sup>a</sup>	3,961	1,932	—	—	3,765	9,986
Cocoa	—	—	—	—	—	—	—
Tea	—	—	—	335	—	—	335
Total	12,955 <sup>a</sup>	21,099	13,850	7,909	1,049	29,203 <sup>a</sup>	86,065
B. AREA NOT YET IN PRODUCTION							
Oil palms	9,287	10,772	7,580	3,041	264	565	31,509
Robusta coffee	1,838	7,217	4,180	1,119	29	5,377 <sup>a</sup>	19,760
Arabica coffee	—	—	854	1,857	294	—	3,005
Rubber	—	2,117	6,324	—	—	3,051	11,492
Cocoa	—	—	325	—	—	—	325
Tea	—	—	—	28	—	—	28
Total	11,125	20,106	19,263	6,045	587	8,993	66,119

\* Data from Belgium, Ministère du Congo Belge et du Ruanda-Urundi, *Volume Jubilaire du Bulletin agricole du Congo Belge et du Ruanda-Urundi, 1910-1960* (1960).

<sup>a</sup> Including areas established by individual planters outside the paysannats.

action on the social and economic level—agricultural processing, transportation, organization of purchases and sales, creation of cooperatives, establishment of social centers, education of the youth, and other measures to increase the attractiveness of rural life. The creation and operation of a paysannat thus became a very large enterprise of community development, requiring the support of many disciplines and setting in motion a profound change in the mode of life of the participants.

At the end of 1958 there were roughly 200,000 households in paysannats engaged primarily in the production of annual crops. As is apparent from the following tabulation, over 60 per cent of the paysannats were located in Oriental and Kasai provinces (6):

Province	Number of households
Leopoldville .....	1,827
Equator .....	19,667
Oriental .....	70,146
Kivu .....	28,695
Katanga .....	23,576
Kasai .....	50,626
Total .....	194,537

Estimates of the cultivated area in paysannats devoted to annual crops are not available. With respect to perennial crops, estimates of the number of producing households have not been made owing to the varying inclusiveness of the "family" groups engaged in their production. Estimates are available, however, of the area under the principal perennial crops in paysannats. Oil palms, Robusta coffee, and rubber were the most important ones, and Equator and Kasai provinces accounted for the largest areas planted to these crops (Table 4).

### *Rationalized Agriculture: Intensification<sup>9</sup>*

In certain regions a further step was taken beyond the paysannat: mechanization and intensification of farming methods. During the time that INEAC was working out the technical basis for intensification of farming, two teams of government agronomists and technicians, the *Mission anti-érosive* (M.A.E.) and the *Groupe d'Economie rurale* (GER), attempted to work out practical solutions. These efforts were undertaken in regions where the traditional farming system, even as improved by the paysannat, had been overtaken by the economic and political evolution of the local population, or by demographic pressure.

In the paysannats of Luberizi and of Kiliba (territory of Uvira), the M.A.E. took in hand a project for individual allotments of land which, begun in 1943, had failed. Adopting a new formula, the Mission undertook a systematic development of the region adapted to the agricultural potential of the land. Irrigation, use of mechanical equipment, soil improvement, and application of fertilizers made it possible to achieve high yields and to increase the individual holding of each family. A parallel effort with respect to livestock permitted more intensive utilization of the land and higher farm incomes. The farmers were grouped into a cooperative which marketed cotton and other products and organized certain mechanized activities on behalf of its members.

The system adopted by the M.A.E. did not include individual allotments; the customary law was applied freely within the technical unit formed by the irrigation system and the use of mechanical equipment. Allotment of land was thus not on an individual basis but according to a development unit divided into a certain number of fields for a season or for a crop year. Exploitation of the crop, however, was on an individual basis and the harvested crops were individually owned.

As of the end of 1958 the paysannat of Luberizi had a total area of 13,615 hectares. Of this, 6,887 hectares were in forest, 2,396 were used for pasture, 3,871 were being cultivated, and 521 were occupied by villages, roads, and other non-agricultural uses. The paysannat included 876 cultivators; 273 hectares were mechanically cultivated for the 1958-59 crop year and 237 hectares of paddy had been irrigated. The paysannat of Kiliba included 1,077 cultivators and 286 hectares of irrigated farm land.

In the pilot paysannats of Mawunzi and of Lua-la (territories of Thysville and Luozi), the GER attempted to introduce practical methods of intensive cultivation that had been developed in various agricultural centers in collaboration with

<sup>9</sup> This section draws heavily on the corresponding chapter in 6 prepared by the present author.

INEAC. The customary tenure regimes of the basic land units (which, in the Bas Congo, often coincide with villages or hamlets) were studied and mapped. Development units were then determined, taking into account the relief, the capability of the soils, the existing land rights, and the desires of the participants. The GER assumed responsibility for technical training and carried out mechanical cultivation on the basis of predetermined fees. The paysannats were grouped into cooperatives which were responsible for the marketing of produce and the purchase of fertilizers, insecticides, and tools. The cooperatives also served as an intermediary between the farmers and GER in handling arrangements for contract plowing. Small livestock units were created, and from 1956 stock was turned over to the local farmers. High crop yields were obtained and the income of the population increased rapidly. This encouraged the cultivators to work harder at the job of farming and to improve the organization of their work. At the end of 1958, the paysannats organized according to this formula at Mawunzi, Luaala, Mvuazi, Kwilu, Luidi, Thysville, and Pentane (this last in the territory of Banningville) counted 1,216 members, and 1,606 hectares were plowed for the 1958-59 season.

The efforts of the M.A.E. and of the GER made it possible to study the reactions of the rural population as they responded to rapid and profound modification of their working methods. The practical experience acquired with respect to intensive cultivation should make it possible to utilize with maximum efficiency the experimental results obtained by INEAC.

From 1952, tractors were also introduced in certain paysannats of Kasai along with distribution of fertilizers and mechanization of certain post-cultural operations. Other attempts to introduce mechanization were made in the Upper Katanga and Maniema districts.

*Emergence of Congolese commercial farmers.*—Alongside the cultivators that remained in their traditional milieu or in the paysannats, a group of commercial farmers began to appear from about 1950, notably in Kwilu District (Leopoldville Province) and the Central Basin. Some of these farmers produced food-stuffs, supplying centers of population with vegetables, fruit, and small livestock. Others followed the pattern of European settlers and established plantations of perennial crops such as coffee, oil palm, cocoa, and rubber.

From 1954 some Congolese farmers acquired livestock in regions in which livestock husbandry was not traditional. The difficulties of stock raising based upon small herds led the administration to promote cooperative stock raising, combining individual ownership with collective management.

The competence and efficiency of these farmers often left much to be desired. Many obtained their holdings through more or less illegal arrangements with the local chief of the land. Their labor force was often inefficiently used and their plantations neglected and of low productivity.

Certain farms, however, could be regarded as efficient commercial enterprises. The technical services did their utmost to guide them and to provide instruction in rational use of the credit and equipment made available to them.

As of 1960 there were more than 10,000 of these commercial farmers in the Congo. They constituted an embryonic rural middle class. 1

*Agriculture Based on the Written Land Tenure Code*

*Plantation and livestock enterprises of private companies.*<sup>10</sup>—Private companies in the agricultural sector expanded their activities greatly between 1945 and 1959. Cultivation of oil palm, Robusta coffee, cocoa, and rubber was expanded considerably, and marked progress was made in the production of Arabica coffee and sugar cane. The latter development was stimulated by establishment of a sugar factory (Sucraf) in Kivu. On the other hand, a number of the high altitude crops (derris, perfume plants, pyrethrum, and cinchona) stagnated or declined as a result of competition from synthetic products.

Oil palms, rubber, and cocoa were developed especially in the Central Basin. The production of Robusta coffee was located mainly on the periphery of the Basin, especially in Uele. Mayombe was an important center for the production of oil palm, cocoa, and rubber, and was also the principal source of table bananas for export. Although the district of Kwilu is not well suited to perennial crops, it was an area of intensive activity by the private sector and was the major producer of oil palm in the Belgian Congo, largely because of the huge natural palm groves there.

Significant efforts to increase productivity were made by nearly all of these companies. These efforts related to cultivation, harvesting, and processing, and as a result of increased productivity the enterprises were able to maintain their competitive position on world markets in the face of relatively rapid increases in the wages of employees. The progress achieved was due to the competence and efforts of the managers and specialists of these enterprises as well as to the research activities of INEAC.

Particularly outstanding results were obtained with certain tree crops and rubber. In some areas the production of palm oil exceeded 3,000 kilograms per hectare and the yield of Robusta coffee reached 2,000 kilograms per hectare. Yields of Arabica coffee reached 1,500 kilograms per hectare and even more, and the cultivation of tea grew remarkably; yields of some 1,400 kilograms per hectare were attained and the product was of a quality that made it competitive on world markets. Some of the rubber plantations achieved yields of close to 1,500 kilograms of dry rubber per hectare. Progress with respect to cocoa was less notable. Such fundamental problems as the practices to be followed with respect to shade were still in the course of being solved. There was only limited progress in increasing yields of table bananas which, in the difficult conditions of Mayombe, require irrigation and the application of fertilizers to obtain yields comparable to those of the major banana-producing countries.

The private plantations also served as a training ground for their employees. The productivity of the labor force was steadily increased, and competent artisans were trained in the workshops, oil mills, and other processing industries. Many of the Congolese who emerged as commercial farmers had been plantation workers who desired to utilize for their own profit the knowledge and experience acquired while working on a plantation.

*Individually-owned plantations and livestock enterprises.*—The number of individual holdings devoted to agriculture increased from 637 in 1945 to 1,899

<sup>10</sup> This summary draws heavily on the corresponding section in 6.

at the end of 1958. The equipment of these enterprises and their operating methods improved steadily over this period. While in 1945 virtually all of these enterprises were operated by Europeans, the situation changed gradually. Several Congolese entrepreneurs requested and obtained concessions of land under the written legal code and took charge of the development of their own enterprises.

### *Agricultural Inputs*

*Use of hired or family labor.*—The traditional agriculture of the Congo is based almost entirely on family labor. The principal exceptions occur in regions where a profitable cash crop has been introduced, and some of the producers in such areas hire laborers or take on share tenants who come from poorly endowed regions. In addition some of the individual commercial farmers supplement their family labor with hired workers. The plantations, whether individual or company, mainly utilize hired labor, either permanent or seasonal, employed under terms stipulated by the labor code.

*Purchased current inputs.*—The principal purchased current inputs used in agriculture in the Congo have been feed, seed, fuel, and fertilizer, but quantitative data concerning their importance is very limited. Economic and commercial statistics for the Congo were decidedly incomplete in 1945, and although substantial progress was made in later years such data were still quite unsatisfactory in 1959. In particular, it is impossible to distinguish between equipment used in agriculture and in road construction, and the same applies to supplies of fuel and lubricants.

Reasonably precise data shown in Table 5, however, give an indication of the rate of increase of certain of the current inputs.

These data can be supplemented by the information summarized in Table 6 concerning selected seed and improved planting material sold by INEAC to Congolese farmers and European enterprises. Statistics of the amount of seed produced and distributed by some of the large private companies, probably considerable, are not available.

*Capital inputs.*—The principal items of capital expenditure related to agriculture have been for drainage, boring wells, surveying, construction of farm buildings, and machinery, both field and barnyard. The information relating to these items, however, is also very incomplete, particularly for the private sector.

TABLE 5.—IMPORTS OF SPECIFIED FEEDS, AND OF COMMERCIAL FERTILIZERS  
AND INSECTICIDES INTO THE BELGIAN CONGO AND RUANDA-URUNDI  
1945, 1949, AND 1959\*  
(Metric tons)

Product	1945	1949	1959
Animal feeds			
Cottonseed cake .....	41	10	579
Other cake .....	62		
Chemical fertilizers .....	15	2,029	11,008
Insecticides .....	72	493	6,749 <sup>a</sup>

\* Data from official foreign commerce annuals (see 5 for complete reference).

<sup>a</sup> Including insecticides used by the Medical Service.

TABLE 6.—PLANTING MATERIALS SOLD BY INEAC, 1945 AND 1959\*

Crop and material	Unit	1945	1959	Crop and material	Unit	1945	1959
Oil palms				Other fruits			
Seeds .....	Number	2,701,000 <sup>a</sup>	2,386,000 <sup>b</sup>	Plants .....	Number	2,233	6,983
Plants .....	Number	6,000	2,274	Cinchona			
Rubber				Seeds .....	Kgs.	241	—
Grafted plants .....	Number	5,159	—	Banana			
Grafting stock .....	Meters	9,129	21,375	Shoots .....	Number	1,800	1,323
Clonal seeds .....	Number	6,984,021	5,095,900	Tobacco			
Mixed clonal seeds .....	Number		5,848,000	Seeds .....	Kgs.	—	17
Seeds .....	Number	634,000	85,500	Plants .....	Number	—	3,960
Cuttings .....	Meters	6,175	—	Manioc			
Clonal plants .....	Number	4,000	—	Cuttings .....	Meters	17,600	23,680
Robusta coffee				Pyrethrum			
Seeds .....	Kgs.	1,008	4,898	Seeds .....	Kgs.	424	—
Cuttings .....	Number	—	6,273	Maize			
Arabica coffee				Seeds .....	Kgs.	17,100	1,366 <sup>c</sup>
Seeds .....	Kgs.	242	800	Peanuts			
Plants .....	Number	—	2,500	In shell .....	Kgs.	1,050	5,295 <sup>c</sup>
Cocoa				Beans			
Seeds .....	Number	411,000	95,324	Seeds .....	Kgs.	1,950	151 <sup>c</sup>
Cuttings .....	Number	—	13,223	Paddy rice			
Tea				Seeds .....	Kgs.	...	3,719 <sup>c</sup>
Seeds .....	Kgs.	1,110	21,441				
Plants .....	Number	—	9,000				
Citrus fruits							
Grafted plants .....	Number	4,910	5,640				

\* Data from Belgium, Institut National pour l'Étude Agronomique du Congo Belge [INEAC], *Rapport Annuel*, 1945 and 1959.<sup>a</sup> Mainly tenera and dura.<sup>b</sup> Mainly dura and pisifera.<sup>c</sup> Large scale multiplication was carried out at government stations.



*Irrigation and water supplies.*—The development of irrigation facilities has been of small importance in the Congo. The considerable expansion of rice, for example, was based almost entirely upon production of rice as a rain-fed crop. Varietal improvement and the fairly regular and well-distributed rainfall in the rice growing areas made for very satisfactory yields. The limited importance of irrigated rice results from the abundance of cultivable land in nearly all parts of the Congo; there was little need to develop irrigation facilities, and the local farmers were not familiar with the techniques of irrigated agriculture. In the public sector, the principal irrigation developments were those carried out by the Mission Anti-érosive. A study of the development of the swamps of Stanley Pool, upstream from Leopoldville, had been initiated shortly before independence. Irrigation projects of the private sector were confined to irrigation of some banana plantations in Mayombe, introduction of irrigation on some farms in the Katanga and Kivu, and use of sprinkler irrigation on sugar cane plantations in the Bas Congo and of basin irrigation in the Ruzizi Valley in Kivu. The principal activity to improve water supplies was the digging of 772 bore holes.

*Anti-erosion measures.*—Important anti-erosion measures included the planting of 11,000 hectares of trees and 150,000 hectares of hedges. In addition, some 76,000 hectares of agricultural land were terraced. The anti-erosion activities were mainly concentrated in the mountainous eastern Congo, particularly Kivu Province.

*Surveys and mapping.*—The Geographical Institute of the Belgian Congo carried out a considerable program of mapping. This work included aerial photos covering 170 million hectares, compilation of maps at a scale of 1:200,000 covering 120 million hectares, regular planimetric maps for 52.5 million hectares, and mosaic photographs relating to 62.5 million hectares.

In addition, a number of pedo-botanical survey missions were conducted by INEAC. These involved systematic study of the soils and vegetation in selected areas, preparation of detailed maps, classification of soils according to their potential, and study of the characteristic plant associations. Each survey was carried out over a sufficiently large zone to constitute a representative sample of the types of soil and vegetation for a given agricultural region.

Other surveys made in advance of establishment of the various paysannats covered an area of 2.5 million hectares. These were conducted by technical specialists of the administration with the assistance of INEAC.

Reconnaissance surveys were carried out in many areas in connection with economic inventories, monographs, or in examining projects for the second Ten-Year Plan. Such surveys in the Leopoldville Province alone covered an area in excess of 4.9 million hectares.

No statistics are available concerning surveys undertaken by the private sector, but these pertained to an area of several million hectares.

*Construction in the agricultural sector.*—No survey has ever been made of the construction of dwellings and other buildings in the agricultural sector in the Congo. Consequently, no information is available about agricultural investment of this nature made by the private sector, European or African.

Investment in buildings constructed in connection with the establishment of the paysannats was of considerable importance. Each paysannat included one or

several social centers, each of which consisted of a school, workshop, dispensary, assembly hall, a building for the local cooperative, storage sheds, and shops.

Investment in housing, laboratories, and other buildings for the INEAC Stations was also of considerable importance. A total of 24 major research stations and 22 local experiment stations (*stations d'adaptation*) and pilot farms were established with their complement of laboratories, dwellings, offices, and other buildings. Processing facilities constructed with government assistance included six tea factories and one coffee factory. Finally, 64 houses were built for the purpose of receiving newly arrived settlers.

With respect to livestock, a total of eight laboratories, 74 dispensaries, 10 abattoirs, 61 slaughtering sites, 58 dipping tanks, and 23 livestock stations were constructed. An additional abattoir with cold storage and two creameries were also built.

*Agricultural equipment.*—Unfortunately no satisfactory statistics are available concerning agricultural equipment in use in the Congo. This statistical deficiency was to have been remedied during the course of the second Ten-Year Plan. All that can be said with the data available is that the number of tractors belonging to government services increased from zero in 1945 to more than 600 in 1958.

### III. CHANGES IN AGRICULTURAL OUTPUT

Total agricultural output in the Congo increased greatly between the late 1940's and 1959. The following index numbers give an overall view of changes by major categories of production and contrasts the increase in total output, including that of European enterprises, with the increase registered by Congolese producers (per cent of 1947-49; 4, 1959):

Period	Roots and tubers	Cereals	Other food crops	Industrial crops	Total agricultural output
1959: total output .....	141	111	129	235	165
1959: output of the Congolese sector .....	142	112	125	155	139

The percentage increase in total output was considerably larger than that registered by the Congolese sector. This difference reflects the extremely rapid increase in output of industrial crops by agricultural enterprises established under the written land tenure code, nearly all of which were those of European settlers or companies.

#### *Crop Production*

It is clear from the production data for European farm enterprises summarized in Table 7 that the production of table bananas, sugar, palm oil and palm kernels, Robusta and Arabica coffee, cocoa, rubber, tea, and tobacco increased at a remarkably rapid rate between 1945 and 1959. The changes in output were much less marked, however, with respect to the crops that competed with the Congolese producers, such as the production of fruits and vegetables. The same applies to crops such as pyrethrum, which faced competition from synthetic

TABLE 7.—CROP PRODUCTION BY EUROPEANS AND CONGOLESE UNDER  
LEGAL TENURE CODE, 1945, 1949, AND 1959\*  
(Metric tons)

Crop	1945	1949	1959
Palm oil <sup>a</sup> . . . . .	106,994	143,646	233,272
Palm kernels <sup>a</sup> . . . . .	46,982	54,670	104,194
Aleurites (tung) . . . . .	...	122	...
Sisal . . . . .	144	129	163
Sweet bananas . . . . .	540	5,458	28,625
Other fruits . . . . .	882	...	1,945
Truck crops . . . . .	2,992	3,200	3,806
Sugar . . . . .	13,390	12,730	39,321
Tobacco . . . . .	...	18	409
Pyrethrum . . . . .	497	669	1,020
Derris . . . . .	3	37	...
Robusta coffee . . . . .	17,429	18,996	45,294
Arabica coffee . . . . .	2,793		
Cocoa . . . . .	1,197	1,695	4,480
Tea . . . . .	106	142	3,510
Rubber . . . . .	2,157	6,692	36,324
Cinchona . . . . .	397	1,218	...
Perfume plants . . . . .	22	47	66

\* Data from *Rapport . . . pendant l'année 1945* and *La Situation économique . . .* (1950 and 1959) (see 3 and 4 for complete references).

<sup>a</sup> Product of mechanical oil mills; from plantation produced fruit, and also fruit purchased from Congolese.

products; production of sesame, derris, and cinchona had virtually come to a halt in 1959 for the same reason.

Expansion of output by Congolese producers was also greatest in industrial crops, and was especially marked in cotton, tobacco, bananas, coffee, rubber, and other perennial crops (Table 8). The marked reduction in production of urena was associated with a sharp fall in its price from the high levels prevailing in 1950-51 as a result of the Korean War. The decline in production of home-crushed palm oil reflected an increasing tendency for Congolese producers to sell their palm fruit to be processed in commercial oil mills. Among the food crops, notable increases took place in the production of manioc, peas, haricot and lab-lab beans, and produce from market gardening. In contrast, maize, peanuts, and rice increased only a little, and sweet potatoes and sesame declined. The reduced production of wheat and of white potatoes reflected increased competition from imported supplies.

The increase in agricultural output in the European sector resulted partly from steady expansion of the planted area but to an even greater extent from increases in yields. The increased output of food crops which were produced almost entirely by Congolese farmers, seems to have been due in part to expansion of the planted area of manioc and other crops in the Bas Congo and in regions where shortages of food were feared (Kwango, Kivu), and in part to improvement of productivity in the paysannats. The enlarged output of industrial crops by Congolese producers was mainly the result of expansion of the area planted to those crops although the yields also increased notably in the paysannats.

TABLE 8.—CROP PRODUCTION BY CONGOLESE UNDER TRADITIONAL LAND-TENURE SYSTEM, 1949 AND 1959\*  
(Metric tons)

Crop	1949	1959	Crop	1949	1959
<b>Cereals</b>			<b>Fruits</b>		
Wheat	3,452	2,431 ↓	Bananas		
Maize	300,710	329,919 ↑	(plantains)	1,473,360	1,415,593 ↓
Paddy rice	159,395	164,766 ↑	Sweet bananas <sup>a</sup>	—	19,132 ↑
Others	60,000	50,079 ↓	Others	...	13,219 ↑
<b>Roots and tubers</b>			<b>Other annual crops</b>		
Potatoes	15,913	10,556 ↓	Peas, beans	40,178	72,083 ↑
Sweet potatoes	374,758	315,528 ↓	Truck crops	4,000	13,318 ↑
Manioc, raw	5,472,388	7,205,333 ↑	Sugar cane	—	16,898 ↑
Others	10,000	18,733 ↑	Tobacco <sup>b</sup>	70	767 ↑
<b>Oil seeds</b>			Pyrethrum	...	82 ↑
Peanuts	145,402	174,043 ↑	<b>Perennial crops</b>		
Sesame	8,582	5,972 ↓	Robusta coffee	1,392	{ 6,670
Palm oil <sup>c</sup>	29,239	11,944 ↓	Arabica coffee		
Palm kernels	44,000	57,550 ↑	Cocoa	—	34
<b>Fibers</b>			Tea	—	132
Cotton, not ginned	144,203	179,622 ↑	Rubber	95	4,087
Urena and Punga	17,645	11,863 ↓	Cinchona	8	680

\* Data from *La Situation économique* . . . (1950 and 1959) (see 4 for complete reference).

<sup>a</sup> For export.

<sup>b</sup> Excluding tobacco for home consumption.

<sup>c</sup> Crushed in small home mills.

It is particularly difficult, however, to speak in general terms concerning trends in crop yields in the Congo even apart from the lack of reliable statistical data. In addition to the usual variations in crop yields as a result of local differences in physical factors such as soil and climate, large differences in the levels of yield in the Congo reflect the degree to which production techniques had been modified. Thus with the very extensive methods used in traditional shifting cultivation, yields per hectare of maize might vary from 150 kilograms in savanna areas to 1,000 kilograms in forest zones. With improved techniques in the paysannats, however, yields of maize ranged from about 600 to 2,000 kilograms per hectare; and with the intensive methods employed by a relatively small number of farmers, yields reached 1,500 to 4,000 kilograms per hectare. Yields of perennial industrial crops under intensive methods shown in Table 9 apply mainly to European plantations.

### Livestock Production

The most satisfactory data relating to expansion of livestock production are the statistics for inter-regional commercial sales of animals and livestock products summarized in Table 10. The rate of increase in commercial sales of meat

TABLE 9.—YIELD APPROXIMATIONS FOR SPECIFIED CROPS  
ACCORDING TO METHOD OF CULTIVATION\*  
(Kilograms per hectare)

Crop	Extensive methods		Intensive methods
	Traditional	Improved	
Maize .....	150 - 1,000	600 - 2,000	1,500 - 4,000
Paddy rice .....	300 - 1,500	500 - 2,000	1,200 - 5,000
Manioc, fresh .....	3,000 - 30,000	10,000 - 40,000	20,000 - 60,000
Peanuts, in shell .....	200 - 1,000	400 - 2,500	800 - 3,000
Palm oil .....	150 - 500	300 - 1,000	1,000 - 3,000
Cotton, not ginned .....	150 - 600	300 - 1,000	600 - 1,500
Urena .....	300 - 1,000	500 - 1,500	1,000 - 3,500
Bananas (plantains) .....	3,000 - 5,000	5,000 - 20,000	...
Sweet bananas .....	2,000 - 4,000	3,000 - 8,000	5,000 - 15,000
Beans .....	150 - 800	300 - 1,200	500 - 2,000
Robusta coffee .....	...	300 - 1,000	800 - 2,500
Arabica coffee .....	...	300 - 800	500 - 1,500
Cocoa .....	...	200 - 600	500 - 800
Tea .....	...	300 - 700	700 - 1,500
Rubber .....	...	200 - 500	500 - 1,200

\* Data from various annual reports of Provinces, reports of INEAC, and from personal tests and observations.

by both African and non-African producers was very great. European producers of beef accounted for the bulk of the commercialized output, whereas African farmers provided most of the mutton and goat meat and by 1959 accounted for most of the pork production as well.

Fish production was a good deal larger than these commercial sales of livestock. It is estimated that production of fresh water fish amounted to some 148,000 tons in 1959; the ocean yielded an additional 6,000 tons.

#### *Share of Agricultural Output Commercialized*

Estimates available for the major agricultural crops indicate the proportions of total production directly consumed by the farm population and commercialized in 1959 (Table 11). The proportion of staple food crops commercialized ranged from as little as 17 per cent of the output of manioc to a little over 30 per cent of the production of maize, wheat, and peas and beans. Rice, which is almost entirely processed in commercial mills in the Congo, was in a category by itself with some 65 per cent of production commercialized. Virtually 100 per cent of the production of most of the industrial crops was commercialized.<sup>11</sup>

By far the greater part of the Congo's production of industrial crops was destined for export. A very high fraction of the output of commodities such as palm

<sup>11</sup> The output of processed vegetable products increased a good deal more rapidly than output of unprocessed commodities. Between 1949 and 1959 there was an increase of 171 per cent for the processed items against an increase of 115 per cent for the products that did not undergo processing. As a result the share of the processed commodities in total value of output of products of vegetable origin rose from 36 to 42 per cent. (Data from unpublished reports of the Ten-Year Plan Administration.)

TABLE 10.—INTER-REGIONAL COMMERCIAL SALES OF LIVESTOCK AND LIVESTOCK PRODUCTS  
BY AFRICANS AND NON-AFRICANS, 1945, 1949, AND 1959\*

Item	Africans	Non-Africans	Total	Africans	Non-Africans	Total	Africans	Non-Africans	Total
	CATTLE			HOGS			SHEEP AND GOATS		
Number									
1945	22,340	20,868	43,208	1,260	15,289	16,549	60,776	2,771	63,547
1949	45,458	33,862	79,320	15,279	22,390	37,669	119,957	3,418	123,375
1959	66,752	72,453	139,205	87,574	37,443	125,017	243,096	5,426	248,522
Metric tons, liveweight									
1945	3,712	6,124	9,836	58 <sup>a</sup>	955	1,013	938	84	1,022
1949	7,294	10,136	17,430	753	1,470	2,223	2,383	106	2,489
1959	11,693	26,873	38,566	6,023	3,215	9,238	5,270	177	5,447
Kg. per head									
1945	166.2	293.4	227.6	45.8 <sup>a</sup>	62.5	61.2	15.4	30.3	16.1
1949	160.4	299.3	219.7	49.3	65.6	59.0	19.9	31.0	20.2
1959	175.2	370.9	277.0	68.8	85.9	73.9	21.7	32.6	21.9
	MILK ( <i>thousand litres</i> )			BUTTER ( <i>metric tons</i> )			CHEESE ( <i>metric tons</i> )		
1945	6,521	858	7,379	87	337	424	—	97	97
1949	5,219	7,805	13,024	49	398	447	10	175	184
1959	3,157	8,047	11,204	10	406	416	—	131	131

\* Data from *Rapport . . . pendant l'année 1945* and *La Situation économique . . .* (1950 and 1959) (see 3 and 4 for complete references). Sales of hides by Africans, non-Africans and total respectively were as follows in metric tons: 1945, 1,121, 7, and 1,128; 1949, 409, 30, and 439; 1959, 2,669, 0, and 2,669.

<sup>a</sup> Our approximation using the implied average weight for 1946, rather than the 13.5 kg. implied for 1945 in the source.

TABLE 11.—PRODUCTION OF SPECIFIED CROPS RETAINED FOR HOME USE  
OR COMMERCIALIZED, BELGIAN CONGO, 1959\*  
(Metric tons, except as otherwise indicated)

Product	Production	Home use		Commercialized	
		Tons	Per cent of production	Tons	Per cent of production
Wheat .....	2,431	1,661	68.3	770	31.7
Maize .....	329,919	231,958	70.3	97,961	29.7
Paddy rice .....	164,766	57,034	34.6	107,833	65.4
Sweet potatoes .....	315,528	240,997	76.4	74,531	23.6
Manioc, raw .....	7,205,333	5,914,172	82.8	1,291,161	17.2
Peanuts .....	174,043	123,210	70.8	50,833	29.2
Palm oil .....	245,216	—	—	245,216	100.0
Palm kernels .....	161,744	—	—	161,744	100.0
Cotton, not ginned .....	179,622	—	—	179,622	100.0
Urena and Punga .....	11,863	—	—	11,863	100.0
Bananas (plantains) ....	1,415,593	1,026,600	70.8	388,993	29.2
Sweet bananas .....	47,757	10,369	21.7	37,388	78.3
Peas, beans .....	72,083	47,909	66.4	24,174	33.6
Truck crops .....	17,124	2,304	13.5	14,820	86.5
Sugar <sup>a</sup> .....	39,321	—	—	39,321	100.0
Tobacco <sup>b</sup> .....	1,176	—	—	1,176	100.0
Robusta coffee .....	51,964	—	—	51,964	100.0
Arabica coffee .....	8,727	—	—	8,727	100.0
Tea .....	3,642	—	—	3,642	100.0
Rubber .....	40,411	—	—	40,411	100.0

\* Data from *La Situation économique . . . 1959* (see 4 for complete reference).

<sup>a</sup> Production as sugar; Congolese production for home consumption as cane is not included.

<sup>b</sup> Excluding tobacco production for home consumption.

oil, coffee, cocoa, and rubber, which could be absorbed to only a limited extent by local industries, was sent abroad. The figures in Table 12 showing the share of output that was exported include production and exports of Ruanda-Urundi as well as the Congo. It is somewhat surprising that as much as 83 per cent of the production of cotton fiber was exported in 1959. Expansion of the Congolese textile industry probably would have led, under normal conditions, to a rapid decline in that percentage. Palm oil retained for local consumption was mainly used as a cooking oil, some for local soap production.

According to the volume indexes shown below exports of vegetable and animal products increased more rapidly than those of mineral products. The index numbers are value-weighted, 1953 = 100 (4, 1959):

Year	Vegetable and animal products	Mineral products	Total
1950	98	79	87
1959	167	120	139

The rate of change in value terms would be different, in view of the deterioration of the terms of trade of agricultural products between 1950 and 1959.

TABLE 12.—PRODUCTION AND EXPORTS BY SPECIFIED CROPS,  
BELGIAN CONGO AND RUANDA-URUNDI, 1959\*  
(Metric tons, except as otherwise indicated)

Product	Production	Exports	
		Tons	Per cent of production
Peanut oil .....	8,184	6,958	85.0
Cotton seed oil .....	8,884	6,009	67.5
Palm oil .....	246,332	185,550	75.3
Palm kernel oil .....	61,411	60,874	99.1
Palm kernels .....	161,909	39,838	24.6
Palm cake .....	67,562	61,149	90.5
Other oil cake .....	36,310	37,000	101.9
Seed cotton .....	63,400	52,790	83.2
Urena and Punga .....	11,863	4,184	35.2
Sweet bananas .....	48,000	31,099	64.8
Sugar cane .....	39,321	2,500	6.3
Coffee <sup>a</sup> .....	97,000	93,415	96.3
Cocoa .....	4,514	3,852	85.3
Rubber .....	40,411	40,178	99.4

\* Data from *La Situation économique . . . 1959*, and from the official foreign commerce annual (see 4 and 5 for complete references).

<sup>a</sup> Including 36,045 tons parchment coffee.

#### IV. CHANGES IN MARKETING

Between 1945 and 1959 the development of policies relating to the commercialization of agricultural products was gradual and progressive. The present section considers in turn the evolution of the marketing chain from 1949 to 1959 and the situation in 1959, the dissemination of market information, competition and monopolies, and facilities for storage.

##### *Food Products for the Internal Market*

The provisioning of small centers (administrative and commercial posts, hospitals, schools, missions, and private firms in rural areas) was generally assured by direct commercial contacts between producers and buyers in markets supervised by the administration. In the late 1950's it became common practice for the administration and private firms to contract for deliveries with traders who collected the produce in the villages or at local markets. In the local markets in some of the larger villages retail sales were made to the local residents. Many transactions also took place in "commercial centers" which were special sites reserved for shops and located a short distance from the villages.

The provisioning of centers of medium size (from 5,000 up to 15,000 inhabitants) was mainly through regional markets in which foodstuffs were sold by the producers themselves (in the case of the nearby villages) or by cooperatives or traders (for the more distant villages). These markets were supervised by the administration responsible for nontraditional centers (*centres extra-coutumiers*).

Provisioning of the large centers posed more complex problems and varied from region to region. In the Bas Congo, commerce in local foodstuffs (manioc,



maize, peanuts, beans, and vegetables) for the centers there, including Leopoldville, was handled almost entirely by Congolese traders or the cooperative of Kisanu, which grouped together the producers and intermediaries of the Kisanu-Madimba region. Many of these Congolese traders, while working rather unsystematically, conducted a substantial volume of business.

Food supplies for Leopoldville coming from the Kasai and Upper Congo were transported by boats of the government transport company (Otraco) and by river merchants. Maize from Kasai, especially appreciated by Leopoldville inhabitants who had come from there, was generally shipped to the capital by European wholesalers.

European wholesalers were much more important in provisioning the large centers of the Upper Congo and in Katanga, where the wholesalers and millers played a particularly important role in supplying maize, a staple food highly esteemed by the Baluba workers. However, participation by Congolese traders increased from year to year.

Paddy rice was cultivated only by African farmers. An exceptionally large share of total output was commercialized, and marketing arrangements for rice were similar to those established for the export crops considered in the following section. Purchases were restricted to authorized buyers. These included the owners of rice mills fulfilling specified standards and holding a milling contract, companies furnishing rice to their workers, or private traders who had been issued a purchasing license. Sales of rice could be made only at markets or on the premises of authorized rice mills. The price of rice was fixed by the provincial governors. Installation of new rice mills or increase of the capacity of existing mills was also subject to authorization by the provincial governor.

Consumption of bread increased in the years following the war, and imports of wheat flour assumed considerable importance. Flour imports had amounted to only about 3,500 tons annually during 1948-52 but averaged over 30,000 tons in the late 1950's. The flour was mainly of American origin, although substantial shipments of European flour appeared on the market in 1959. Both importation and distribution of flour were handled by private firms.

Indigenous meat supplies were sold in village or regional markets. Meat produced by European livestock enterprises was sold under the supervision of government services. Imports of meat tended to decline toward the end of the 1950's and in 1959 amounted to only 1,629 tons for Leopoldville Province.

Production and consumption of sea fish increased from year to year, reaching nearly 6,000 tons in 1959 as compared to about 3,500 tons in 1956. Imports of fresh, frozen, dried, and salted fish showed little change after 1957. Private firms handled the trade in fish, with numerous Congolese traders participating at the retail level and also as small-scale wholesalers. Fish prices were established by provincial regulations.

### *Marketing of Export Crops*

Exportation of such products as manioc flour and maize meal took place freely, except that export of manioc required the authorization of the Department of Economic Affairs. Exports of these commodities were effected by direct transactions between exporters and importers.

Exportation of such other products as cotton, fibers, coffee, tea, rubber, and palm oil was organized according to regulations varying from product to product. The ginning and commerce in *cotton* was regulated by decrees issued in 1921 and 1947.<sup>12</sup> The Decree of 1921 was aimed at suppressing the anarchy and fraud which were thought to be prevalent when the market was characterized by complete commercial freedom. Under those conditions the buyers competed vigorously for the available supplies in years in which they expected to benefit from high prices, and bought at speculative prices without taking account of the quality or moisture content of the cotton seed. But as soon as the market weakened or seemed doubtful they neglected the remote regions. They often discouraged producers by sudden and unjustified reductions of price, and these speculative practices had an unfortunate effect both on the activity of the producers and on the quality of the product.

The Decree of 1921 limited the purchase of cotton to owners of gins capable of furnishing a fiber of good quality. Buyers were accorded the exclusive right to purchase cotton in a prescribed zone. The limits of these zones were based on geographical criteria: the number of planters, the potential production, the ease of communications, etc. These local monopolies, which were subject to precise conditions and obligations, prevented concentration of factories in highly productive zones as well as neglect of more poorly endowed or distant zones.

The producers were protected by various measures: (1) the fixing of a minimum price by the Governor General; (2) liberty to sell produce outside the zone; (3) existence of free zones; (4) the obligation for the holders of purchasing concessions in any zone to buy all of the cotton offered to them.

The Decree of 1921 led to a substantial increase in production and considerable improvement in the quality of the fiber. It was based, however, on an economic and social situation that was modified considerably by the Second World War.

The Decree of 1947, which modified the role of the processors, was a consequence of this evolution; it was inspired by a concern to promote more active participation by the producers in the commercialization of their product. Rather than purchasing the harvest from the producers to be resold after ginning for their own profit, the processors became agents working on contract. The cotton remained the property of the producers until it had been sold on world markets. During the first years of application of this decree, the administration dealt with the ginners in the name of the commercially inexperienced producers; but later the cooperatives began to assume the marketing responsibility. The Decree of 1947 modified the regulations relating to ginning and also those concerned with sanitary protection, storage, and distribution of seed cotton. It instituted a "Cotton Reserve Fund," maintained by a cess levied on the selling price of cotton and its by-products. The purpose of this Fund was "to stabilize the cotton economy and to promote the economic and social development of the indigenous groups engaged in cotton cultivation."

Following the promulgation of the Decree of 1947 the cotton marketing chain was as follows: the cotton was picked and sorted, exposed to the sun, placed in

<sup>12</sup> This section is based mainly on a study by M. Brixhe (7).

a basket, and brought to a market where it was weighed and graded by an agent of the Cotton Company, often in the presence of government representatives. The cotton agent paid a provisional advance to the producer and stored the product in specially partitioned buildings in order to prevent the mixing of different qualities. Transport to the ginneries was effected by trucks, barges, or railway. The ginning was done by the cotton companies; the cotton fiber was then classed according to three qualities: first or second; intermediate; or discolored. A second grading by an expert grader took place at Leopoldville, and a third at the port of destination. Local oil mills produced cottonseed oil and also oil cake and linters (7).

*Oil palm.*—The marketing of palm fruit destined for the preparation of palm oil and palm kernel oil was dominated by the desire to produce an oil of first quality, capable of holding a preferred position on world markets. Such oil can only be produced in well-equipped and well-directed factories. Hence marketing of palm fruit destined for industrial use was organized, so that well-equipped industries in the producing regions and the use of modern equipment might be encouraged.

After a period in which the chaotic establishment of oil mills of all sorts and dimensions had given rise to serious economic difficulties—over-capacity in certain regions and insufficient exploitation in others—the government put into force the “legislation on oil mill zones” (Decree of May 20, 1933). A single licensed mill in each zone was authorized to buy fruit on the condition of paying a reasonable price and absorbing all of the production. In order to obtain the license to operate in a zone an individual or a company had to have an installation capable of producing oil of good quality. Outside of the specified zones the sale of palm fruit was free.

The purchase price for palm fruit was fixed by the administration, taking into consideration the world price and charges imposed upon the concessionaires in the zones.

As modified by the Decree of November 27, 1936, the Decree of 1933 assured an orderly development of the regions endowed with natural palm groves and favored the installation of well-equipped oil mills. From 1950, the psychological and economic evolution of the local population and the extension of plantations established by Congolese producers had modified the situation so that new zones were no longer granted and supply contracts began to be established, in certain areas, between cooperatives and oil mills.

A special type of convention, the so-called “tripartite contracts,” were concluded with the Oil Mills of the Belgian Congo (Huilever) in the early twenties. State land and indigenous land in some regions producing palm oil were treated as special zones, their management being placed in the hands of the government which, in turn, leased the land to the Huilever Company under an agreement whereby the Company assumed certain specified economic and social obligations. These contracts were amended by a transitional agreement in 1958 giving more commercial freedom to producers. This agreement is to expire in 1966, when a free system of marketing is to be established whereby producers will be able to enter into a contract with any processor owning a well-equipped oil mill.

Each major oil palm plantation includes a factory. The small Congolese plantations furnish fruit to the factories in accordance with delivery contracts.

*Marketing of palm oil.*—In order to promote the marketing of Congolese palm oil, a cooperative (Congopalm) was established after the Second World War with the following objectives: (1) to promote uniform standards of production; (2) to raise these standards by improving the techniques of cultivation, processing, storage, and transport; and (3) to promote industrial and food outlets for palm oil.

Membership in the cooperative was initially compulsory but later became optional. The number of cooperators reached 63 in 1960. All of the palm oil produced by these cooperators was turned over to Congopalm. The cooperators subscribed to the capital of the cooperative at the rate of one share of 50,000 Congolese francs (\$1,000) for each 100 tons of annual production of oil.<sup>13</sup> The shares were issued at 60 per cent of their nominal value, and the available capital served as a revolving fund to pay the costs incurred from the time of taking delivery of the oil in the plantations to the point of sale on internal or external markets. The receipts from sales, after deducting costs, was distributed to each member on a pro rata basis according to the quantity and the quality of oil furnished. In 1959, exports of Congopalm represented more than 85 per cent of the total of Congolese exports of oil palm.

Export of palm kernels, initially centralized by Huilever, was conducted following 1950 by a pool of producers, the EPPIC.

*Rubber.*—After 1920 the production of wild rubber in the Congo practically disappeared except during 1942-45, when substantial quantities were furnished to the Allied armies.

We are concerned here only with plantation rubber. An association, the Professional Union of Rubber Producers of the Congo, assumed responsibility for the professional interests of its members. Membership was free and marketing was handled by brokers. The latex was processed in factories belonging to the plantations or, for the small Congolese plantations, in cooperative factories.

*Jute-like fibers (Urena lobata and wild fibers).*—These fibers are produced exclusively by Congolese cultivators and sold to processors at markets in the commercial centers or through producer cooperatives. After being sorted, cleaned, and pressed, the fiber is resold to wholesaler-exporters who prepare the product for export. There was a tendency for fiber exports to level off or even decline as local factories engaged in the manufacture of bags absorbed a larger and larger tonnage.

*Sweet bananas.*—The marketing of bananas for the internal market was not organized, and functioned in the same manner as for other foodstuffs.

Sales for export involved the participation of three interested groups—the producers, of which the most important were grouped into a cooperative (Coprofruit), the marine transporters, and the importers. Small Congolese producers, inefficient and poorly organized, sold their products to large producers or to importers. They were normally the first victims when roads were in poor con-

<sup>13</sup> The Congolese franc had, until 1960, the same value as the Belgian franc: 50 francs = one U.S. dollar.

dition or the price of bananas fell. Bananas in the Congo are a marginal crop that is produced under difficult conditions of climate. They compete only with difficulty with intensively produced bananas originating in the countries of the Gulf of Guinea, the Canaries, and Central and South America. The small tonnage produced and the concentration of the most important part of production in the rainy season adds to the cost and gives rise to variations in price which discourage any increase of output. But the Congolese banana is not absolutely condemned to failure. Insofar as the production of the small Congolese planters is rationalized with respect to methods of harvesting, handling, packing, and grading, it can be expected to find a market during the off season of the plantations of the northern hemisphere.

*Tea.*—The rapid development of tea production dates from the end of the Second World War. Production reached 3,585 tons in 1959 on more than 6,000 hectares, representing a value of more than 2.5 million francs. Purchase of tea from producers was reserved to the factories and the cooperatives set up by tea cultivators. As of 1959 there were five government and ten private tea factories in operation. In order to improve quality, the government had created a Tea Bureau replacing the Tea Section of the Board for Agricultural Products of Kivu. This Bureau concerned itself with agronomic, technical, economic, and commercial matters. Tea was sold on export markets (mainly London) through the intermediary of brokers rather than by a cooperative organization.

*Cocoa.*—Cocoa was produced principally in plantations owned by European companies or individual settlers, although some small Congolese plantations were beginning to be established in the equatorial region of the country. Sales on the world market were made directly by producers or wholesalers. The principal producers were grouped into an organization known as the "Union of Cocoa Producers in the Belgian Congo," which was responsible for promoting the professional interests of its members.

*Coffee.*—Special Boards (Offices) to handle the commercialization of coffee were created shortly before the Second World War and reorganized in 1948. This step was taken because the heterogeneity and poor quality of some shipments of Congolese coffee had compromised its reputation in foreign markets.

The Boards, autonomous public corporations, had power to engage in commercial activities under certain conditions. The Robusta Coffee Board (O.C.R.) was responsible for promoting the development of internal and external outlets for Robusta coffee and for assisting and improving the production, processing, and conditioning of the product. The main responsibility of the Board was to verify the quality and the conditioning and sorting of Robusta coffee. Exports of this type of coffee were subject to a special license issued by the Board.

Exports of Arabica coffee were subject to the issuance of a special license by the Board for Agricultural Products of Stanleyville (OPAS) or the Board for Agricultural Products of Kivu (OPAK). Sales were made either on a commission basis (sales against samples), by the intermediary of banks, or through a cooperative organization, Cafécongo, to which most of the producers belonged. Coffee was delivered to Cafécongo either by the producer or by a public transport agency. Cafécongo charged a commission of 0.45 Congolese francs per kilo as of 1959 for handling the coffee which it exported. The other costs, exclusive of transportation costs, amounted in 1959–60 to 2.92 Congolese francs per kilo.

### *Monopolies and Competition*

At the level of the producers, there was a nearly absolute purchasing monopoly for cotton and palm fruit, and there was a semi-monopoly for paddy rice. For other products there was more or less active competition between buyers, subject to various regulations intended to improve the quality of the product (as, for example, the requirement that tea be purchased only by factories or cooperatives).

The purchasing monopoly in the oil mill zones is to be explained by the following factors: (1) the drawbacks of a commercial freedom which gave rise to proliferation of badly equipped buyers in a period of high prices and abandonment of certain regions in depressed periods; (2) the desire of the government to produce a product of high quality, which required the installation of costly modern factories of large capacity and with a guaranteed source of supply; and (3) the policy of the government of imposing upon buyers of palm fruit responsibility for the systematic development of a region (roads, bridges, and social infrastructure) while at the same time providing certain compensating economic advantages. The purchasing monopoly for cotton was similarly justified.

The establishment of quasi-monopolies for marketing had, in spite of the disadvantages inherent in this system, favorable effects on the quality of products, the rational development of producing areas, and the stability of the prices paid to producers.

Psychological and economic evolution during the 1950's made it possible to envisage a return to a regime of free competition subject to arrangements to insure the quality of the processing and the appropriateness of the purchase prices. The offering for auction on the part of cooperatives of sizable lots of agricultural products, graded and packed according to quality, represented an important step toward the liberalization of marketing. The deterioration of the economic situation which accompanied and followed the political events at the time of independence unfortunately prevented the establishment of this system on a permanent basis; and it is to be feared that for several years the choice will be a return either to commercial anarchy or to public or private monopolies.

### *Marketing Facilities and Transport of Agricultural Products*

*Market information.*—In considering the arrangements for obtaining market information it is necessary to distinguish between the different categories of producers: large, medium, small producers organized in cooperatives, and small independent producers.

The large producers had their own commercial services, correspondents, and trade contracts, permitting them to follow closely all matters related to the commercialization of their products. The medium producers (especially the European settlers) were assisted by their professional associations and marketing cooperatives. The small producers (almost entirely Congolese) were protected and informed by the advisors and managers of their cooperatives or by the government.

In general, the Congolese producers knew how to discuss prices and conditions of purchase and, although not always capable of supervising weighing operations and calculations, had a fairly precise idea of the value of the prod-

ucts that they brought to market. The principles underlying price formation were, however, not well understood and the variations in world prices were regarded as manipulations of the buyers, especially when they had an adverse effect on the purchase price of the products.

Transactions between the producers and small Congolese traders gave rise to complex operations in which money intervened as only one of the elements of an exchange of varied services—transportation, credit, and provisionment with perhaps an element of fraud. The producer was commonly the loser, but he appreciated the system because it conformed to his psychology and traditional practices. The indebtedness of farmers to middlemen in the Congo was much less a problem than it is in some Asian countries, probably because of the relative abundance of land resources and the communal system of property. Wherever cooperatives were established on an appropriate basis and therefore really understood by the population, the commercial mechanism was better comprehended. Under those conditions proposals such as the establishment of a local stabilization fund could be introduced by the managers, discussed, and accepted by the members.

*Storage facilities.*—Storage of foodstuffs was typically poorly organized among the small Congolese producers. Characteristic methods included the storage of manioc flour in baskets, maize cobs on the rafters above the kitchen, maize grain in baskets, and peanuts in baskets suspended either in the interior or outside of the huts.

Produce generally reached the market with high moisture content, infested with insects, and containing a high percentage of impurities. Some success was realized, however, in improving storage in the paysannats. Large enterprises had their own storage installations on the plantations or near factories and temporary storage at transfer points along transport routes. Some of these installations served all producers in a given area.

In the principal centers of the country, as well as in the producing areas, cooperatives, merchants, and commercial companies had established silos, food storage sheds, refrigerated stores, and tanks for palm oil. The private silos for palm kernels and maize in the city of Leopoldville had a capacity of 18,700 tons. There were 14 refrigerated warehouses in Leopoldville Province, of which the largest had a capacity of 4,000 cubic meters.

The government established depots at the principal river ports and, within the framework of the Ten-Year Plan, had constructed a large storage silo at Leopoldville. This silo had bins for maize, a central handling tower, and compartments for palm kernels. The unit also included two rolling bridges and two weighing stations. The weighing stations could handle 8,400 tons of palm kernels or 5,800 tons of maize.

*Transportation.*—Public transportation in the Congo was organized into four large networks.

(1) The Office for the Operation of Colonial Transport (*L'Office d'Exploitation des Transports Coloniaux*, or OTRACO) was the largest of these organizations. This autonomous governmental organization, created in 1935, operates the railroad of Mayombe and the Matadi-Leopoldville Line, the river networks of the Congo and its tributaries as far as Stanleyville, and the public transport

network in Kivu. In total, OTRACO is responsible for 312 miles of railway, 7,400 miles of river lines, 85 miles of the Congo downstream from Matadi, 170 miles of highway, and 160 miles of lake shipping lines.

(2) The Railway Company of the Upper Congo and the Great Lakes (C.F.L.) is a chartered company serving the navigable reaches of the Lualaba upstream from Stanleyville (637 miles), Lake Tanganyika (413 miles), the railways from Ponthierville and from Maniema (674 miles), and a road network of 215 miles.

(3) The Railway Company of Katanga-Dilalo-Leopoldville, a so-called *société d'économie mixte*, holds the concession for a large transport system, but has entrusted its operation to the B.C.K. Company (Bas Congo-Katanga). This latter company operates the following railroads: Sakania-Bukama (442 miles); Tenke-Dilolo (324 miles); Bukama-Port Francqui (698 miles); and Kamina-Kabongo (125 miles).

(4) The Vicinal Railway of the Congo (Vicicongo) serves the port of Aketi, the narrow-gauge railway of Uele (521 miles), the road transport system of the northeastern Congo (9,320 miles), and the ports of Kasenyi and Mahagi on Lake Albert.

These four organizations formed with the airline company Sabena, the Belgian Maritime Company, and the Congolese Maritime Company, a professional group known as COMITRA (*Comité des Transports*) responsible for studying and coordinating the organization of transportation in the Congo. The equipment available to these companies in 1959 is summarized in Table 13.

Alongside the public networks, a number of companies owned small- or medium-sized boats serving their own requirements. Numerous European and Congolese companies were engaged in road transport. One of the most important of these enterprises was the MAS (*Messageries Automobiles du Sankuru*).

TABLE 13.—EQUIPMENT AVAILABLE TO SPECIFIED TRANSPORT COMPANIES, 1959\*  
(Number)

Equipment	OTRACO	C.F.L.	B.C.K.	Vicicongo
Locomotives				
Steam .....	—	63	164	29
Diesel-electric .....	69	20	14	15
Electric .....	—	—	35	—
Freight cars .....	4,139	865	4,256	357
Mail boats .....	35	6	—	—
Freight boats .....	6	7	—	—
Tugs .....	149	21	—	—
Barges				
100-500 tons .....	189	96	—	—
500-700 tons .....	80	11	—	—
700-1,000 tons .....	111	3	—	—
Over 1,000 tons .....	50	2	—	—
Passenger boats .....	51	—	—	—
Passenger barges .....	2	4	—	—
Landing craft .....	9	—	—	—

\* See text for description of companies. Data from unpublished reports of the Comité des Transports (COMITRA), and of the Administration of the Ten-Year Plan.



TABLE 14.—GOODS MOVED BY PUBLIC TRANSPORT, 1949 AND 1959\*  
(Metric tons)

Form	1949	1959
Congo River Seaway (Matadi, Boma, Ango-Ango)		
Imports .....	564,352	889,577
Exports .....	519,170	920,763
River (up and downstream).....	1,126,000	2,330,000
Railway (including local traffic).....	6,050,000	8,325,000
Road (major networks).....	199,000	344,000

\* Data from *La Situation économique* ... (1950 and 1959) (see 4 for complete reference).

All forms of public transport showed a substantial increase between 1949 and 1959, as indicated in Table 14. The increase in maritime exports and river transport was especially marked.

Many commodities in the Congo moved over long distances; others were generally consumed only a short distance from the point of production. Imported or exported commodities and products such as rice, peanuts, and maize, important in inter-regional trade, often moved long distances. Bulky food products such as manioc, however, generally moved only relatively short distances and often were handled by private individuals or transport firms rather than by the large public transportation companies. The sources of food supply for major cities were quite diverse, as shown in Table 15.

### *Marketing Regulations*

Reference has already been made to the three Marketing Boards or Offices that had been set up in the Congo by 1960: the Board for Agricultural Products of Kivu (OPAK); the Robusta Coffee Board (O.C.R.); and the Board for Agricultural Products of Stanleyville (OPAS). These Boards sought to improve the processing, conditioning, and grading of the agricultural products for which they were responsible. In addition to the Boards, numerous decrees and ordinances were issued establishing regulations for inspection, standards, minimum prices, or marketing rules relative to various agricultural products; many were aimed at maintaining the quality of the Congo's agricultural exports.

The Territorial Administration and the Departments of Agriculture and Economic Affairs made determined efforts to regulate agricultural markets, to train and supervise traders, and to educate producers with respect to marketing procedures and the process of price formation. Supervision of wholesalers and large traders was not difficult, but supervision of small rural traders or shopkeepers was exceedingly so. Only in teaching the farmers to count and to weigh their produce did it become possible to achieve some success in preventing deception or fraud on the part of some of the traders. Several regulations were issued to facilitate the regulation of markets and market procedures.

Price control, imposed during World War II, was progressively suppressed following it, but the administration retained powers permitting intervention in case of an abrupt increase or decline in prices. The prices remained fixed, however, with regard to three products: palm fruit, rice, and cotton.

TABLE 15.—PRINCIPAL POINTS OF ORIGIN OF FOOD SUPPLIES CONSUMED IN LEOPOLDVILLE, KATANGA, AND STANLEYVILLE\*

Product	Leopoldville	Katanga	Stanleyville
Manioc, peanuts, beans	Mainly Bas Congo and Cataract Districts (1 and 2)	Kasai Province, Tanganyika and Maniema Districts (20 and 14)	Stanleyville, Uele and Maniema Districts (10, 11-12, 14)
Maize	Cataract District (2), Kasai Province	Kasai Province	Stanleyville and Uele Districts (10 and 11-12)
Bananas (plantains)	Lake Leopold II District (5), Equator Province	Maniema District (14)	Stanleyville District (10)
Paddy rice	Lake Leopold II District (5), Equator Province	Maniema District (14), Equator Province	Stanleyville and Maniema Districts (10 and 14), Equator Province
Vegetable oil	Leopoldville Province	Kasai Province, Maniema District (14)	Oriental Province
Meat	Import, Leopoldville and Kasai Provinces	Import, Kasai and Katanga Provinces	Import, Ituri District (13)
Fresh fish			
Saltwater	Congo Estuary, Atlantic Ocean	—	—
Freshwater	River network	Rivers, lakes	Rivers, lakes
Smoked fish	River network	River network	River network
Salt fish	Angola	Lakes	Angola, lakes
Vegetables, fruit	Leopoldville and Kivu Provinces, Cataract and Ituri Districts, import (2 and 13)	Katanga Province, import	Ituri District (13), and Kivu Province

\* Data from annual Provincial reports (unpublished). Numbers in parentheses identify districts as shown in Map 1.

The minimum price for palm fruit bought from Congolese pickers was established by the authorities on the basis of the world price, export duties (themselves adjusted according to world prices), and various local conditions. By way of example we give in Table 16 the calculation of the local price of palm fruit on the basis of the world price and taking into account various local costs. An Ordinance of 1942 gave provincial governors the power to establish minimum prices for the purchase of paddy rice from producers. These prices were supposed to be posted in the capitals of the territories, at markets, and at rice mills a month

TABLE 16.—PALM PRODUCTS: PRICES AND COSTS APPLICABLE FOR  
PRODUCTION UPRIVER FROM LEOPOLDVILLE\*

(Belgian francs per metric ton, except as otherwise indicated)<sup>a</sup>

A. CALCULATION OF NET RECEIPTS AT LEOPOLDVILLE

Item	Palm oil	Palm kernels	Whole fruit equivalent
World price 1959/60 .....	11,000	8,250	...
Export tax and freight to Europe.....	2,400	2,950	...
Net receipts at Leopoldville.....	8,600	5,300	...
Extraction rate			
Per cent of whole fruit.....	(17.5)	(10.0)	...
Whole fruit equivalent.....	1,505	530	2,035

B. CALCULATION OF COST TO LEOPOLDVILLE, WHOLE FRUIT EQUIVALENT

Item	Detail	Total
Delivered cost at oil mill		
Price at point of harvest (.70 francs/kg.).....	700	
Pickers' equipment .....	45	
Purchase and transport cost.....	280	
Total .....		1,025
Cost at oil mill		
Direct costs .....	265	
Indirect costs <sup>b</sup> .....	275	
Amortization .....	200	
Total .....		740
Transport to Leopoldville.....	200	200
Total cost to Leopoldville.....		1,965
Profit, processing and handling: A-B.....		70 <sup>c</sup>

\* Data prepared by the Agricultural Directorate of the Ministry of Colonies from private companies' sources, and presented to the Congolese Representatives at the Economic Round Table at Brussels in April 1960.

<sup>a</sup> Local transactions were in Congolese francs which, until 1960, had the same value as Belgian francs: 50 francs = one U.S. dollar.

<sup>b</sup> Pro rata share of overhead costs including medical care, social services, and administration.

<sup>c</sup> Approximately 3.44 per cent.

before the opening of the purchasing season. The District Commissioner fixed the period of purchase in accordance with the agricultural calendar in order to avoid offerings of green or mildewed paddy.

*Cotton.*—The purchasing monopoly for cotton was discontinued by a Decree of June 18, 1947, which stipulated that the planter would remain owner of his product throughout the process of commercialization. In practice, the system of payment was as follows (7): At the market the planter received an advance calculated on the basis of the "potential" of the preceding year. This "potential" represented the difference between the selling price of cotton fiber and the charges for processing, transport, and export duty and a further deduction for the profit officially fixed for the cotton companies. A supplementary payment was made

several months later as soon as the overall results of the season's sales could be foreseen with reasonable accuracy.

In a period of high prices for cotton a part of the share of the proceeds that would normally have been paid to the planters was paid into a Reserve Fund directed by a Management Committee (*Comité de Gérance*, or COGERCO). This Fund was designed to make possible payments to stabilize the price of cotton, but some of the funds accumulated in this way were used to finance economic and social activities for the benefit of the cotton producers.

The purchase price paid to cotton planters was made uniform regardless of the transport distance, in order to avoid discouraging cultivators in remote regions through too low a remuneration. The principle of "equal pay for equal work" was thus applied to the cultivation of cotton. The only exception was in the Kivu region, which produced a particularly long-fiber cotton; the purchase price there was accordingly higher.

By-products of the cotton industry (oil and oil seed cake) were sold by the processors; the resulting profits were divided equally between the processors and the Cotton Reserve Fund.

For other products, the action of the administration was indirect: search for new sources of supply in a situation of rising prices, authorization to export in case of falling prices, education of producers and middlemen, repression of speculation, and improvement of facilities for storage.

The Congolese producers, selling their produce directly, were protected by the policy of guaranteed prices described above or by the vigilance of representatives of the administration. Such protection, however, was not always adequate to assure them of a "fair deal." Some buyers lacked a sense of responsibility and took advantage of their ignorance. Others practiced a system of semi-barter, paying for produce partly in money and partly in services of various sorts (transportation, merchandise, etc.). This system prevailed particularly in the zone that supplied Leopoldville.

Finally, the producers were often confused by fluctuations in world prices which seemed to them mysterious, and which were often followed by exaggerated impact on the prices that they received. The development of cooperatives from 1950 to 1955 made it possible, within their zone of action, to replace by regular contracts commercial practices that were difficult to supervise. The cooperatives assembled the output of their members, assuming responsibility for grading, packing, sometimes for processing, and sold the products in standardized lots. This enabled the producers to obtain more attractive prices. For example, the cooperative of Luala was able, by offering graded merchandise at auction, to sell the cotton fiber of the paysannat at 8 francs to 8.50 francs per kilo as compared to a price of 5 to 6 francs paid to individual cultivators.

#### V. CHANGING ECONOMIC CONDITIONS AND GOVERNMENT POLICIES AFFECTING AGRICULTURE

##### *The Influence of Changing Economic Conditions on Agricultural Production*

Agricultural output in the Congo was influenced significantly by the growth of domestic demand for farm produce as well as by changes in world market

conditions affecting various export crops. Production and commercial sales by Congolese producers were also influenced considerably by changing attitudes toward money and by the availability of consumers' goods.

*Changes in the demand for farm products.*—The local market for food crops expanded substantially during the postwar period. The tabulation below shows that the population outside of the traditional rural sector nearly doubled between 1945 and 1959 and amounted to some 22 per cent of the total population in the latter year (3, 1945 and 4, 1959):

	1945	1959
Indigenous population		
Total .....	10,508,449	13,864,421
Living in the traditional rural sector.....	8,943,048	10,768,152
Living outside the traditional rural sector:		
Number .....	1,565,401	3,096,269
Per cent of total.....	14.9	22.3

An increase in the level of living also contributed to the growth of demand for purchased food. Part of this increase in demand was concentrated on imported products (especially bread, canned foods, and smoked fish) or manufactured products or beverages (notably beer). But the increase in the size and purchasing power of the non-farm population also led to a very substantial increase in the cash incomes of the Congolese farmers.

Receipts from sales of roots and tubers and such other non-cereal foods as beans, vegetables, and peanuts increased a good deal more rapidly than the income accruing to Congolese farmers from industrial crops. Increase of income from sales of cereal crops between 1945 and 1959 was surprisingly small—less than 50 per cent compared to just over 50 per cent from industrial crops and an increase of nearly threefold in receipts from root crops. (See Table 17.) In spite of the fairly slow rate of growth of income from industrial crops the proceeds from them in 1959 was still a little larger than the income derived from the sale of food crops. For producers in zones that were major sources of supply for Leopoldville, Stanleyville, Bukavu, and the urban centers of Katanga, the income from sales of local foodstuffs was of great importance.

An apparent contradiction between Table 17 and the tabulation on page 161 is to be explained by two factors. Total production of food crops as shown on page 161 included what Congolese farmers produced for their own use, and the increase in that category was, of course, much less rapid than the increase in marketed production of food crops. Additionally, the increase in money income from food crops was more rapid than the increase in the volume of sales because of the rise in food prices. Nearly all items shown in Table 18 were higher in price in 1958 than in 1947. In contrast, Antwerp prices of all of the export crops shown in Table 19 declined between the end of 1950 and the end of 1959. For several items the December 1959 prices were a little higher than those prevailing at the beginning of 1950, and the price of rubber at the end of 1959 was much above the low price of January 1950.

Total money income of the European agricultural sector in 1959 was very nearly the same as the cash income accruing to Congolese farmers in that year—

TABLE 17.—AGRICULTURAL INCOME, 1945, 1949, AND 1959\*

Item	Million Congo francs			Per cent of total crops			Index, 1947-49 = 100		
	1945	1949	1959	1945	1949	1959	1945	1949	1959
<b>A. CONGOLESE</b>									
Receipts from sales									
Root crops	403	456	1,264	18.6	16.0	26.0	90.8	102.8	284.9
Cereals	150	232	320	6.8	8.2	6.6	67.2	104.2	143.8
Other food crops	227	319	706	10.5	11.2	14.5	81.5	114.5	253.5
Industrial crops	1,391	1,839	2,569	64.1	64.6	52.9	83.5	110.5	154.8
Total crops <sup>a</sup>	2,170	2,846	4,859	100.0	100.0	100.0	83.2	109.3	186.2
Other income	779	1,007	2,290	...	...	...	...	...	...
Total income <sup>a</sup>	2,949	3,853	7,149	...	...	...	...	...	...
<b>B. EUROPEANS</b>									
Receipts from sales									
Root crops	32	41	11	2.5	2.8	.2	179.2	231.2	60.3
Cereals	6	7	5	.5	.5	.1	70.4	87.3	63.4
Other food crops	59	81	152	4.6	5.6	3.2	99.6	137.9	256.6
Industrial crops	1,171	1,328	4,517	92.3	91.1	96.4	89.5	101.6	345.5
Total crops	1,267	1,458	4,684	100.0	100.0	100.0	89.9	103.5	333.4
Other income	96	129	167	...	...	...	...	...	...
Total income	1,363	1,587	4,851	...	...	...	...	...	...
<b>C. TOTAL</b>									
Receipts from sales									
Root crops	434	497	1,274	12.6	11.5	13.4	91.6	107.8	208.9
Cereals	155	239	325	4.5	5.6	3.4	67.3	103.6	141.0
Other food crops	286	400	858	8.3	9.3	9.0	84.7	118.6	254.0
Industrial crops	2,561	3,167	7,086	74.5	73.6	74.2	86.3	106.6	238.7
Total crops	3,437	4,303	9,543	100.0	100.0	100.0	85.7	107.2	238.0
Other income	875	1,136	2,457	...	...	...	...	...	...
Total income	4,312	5,439	12,000	...	...	...	...	...	...

\* Data from an unpublished document of the Economic Directorate, Ministry of African Affairs, 1961.

<sup>a</sup> Per capita income of the Congolese is calculated as follows:

	1945	1959
Population (rural) .....	8,943,048	10,768,152
Per capita (francs)		
Receipts from sales .....	242	451
Total income .....	329	664

4.7 billion compared to 4.9 billion Congolese francs. (See Table 17.) But whereas the industrial crops accounted for little more than half of the money income of the Congolese sector in 1959, these predominantly export crops represented 96 per cent of the income of the European farming sector in 1959. The increase of income from industrial crops produced on European farms and plantations was considerably more than threefold, while increase from food crops was small. The dominant importance of industrial crops in the European farming sector made the expansion of total income from 1945 to 1959—some 270 per cent—nearly as great as the increase of earnings from industrial crops.

The overall increase from 1945 to 1959 in money incomes for the Congolese farming sector was 124 per cent. With the farm population increasing by some-

TABLE 18.—PRICES OF SPECIFIED PRODUCTS TO CONGOLESE PRODUCERS, 1947 AND 1958\*  
(Congo francs per kilogram)

Product and year	Leopoldville	Equator	Oriental	Kivu	Katanga	Kasai
Peanuts in shell						
1947	3.75	...	1.15	2.00	2.40	2.15
1958	6.40	3.75	2.19	2.44 <sup>a</sup>	2.90 <sup>a</sup>	3.53 <sup>a</sup>
Manioc roots						
1947	1.00	...	.25	.60	.96	.65
1958	.94	.51	.97	1.10 <sup>b</sup>	1.59 <sup>b</sup>	1.28 <sup>b</sup>
Beans						
1947	4.50	...	1.65	1.00	1.95	1.66
1958	8.00	2.30	3.80	2.71	3.30	3.69
Maize						
1947	1.75	...	.38	.60	1.14	.80
1958	1.81	1.71	1.43	1.57	1.70	1.60
Paddy rice						
1947	...	...	.81	...	2.42	.63
1958	2.80	1.75	1.75	1.76	2.83	1.78
Bananas (plantains)						
1947	1.00	...	.19	...	...	...
1958	2.52	1.10	.73	.52	1.47	1.16
Cotton, not ginned						
1947	...	...	2.87	...	2.75	2.75
1958	...	5.50	5.92	6.41	5.50	5.50

\* Data from *Rapport ... pendant l'année ...* (1949 and 1958) (see 3 for complete reference).

<sup>a</sup> Shelled.

<sup>b</sup> Cossettes.

TABLE 19.—PRICES OF SPECIFIED AGRICULTURAL PRODUCTS  
AT ANTWERP, 1950 AND 1959\*  
(Belgian francs per kilogram)

Product	1950		1959
	January	December	December 31
Cocoa .....	30.50	39.00	31.00
Robusta coffee .....	47.00	47.00	27.00
Arabica coffee .....	59.00	62.00	43.00
Maize .....	3.10	3.50	2.70
Rubber .....	18.99	66.88	42.60
Urena I .....	16.75	19.00	15.75
Peanut oil .....	18.00	23.00	15.00
Palm oil .....	11.50	19.00	11.85
Palm kernel oil .....	16.00	21.75	17.25

\* Prices at the end of the month, from *La Situation économique ...* (1950 and 1959) (see 4 for complete reference).

TABLE 20.—AVERAGE DAILY REMUNERATION FOR UNSKILLED WAGE EARNERS IN  
SPECIFIED DISTRICTS, 1950-59\*

(Congo francs)

Year	Leopoldville		Equator		Oriental		Kivu		Katanga	Kasai	
	Thys-ville	Kik-wit	Ge-mena	Boende	Bunia	Buta	Bu-kavu	Kindu	Albert-ville	Ka-binda	Luebo
1950	13.85	9.65	7.36	8.44	8.99	9.27	8.11	6.83	12.02	8.55	8.41
1951	16.20	11.35	11.66	12.16	11.06	10.59	11.38	8.20	13.49	...	10.70
1952	19.30	13.55	10.97	12.03	12.86	12.39	12.63	10.20	15.16	12.30	11.80
1953	20.80	14.40	12.06	13.00	13.60	13.55	13.80	10.20	17.95	12.55	12.71
1954	20.80	14.40	13.51	13.91	14.43	13.75	15.15	11.50	18.08	13.15	12.75
1955	20.80	14.40	13.51	14.00	15.48	15.65	16.85	13.15	18.25	13.15	13.84
1956	22.00	14.80	17.17	15.93	17.68	16.75	18.52	14.38	22.63	14.87	14.64
1957	25.00	16.20	22.03	18.68	19.72	20.20	24.16	14.88	27.23	17.15	16.03
1958 <sup>a</sup>	37.40	24.00	32.00	28.00	25.70	28.60	34.40	23.10	38.20	26.90	25.50
1959	38.40	24.00	33.20	28.40	27.10	31.00	34.80	23.10	36.20	26.90	25.90

\* The remuneration includes salary, rations, housing allocation, and (from 1958) family allowance. Data from an unpublished document of the Direction of Labor, Ministry of African Affairs, 1961.

<sup>a</sup> A family allowance for a wife and two children was paid this year for the first time.



thing like 20 per cent between 1945 and 1959, the rise in total monetary receipts represented an increase of 86 per cent in the average per capita cash income of the rural population. According to the data summarized in Table 20, it appears that the per capita income of wage earners in the Congo increased approximately threefold between 1950 and 1959. It thus appears that relatively the economic position of the rural population deteriorated as compared with the wage earners. The rather abrupt increase in average earnings of salaried workers between 1957 and 1958 reflects the fact that 1958 was the first year in which workers received family allowances.

Between 1945 and 1960 there were several important changes in the labor market. Prior to World War II many Congolese refused to leave the traditional rural sector to work for wages; but the combination of wartime and postwar demands for labor, increase in wages, and improved social legislation relating to working conditions all encouraged a movement of population toward the cities. Thus from about 1950 there was a steady increase in the number of Congolese seeking wage employment. However, increased mechanization in mining operations and in secondary industry tended to limit expansion of the number of jobs available. Unemployment began to appear in urban centers from about 1956 and increased until 1958. In that year many unemployed city dwellers were sent back to their home villages; but in general they returned to the city at the first opportunity. The small reduction in unemployment between 1958 and 1959 as shown in Table 21 was thus temporary, and in the years since independence unemployment has been one of the most serious problems facing the new government.

*The farmers' demand for money and the availability of consumers' goods.*—After World War II the attitude of Congolese farmers toward money changed rapidly. Before the war the majority of them had little interest in money and worked only enough to pay taxes and to buy a few basic necessities. This attitude had led the government to adopt a system of compulsory quotas calling for cultivation of minimum acreages of certain crops. These quotas were imposed for educational purposes, and their object was to avoid food shortages, increase the production of cash crops, and to modify the economic behavior of the rural population.

TABLE 21.—NUMBER OF UNEMPLOYED IN CONGOLESE CITIES, 1958 AND 1959\*

Village	1958	1959
Leopoldville .....	23,157	20,633
Coquilhatville .....	539	1,118
Stanleyville .....	2,100	1,500
Bukavu .....	502	1,663
Elizabethville .....	6,873	4,791
Jadotville .....	1,495	667
Kolwezi .....	788	552
Luluabourg .....	788	1,706
Total .....	36,242	32,630

\* According to December official censuses of the employed as reported in *La Situation économique* ... 1959 (see 4 for complete reference).

Modification of the attitudes and economic behavior of the rural population followed the postwar economic boom, the investments carried out under the Ten-Year Plan, the educational activity of government personnel, and the influence of income from wages sent back to the villages. Economic expectations and needs increased and cash crops became more popular. This evolution was far from complete, nor was it uniform. As late as 1960 it was necessary to apply pressure on the population in some areas in order to insure that the local people produced the foodstuffs necessary for their own subsistence. On the other hand, it was possible to abandon compulsory cultivation in other areas, especially where there were easy market outlets and competition among buyers and the growth of demand led to rising prices. This transition was particularly marked in the areas near the major urban centers and in the Bas Congo, South Kasai, and Uele.

The increase of economic wants and activity of the Congolese farmers was particularly evident in the paysannats and in the centers of mechanized cultivation. It led in places to the appearance of a class of dynamic and ambitious independent farmers. One cannot speak, however, of a permanent change. Under unfavorable circumstances, such as the Congo is experiencing at present, Congolese farmers tend to regress. Disruption of the administrative structure, difficulties in marketing products, and lack of merchandise available in stores tend to bring about a return to a subsistence economy. This regression has not yet assumed serious proportions. Amelioration of the situation would probably give rise to a renewal of activity and a vigorous demand for both producer and consumer goods.

Nevertheless, measures to educate and stimulate the rural population will be necessary for a long time. Training agricultural extension workers (*animateurs rurales*), and measures to develop the civic sense of the rural population, and to insure that farmers receive a just return for their work will be of crucial importance to the future development of agricultural production in the Congo.

The supplying of the commercial centers and stores in rural areas with consumer goods was difficult during the war years, but the situation improved rapidly from 1946. It remained very satisfactory until 1960 except for regions affected by unrest in 1959 or 1960 (the Bas Congo and Kasai).

Products produced in the Congo took an increasingly important place in rural commerce. Cloth, agricultural tools, pots and pans, beer, and shoes were among the important articles being produced locally. The supply of such items has unfortunately deteriorated since 1960.

### *Governmental Policies Influencing Agricultural Production*

*Land Tenure.*—Although traditional land tenure arrangements in the Congo vary regionally, they have common traits which can be summarized as follows:

- (1) Individual ownership of land does not exist. Ownership is collective and is an attribute of the clan. The clan is a community of family units including all of the descendants, living, dead, or as yet unborn, of a common ancestor.
- (2) The clan property rights are inalienable. Only the right of usufruct can be transferred for a period which may be long but is always limited in time. Transfers are effected according to procedures that conform with local custom.

(3) The "chief of the land" is responsible for administering the clan property and can grant rights of usufruct.

The customary law has been shaken, but not destroyed, by the economic development of the country. Aspirations for individual ownership of property were manifested in the years following World War II. The Decree of February 1, 1953, made it possible for Congolese to acquire land within the framework of the written law.

Land tenure legislation was dominated by the concern to protect indigenous lands against spoliation and to avoid the establishment of "reserves." It was based on two fundamental principles: (1) all lands were presumed to be indigenous unless official investigation had demonstrated that they were unoccupied and therefore to be considered part of the state domain; (2) there could be no direct transactions in property between indigenous owners and private buyers, and land had to be acquired by the state through the exercise of eminent domain before being sold or leased.

Land grants or concessions were made as follows. Eminent domain was exercised following an investigation which included a survey of the rights of the local people, an evaluation of the present and future needs of the groups holding or using the land, and a determination of the amount of the indemnities to be paid to those having rights in the land. This investigation (*de vacance*), provided for in the Decree of May 31, 1934, became more and more complete and demanding and was accompanied by a survey of the arable and pasture land, of crops, fruit trees, and livestock. Calculations of future needs in land were based on a broad conception of those requirements. It can therefore be said that, in the majority of cases, the investigations "de vacance" since 1945 respected the rights and interests of landowners under customary law.

A grant of property rights was generally preceded by a concession granted for a specified period of time. This could take the form of a short-term or a long-term lease specifying the duration of the rights granted and the conditions for development and for renewal, varying according to the extent, location, quality, and use to be made of the land.

The power to make land concessions resided with the government. However, this right could be delegated to semiprivate organizations such as the *Comité Spécial du Katanga*, or the *Comité National du Kivu* which had power to grant concessions in extensive areas in Katanga and Kivu. These organizations were disbanded following independence of the Congo.

Belgium, as the metropolitan authority, strictly supervised the granting of land concessions. Grants in excess of 500 hectares could be made only on the basis of a Decree issued after an opinion had been rendered by the Colonial Council, a consultative body created to advise the Minister of Colonies. For grants of 10,000 hectares or more the approval of the Parliament in Belgium was required.

*Agricultural research.*—Organization of agricultural research in the Congo was characterized by several exceptional features. In 1933, a quasi-governmental organization, the Institute for Agronomic Studies in the Belgian Congo (INEAC) replaced the former Department of Plantations and became completely independent of the local administration. Governmental supervision was

exercised at the level of the Department of Colonies in Belgium. By its independence, its strongly centralized organization, and the quality and vigorous personality of its leaders, INEAC played a more important role in the Congo than is usual for a research organization.

The autonomy of INEAC had both advantages and disadvantages. Being free from petty administrative restrictions, it could function in a flexible and efficient manner, and a great deal of continuity was possible in the conception and execution of its program. Yet the rather strict compartmentalization established between the extension service and the administration on the one hand and the organization for research on the other resulted in some friction and did not facilitate good understanding of common problems. INEAC functioned as the technical advisor and supplier of selected material for the large and medium plantations, and was often the guiding force in the development of Congolese agriculture. It also played a very active role internationally.

The development of INEAC from 1933 to 1960, and particularly from 1950 to 1960, was impressive. In 1934, the Institute was divided on the technical level into nine divisions, and geographically into seven stations (including Yangambi) and four plantations. As of the end of 1959, its activities included both pure and applied research in the very important central research station at Yangambi as well as in nine sectors covering all of the Congo. There were seventeen research stations, fourteen experimental centers, five experimental plantations, and a veterinary laboratory.

In the domain of pure research, the Institute studied principally the ecological environment and factors influencing plant growth and production. Applied research was mainly concerned with selection and improvement of plants and livestock, study of fertilizer response, and improvements in cultural methods and in animal husbandry. Peto-botanical teams surveyed the principal regions of the country; 44.4 million hectares were studied methodically from the point of view of soils and 30.9 million hectares from the botanical point of view. Problems of mechanization and technology were studied by specialized divisions.

INEAC made enormous contributions to Congolese agriculture. It contributed greatly to increased productivity on the perennial plantations of both European and African farmers. It launched the first pilot paysannats at Turumbu, Bambesa, and Gandajika, and advised and assisted with the others.

The difficulties already mentioned of too sharp a separation between research and extension led to the organization of periodical meetings at which there was an exchange of opinions, experience, and at times criticism. The agronomists of the administration made regular visits to the research stations and experiment centers. The research workers were encouraged to acquire first-hand knowledge of the realities of African agriculture in order to adapt their work to the ecological and human environment which was to benefit from their efforts.

One of the most important tasks of INEAC was to diffuse selected planting material tested in local trials among Congolese and European farms and plantations. Cotton seed was furnished entirely by INEAC, and also a substantial part of the seed requirements for peanuts, maize, rice, oil palms, clonal seed for rubber trees, and seed for coffee and cocoa trees as well as seedlings and cuttings for various crops.

As of June 1960 INEAC was the most important research organization in Africa and perhaps throughout the tropics. It employed 420 Europeans, of which more than half were university graduates, and 12,000 Congolese. The economic results of the activities of INEAC were unquestionably of great importance both for expansion of export production, for the battle against undernutrition, and for increasing the supply of raw materials for industries in the Congo.

*Agricultural education and extension activities.*—Agricultural education had its beginnings before World War I in stations maintained by the government and especially in Mission stations, but a more systematic organization of agricultural education dates from 1932. Farm schools were established to provide for the practical training of rural youth under 16, with the aim of encouraging the young people to pursue agriculture as a vocation and enable them to acquire technical training and, in the course of an apprenticeship, some equipment and livestock and also some money for payment of bride-wealth. This effort ended in failure. The rural milieu to which these young farmers returned was apparently hostile to their efforts to introduce improved methods. It appeared necessary to act simultaneously on the youth and on the adults.

The first Professional Agricultural School (E.P.A.) was established in 1938. There were 12 of these schools in 1952, and by 1957 there were 24. Most of them trained agricultural monitors for extension work in rural areas. Others, such as the School for Truck Gardening and Horticulture at Kisantu and a similar school at Leopoldville and a Fisheries School at Kilwa, were more specialized.

Schools for Agricultural Assistants (E.A.A.) trained personnel to work directly with the government agricultural officers, with INEAC specialists, and with plantation managers in the private sector. The course included four years of study and one year of practical work. Three of these schools were founded before 1945, and by 1959 there were seven, including one at Butembo particularly oriented toward training veterinary assistants. The role of agricultural assistants in the development of Congolese agriculture was important, and their responsibilities increased from year to year.

Education at the university level was begun in 1953–54, when a Faculty of Agriculture was established as part of the University of Lovanium a few miles from Leopoldville. The first Congolese agronomist (*Ingénieur Agronome*) received his diploma in 1959. Unfortunately, the number of university students selecting agriculture as a field of specialization has been very small, so that the number of students under training is inadequate to meet the needs of the country. If the Congolese government is not successful in correcting this situation the country will be dependent upon foreign agricultural specialists for many years.

*Extension activities.*—The establishment of the paysannats was considered in Section I. In these organized rural communities the work of agricultural extension and training could be pursued satisfactorily. The assistant agricultural officers (*agronomes adjoints*), agricultural assistants, and monitors worked under very favorable conditions: a concentrated population, a standardized crop rotation, easy access, and satisfactory statistical data. Extension techniques in the paysannats were not standardized and no special system of training was developed. Nevertheless, the program of the agricultural schools, at their different levels, gave an increasingly important place to educational work and to training personnel in the methods of demonstration and persuasion.

In rural areas not organized into paysannats it was necessary to continue the traditional agricultural extension work and the imposition of compulsory cultivation quotas in accordance with the policy of *travaux éducatifs*. But with improvement of communications, strengthening of economic motivation, and reinforcement of the available staff, it became possible to eliminate the system of compulsory cultivation in more and more areas. In fact, the imposition of obligatory cultivation remained in force only in the least developed regions, such as Kwango District, where danger of food shortages persisted. Imposition of compulsory acreage quotas was progressively replaced by imposition of improved cultural methods, designed to prevent the cultivators, whether European or Congolese, from practicing destructive methods. A decree relating to soil conservation was put in force in 1958, but subsequent events have made it impossible to assess its effectiveness.

The policy of compulsory cultivation of certain crops for educational purposes was the object of a good deal of criticism in Belgium and elsewhere. But the system undoubtedly played a useful role, notably in introducing new economic crops, in the fight against undernutrition, and in the diffusion of selected planting material developed by INEAC. Yet in spite of genetic improvement of planting material, demonstrations by local experiment stations, and the stimulus of market demand, the quality of agricultural work in the traditional rural communities progressed slowly. A major reason for this stagnation was that insufficient initiative was left to the traditional chiefs, including those chiefs at the level of village and sector.

A Decree on Local Government (*Circonscriptions Indigènes* or C.I.), issued in 1957, was a first step toward the necessary decentralization. The responsibility of the local communities was increased, the local district councils were reformed, and permanent bodies (*Collèges permanent*) were created and assigned responsibility for elaborating agricultural programs and supervising their execution, with the technical assistance of the Department of Agriculture.

*Development programs.*—The various programs and activities described above were financed by the Ten-Year Plan 1949-59, which devoted close to fifty billion Congolese francs (\$1 billion) to the general development of the Congo.

It is appropriate at this point to summarize the agricultural chapter of that plan. Among its general objectives were increase of agricultural production, conservation and improvement of the soils and natural resources of the country, and improvement of the material and social conditions of the Congolese farm population.

As of December 1959, which marked the end of the tenth year of the plan, the following results had been achieved (2):

Paysannats	277,000 farm units established
	210,000 farmers installed
Perennial crops	67,453 hectares established
Experiment stations	22 stations constructed
Forestry	40,000 hectares of forest improved
	24,000 hectares of woodlots for firewood
	300,000 hectares of savanna protected against fire

Pisciculture	126,000 fish ponds with a total area of 4,200 hectares
Fisheries	5 advisory centers established in the lake region
Livestock	8 laboratories, 74 dispensaries, 10 abattoirs, 61 slaughter sites, 58 dipping-tanks, 23 livestock stations
Processing installations	5 tea factories, 1 coffee factory, 1 cold storage installation, 2 dairies
Colonization	64 reception houses for settlers
Research	Development of INEAC, of I.R.S.A.C. ( <i>Institut pour la Recherche Scientifique en Afrique Centrale</i> )

Uses of the funds made available for agricultural development are summarized in Table 22. The results of the Ten-Year Plan can be evaluated in part by the increase of agricultural production from 1950 to 1959 as reviewed above. In addition, the experience acquired in the field of agricultural development under the conditions prevailing in the Congo must be counted among the results. The highlights of this experience can be summarized as follows:

(1) Lack of sufficiently detailed preliminary studies often made the first stages of implementation of the Ten-Year Plan extremely difficult.

(2) African farmers are capable of sustained work if equipped, trained, advised, and if their efforts result in an appreciable increase in income. Otherwise, they lack responsibility, persistence, and spirit of organization. Hence a substantial development staff will be needed for a long time.

(3) The introduction of modern methods of production does not involve undue disturbance of the traditional society and is compatible with the existing social organization based on the clan. The process will lead, however, to an accelerated modification of the traditional forms of organization. Such acceleration is desirable because, although the traditional solidarity and spirit of mutual

TABLE 22.—UTILIZATION OF TEN-YEAR PLAN FUNDS ALLOCATED TO AGRICULTURE AS OF DECEMBER 31, 1959\*  
(Million Congolese francs)

Category	Planned	Committed	Expended
Paysannats	1,049	1,123	976
Perennial crops			
Erosion control			
Experiment stations			
Animal husbandry	286	259	221
Fishing and fish raising	125	109	102
Forestry	175	175	161
Special agricultural programs <sup>a</sup>	266	253	149
Agronomic research	978	978	967
Total	2,879	2,897	2,576

\* Data from Administration du Plan Décennal, *Les Realisations du plan décennal* (1960)

<sup>a</sup> Anti-Erosion Mission (M.A.E.) and others.

aid within the village provide a good basis for establishing cooperatives, the fragmentation of land rights and the unequal distribution of the available land between different clans are impediments to agricultural progress and economic development.

(4) Intensive cultivation and animal husbandry can give good results under soil conditions previously regarded as mediocre.

(5) At the present stage of technical development, and with present costs of production, annual crops, especially food crops, do not constitute a profitable line of production. It is possible, however, for a center providing mechanical cultivation services on contract to cover operating costs and depreciation and at the same time to increase considerably the income of the farmers being served.

(6) The improvement of cultural methods enlarges the role of the university-trained agronomist. These specialists must supplement their technical knowledge with solid training in economics and an understanding of the principles of scientific organization of work.

(7) The development of mechanization and of animal husbandry gives increased importance to the practical experience of the assistant agricultural officers coming from a rural background and with practical experience in modern agriculture.

(8) Valuable assistance is obtained from Congolese technicians, especially when they are well trained and are functioning as a part of an efficient organization and given precise responsibilities.

(9) The execution of a plan aimed at increase of productivity presupposes a considerable decentralization of the activities of provincial administrations.

(10) The Congolese people did not participate actively in the first Ten-Year Plan except at the stage of execution. The programs were conceived, elaborated, and carried out by the European administration. Consequently the attitude of the Congolese, even though they benefited *directly* from the plan, often remained passive, and they lacked in understanding. If the individual Congolese is to assume full responsibility for a plan of development, he must be conscious that the plan is *his* and that it involves the future of his country, of his region, and of his ethnic group.

*Agricultural credit.*—Special arrangements were made in the Congo for loans to small- and medium-sized cultivators. For the small-scale farmers the Special Fund for Credit for Indigenous Agriculture was created in 1941. Its purpose was to grant loans to local communities and to Congolese firms or individuals for the development of agriculture and stock raising. In addition, an ordinance of 1942 authorized the local communities (*Circonscriptions indigènes*) to grant loans to their residents.

The maximum envisaged for loans by the legislation of 1941 and 1942 was increased in 1956 by an ordinance which also attempted to improve the administration of agricultural credit by establishing mixed consultative committees responsible for examining requests for loans. Up to the present time the Special Fund for Credit for Indigenous Agriculture has played only a secondary role in the development of Congolese agriculture. The funds made available to it and to the local communities were inadequate; persons requesting credit often lacked competence and the capacity to evaluate their needs and to apply the loans



received to really productive uses; many small farm units were marginal enterprises; the personnel available for administering the program was insufficient; and it was not possible to apply pressure on borrowers who failed to repay their loans. The agricultural credit program operated more satisfactorily, however, in the organized rural communities such as the paysannats.

If the effectiveness of agricultural credit for small operators is to be increased, it would be desirable to channel it through Congolese organizations with personal knowledge of the cultivators and in a position to insure proper utilization of the loans and regular repayment. These bodies (the permanent bodies of the local communities, village councils, and cooperatives) should be advised by credit specialists and, at least in the beginning, assisted financially by the government.

To assist medium-size farmers, a credit society for colonization and industry was created in 1947. Its purpose was to make available long- and medium-term credit in order to stimulate the establishment, development, and improved operation of agricultural enterprises, as well as mines and artisanal, commercial, and industrial establishments of medium size. The loans were generally for a period of five years but the term could be increased. As of the end of December 1958, this Society had 2,313 loans outstanding amounting to nearly 1.7 billion Congolese francs, including 792 loans totaling 565 million francs that had been granted for agricultural purposes. Initially reserved in fact, if not in law, to Europeans, loans of this Society were granted to Congolese beginning in 1958, at about the time that the Congolese middle class began to satisfy the eligibility requirements for receiving such credit.

*Cooperatives and collectives.*—Enterprises of quasi-cooperative type were established prior to World War II with money made available from the administrative budget of the local communities (*Caisses administratives des Circonscriptions indigènes*, or CACI) on the basis of either the Decree of 1887 or the Decree of 1921, while the first decree relating specifically to cooperatives was promulgated in 1949. It provided a solid juridical basis for cooperative organizations in addition to well-defined operating rules. Perhaps the regulations were too complex for prevailing conditions.

A Decree of March 24, 1956, based on experience acquired since 1949, retained the general principles of earlier decrees but simplified the operating procedure and attempted to encourage the personal initiative of cooperators while limiting the intervention of administration to an advisory and supervisory role.

As of the end of December 1958 there were 14 cooperatives in operation based on the Decree of 1921. Nine were agricultural cooperatives with a total of 6,000 members. In addition, 77 cooperatives had been established according to the Decree of 1956. Among these were 53 rural production cooperatives and five producer and consumer cooperatives; they counted a total membership of 199,621 (3, 1949-58).

Among other activities, the cooperatives were concerned with the production and sale of palm oil, rubber, coffee, rice, and food products. They served as an intermediary between the farmers and the processors, suppliers, and mechanical cultivation centers. Their field of action was expanding steadily.

The success of the cooperatives, however, should not be overestimated. Most of them were able to function only with the continuous assistance of European

advisors. The cooperators were only beginning to understand their rights and obligations and tended to count overmuch on the government or any other "Deus ex machina" to solve their problems. Left to themselves, the cooperatives were prone to run into financial difficulties and go out of business. Considerable educational work remained to be accomplished in the cooperative field.

*Food policies.*—General food policies and special emergency measures to cope with famine situations were of governmental concern. Food policies of a general character were aimed at improving the diet of the local population through imposition of compulsory cultivation, by establishment of paysannats, and by development of stock raising, fisheries, and pisciculture. Considerable emphasis was given to reducing the deficiency in animal protein so characteristic of African countries.

Various emergency measures were taken in the event of a threat of famine or food shortage. In the period after 1945 only the southern part of the Kwango District was threatened with food shortage, particularly in 1956-57. This region has very poor soils, and is inhabited by a population stabilized only in a limited degree; the people dislike agricultural work and produce only the strict minimum for their subsistence. When disease attacked their major staple, manioc, their food reserves were rapidly exhausted and the situation became alarming. Energetic measures were promptly taken, including substantial reinforcement of the agricultural personnel available, replacement of the infected manioc cuttings with planting material more resistant to local diseases, establishment of collective fields for multiplying planting material, and distribution of staple foodstuffs purchased in nearby regions (maize, millet, and manioc) and protective foods. Under such measures the situation was rapidly corrected, but the Kwango will long remain a region demanding particular vigilance on the part of the administration.

*Market regulations and control.*—We have spoken earlier of diverse measures taken by the authorities in marketing and to improve the network of distribution. The economic policy in such matters was elaborated in Brussels by the Minister of Colonies. Measures for implementing the policies and certain local measures could be taken by the Governor-General and the provincial governors. The Department of Economic Affairs was responsible for the supervision and regulation of markets, assisted locally by the territorial administration and the agricultural service.

*Taxing of agricultural land, crops, marketing, and exports.*<sup>14</sup>—Governmental policy from 1945 to 1960 tended to encourage the establishment and development of modern and efficient enterprises. The land exclusively devoted to agriculture or stock raising was exempted from the personal tax on unimproved land for the part that was actually cultivated or required for the grazing or feeding of livestock. Buildings used for agriculture or for stock raising were also exempt from the personal tax on the area occupied by those buildings.

Agricultural settlers were exempted from the professional tax on profits earned during the course of the first five years of operation, dating from the time of granting the initial concession.

<sup>14</sup> Based on information provided by M. Zimmer, Director General in the Ministry of Foreign Affairs and External Commerce.

With respect to import duties, agriculture benefited from several special provisions. Fertilizers, insecticides, fungicides, herbicides, anti-parasite preparations, and similar items were exempt from import duties, as also were agricultural sprayers, many types of agricultural and horticultural machinery, hay balers, mowers, winnowing machines, and also milking machines, cream separators, and other dairy equipment.

Reduced rates (generally five per cent ad valorem) were fixed for other agricultural machines, barbed wire, wire stretchers, and other material or equipment used in rural enterprises. Finally, there was exemption of import duties for all of the machinery constituting the initial equipment of a new agricultural enterprise, provided that certain conditions were fulfilled.

Export products were subject to duties determined in accordance with the prevailing world market price after allowance for an adequate profit margin for the producer or the exporter. Sometimes total exemption was allowed, as with products that were not very profitable. The export duties were periodically revised, so that the authorities might guide agricultural activity in accordance with the economic situation and the requirements for development.

Congolese producers not subject to the personal income tax benefited indirectly from reduction of import duties and variable export duties. Congolese producers who, through the development of their enterprises and the level of their income, became subject to the personal tax, could be exempted on the same basis as European agricultural firms.

*Subsidization or taxing of food for domestic use.*—Food products for the internal market were neither subsidized nor taxed in any special way. Modification of the import duties on certain products made it possible to provide some protection for the truck gardeners of Kivu and Ituri, and refusal to grant export licenses at certain times made it possible to offset temporary deficits in maize or manioc flour.

#### VI. CONCLUSIONS AND PERSPECTIVES

What was the agricultural situation in the Congo as of June 30, 1960? Progress during the period of Belgian administration, especially after 1945, had been remarkable. Expansion of agricultural output was especially noteworthy in relation to export crops. As noted earlier, the index of volume of exports increased between 1953 and 1959 from 100 to 167.2 for vegetable and animal products, whereas mineral products increased only from 100 to 120.1. The evolution of agricultural exports of the Belgian Congo and Ruanda-Urundi in relation to total exports is summarized in the following tabulation in thousand Congolese francs (3, 1945 and 4, 1950 and 1959).

	1945	1949	1959
(A) Exports of agricultural, forestry, and livestock products (including processed agricultural products)	2,064,745	4,800,000	10,519,139
(B) Total exports	4,782,470	10,967,943	24,788,258
(C) Agricultural and related products as per cent of total: A/B	43.2	43.8	42.4

It will be noted that the value of agricultural exports more than doubled in value between 1949 and 1959, in spite of the unfavorable trend of world prices in the late 1950's, and maintained more or less the same position as a percentage of total exports.

The large enterprises increased their productivity considerably, provided ample supplies of raw materials to the Congolese economy, and contributed substantially to the expansion of export earnings. Improvement of quality and lowering of cost of production of agricultural commodities produced by these enterprises considerably raised their competitive position on world markets.

The large firms also played an important social role, providing medical care to their workers and their families and even to other persons residing in areas where their clinics were located. They established schools for the children of workers and provided technical training for young employees. Many of the Congolese who established independent farming or livestock enterprises acquired the requisite knowledge and technical skills by working in one of the large enterprises.

The growth of the large firms gave rise, however, to problems of land ownership (chiefly in relatively populated regions such as Mayombe and Kwilu), and to other problems of a commercial nature. The latter pertained to the degree of monopoly enjoyed by the large companies for certain important products such as palm oil, coffee, and rubber.

In the case of some of the plantations in Mayombe and Kwilu, difficulties relative to land ownership were resolved by allocating land to the workers or peasants of the area, with the plantation handling the processing and commercialization of the product. The development of cooperatives of Congolese producers held promise of progressively reducing the dominant position of the large firms in the field of marketing.

The future perspectives were, in brief, excellent.

The middle-sized enterprises, directed mostly by European settlers, had also made notable progress and on a strictly local level played an educational and social role comparable to that of the large enterprises though on a much smaller scale. Because of their dispersion and their small number in relation to the government employees and employees of the large enterprises, the settlers did not play a political role comparable to that of settlers in Kenya or the Rhodesias, except in the highlands of Kivu and in the vicinity of Elizabethville where their influence was considerable but not dominant.

The emergence of an indigenous middle class and the elimination of all color barriers in the economic domain also helped to limit the dangers of serious political and economic conflicts between the European settlers and the Congolese population.

In terms of production, the progress of indigenous Congolese agriculture was less rapid. One must not forget, however, that the first Ten-Year Plan was above all a plan for the creation of infrastructure. It made possible the expansion of agricultural research, the creation and expansion of the *paysannats* and cooperatives, the accumulation of a considerable body of scientific and practical knowledge, the improvement of the Congolese staff of the Agricultural Service, steady advance in the level of knowledge and education of the farm population, and

the improvement of transport facilities. These accomplishments, though difficult to express quantitatively, gave promise of a substantial expansion of production during the decade 1960-70. One can conclude, without undue optimism, that from the technical, economic, and psychological points of view, the Congolese rural population was, in June of 1960, on the eve of its "take-off" and would have been in the vanguard of agricultural development in central Africa.

Objectivity demands, however, that one should not underestimate the difficulties that this accelerated evolution would have had to overcome, quite aside from the political aspects of the development process. It must be noted first that technical improvement in agriculture is always associated with increasing complexity and, consequently, greater vulnerability. In a traditional agriculture which utilized only human labor, the failure of a crop leads only to a waste of labor, certainly regrettable but a loss easily made good in an economy where rural manpower is generally underemployed. By contrast, an agricultural economy utilizing capital equipment and purchased inputs such as improved seed, fertilizers, and insecticides, often financed through loans which must be repaid, is much more sensitive to variations in yields and prices. Under those circumstances, crop failure leads to indebtedness of the farmers and serious financial difficulties for the purchasing and marketing cooperatives to which they belong. Several failures in succession can destroy the institutional framework which has been built up and relegate the farmers to their original position but in a state of discouragement.

The evolution of techniques of cultivation in the *paysannats* had certainly been very cautious; in 1960, mechanization and use of fertilizers were still on a pilot scale. But technical progress is a chain reaction; as technical improvements eliminate certain bottlenecks, new bottlenecks appear and thus make necessary further improvements. It is probable, therefore, that Congolese agriculture would become more and more complex, involving increasingly large investments, and demanding an increasingly high level of competence and capacity for organization on the part of the farmers and the personnel of the Agricultural Service.

This leads to the second major difficulty. The capacity for planning and management on the part of farmers always lags behind their technical accomplishment when that is accelerated by outside assistance. The Congolese peasant felt himself relatively at ease in the *paysannats* of 1950, practicing an extensive though improved agriculture; but inevitably he felt himself temporarily thrown off balance when facing new demands such as the use of fertilizers, problems of insect and disease control, and the utilization of mechanical equipment. Further improvement of Congolese agriculture was thus bound to encounter serious problems of training of staff, of education, and of assistance in the domain of farm management.

It is not easy for foreign agricultural officers to bring about a psychological revolution in a rural environment since they do not possess, as would an indigenous administration, the possibilities of persuasion and appeal to civic spirit and nationalism reinforced by political pressure. Unfortunately, the Africanization of the agricultural staff in the Congo had barely reached the level of the agricultural assistants; the first university-trained agronomist had just graduated

from the University of Lovanium and only a handful of university students were studying agriculture.

It is true that Congolese technicians, while not university trained, had made substantial progress between 1945 and 1960 and occupied positions of increasing responsibility; but the requirements for qualified staff were steadily increasing as a result of the technical evolution in agriculture. As of the end of June 1960, the Agricultural Service and INEAC were still largely directed by European university graduates, and such persons with training in the appropriate specialized fields were very costly and difficult to find. Thus the progress of Congolese agriculture itself would have given rise to problems which, although they would certainly have been resolved, nevertheless would have demanded careful attention on the part of the country's agricultural administrators and scientists.

To these administrative and operational problems must be added, for the period after 1956, concerns of an economic, budgetary, and social order. The experimental results and technical knowledge acquired by June of 1960 made it possible, as stated above, to foresee a tremendous increase in agricultural production during the course of the second Ten-Year Plan. But realization of that potential would have been dependent upon a corresponding expansion of market outlets. Certainly, Congolese agricultural products were competitive on world markets, but the competition among producing countries was keen, and synthetic products had seriously reduced the outlets for such products as pyrethrum and cinchona and threatened others such as rubber.

The internal market was limited by the inadequate purchasing power of the population, although it had increased considerably between 1950 and 1960. In 1960 there were close to 1.1 million wage earners, including cutters of palm fruit, out of a total population of adult males of 3.6 million. Thus close to 30 per cent of the adult male population received wages of some sort, and the level of wages had risen substantially. The level of living of the Congolese was, in fact, among the highest in tropical Africa.

Nevertheless, appreciably less than half the population was dependent upon purchased food. Their average annual income of several thousand Congolese francs per year per family did not offer wide market outlets for a considerably expanded agricultural output. In the course of studies bearing on the second Ten-Year Plan it had already become necessary to take account of local difficulties in finding market outlets for such basic food crops as manioc, peanuts, and banana-plantains. Some even wondered if the rapid expansion of livestock would not lead to increase of production in excess of the growth of demand. In any event it appeared that substantial increase of agricultural productivity would have to be achieved concurrently with further reduction of the percentage of the rural population in the total population.

The prosperity of Congolese agriculture thus was more and more closely tied to the general development of the Congo and notably to its industrialization. It would be necessary for expansion of the nonagricultural sectors to absorb an increasing number of farmers and to generate increased purchasing power on the part of a larger and larger number of wage earners.

Beginning in 1956 the development of the country encountered serious bud-

getary and social obstacles. Execution of the first Ten-Year Plan had resulted in a more rapid increase of government expenses than of receipts. Up to the end of 1956, the Ordinary Budget had been in surplus, making it possible to build up reserve funds, officially called the Special Fund for the Equalization of the Budget, to a total of more than 6.4 billion Congolese francs. But marked deterioration of the budgetary situation began in 1957. The deficit in that year amounted to 584 million Congolese francs, and it rose to 2.4 and 2.6 billion in 1958 and 1959 (4, 1959). This deterioration followed a leveling off of tax receipts as a result of a somewhat unfavorable trend in prices of primary commodities in 1958 and 1959 and there was also some hesitation on the part of the private sector due to uncertainties in the political situation. But the principal reason was a considerable increase in expenses resulting from implementation of the Ten-Year Plan. Budget requirements rose for servicing the public debt, for education, for public health, for administrative expenses, for maintenance of roads and public buildings, and for various social services.

In 1959, deterioration in the fiscal situation was accompanied by a deficit in the overall balance of payments of 6.9 billion Congolese francs; but commodity exports were still substantially larger than imports, so that on current account there was a favorable balance of 9.6 billion.

The budgetary deficit was not merely a temporary problem. The infrastructure established under the Ten-Year Plan entailed substantial costs of maintenance and operation. Moreover, a high level of economic activity and full employment in Europe made it impossible to reduce the salaries of European personnel, who were needed in increased numbers. Finally, increase in the level of living of the local population and the new facilities for education, medical care, and welfare had given rise to the familiar "revolution of rising expectations" which made financial retrenchment impossible and gave rise to demands far in excess of the ordinary economic resources of the country.

Consequently, a need had risen for direct and substantial economic aid from Belgium and other industrialized countries, a need which would continue for some time. There is nothing extraordinary in this fact in itself. It is normal that during the early stages of development, which always begin by the creation of infrastructure which is relatively unproductive in the short term, a deficit will arise in the public budget and that foreign exchange reserves will be reduced. And on the social and political plane, this initial acceleration of the development process creates more problems than it resolves. Many countries besides the Congo have had this experience.

But being accustomed for more than 20 years to a comfortable budgetary situation, the Congo was ill prepared for this new state of affairs. The uncertainties and setbacks of 1958-59 somewhat shattered the remarkable continuity of economic policy in the country; and the adverse impact of these developments on political opinion among Belgians and Congolese alike served to weaken and disturb the administration and contributed to the political breakdown that was associated with the establishment of the independent Congo Republic.

The events which followed the independence of the Congo have profoundly modified the short-term and medium-term prospects for Congolese agriculture.

The massive departure of technicians and European officials, the political difficulties, the breaking up of the old provinces, the shortage of foreign exchange and of vehicles and equipment—these have all had serious consequences for Congolese farmers and for middle-sized enterprises. The large companies have withstood adversity more successfully and have made possible a continuation of a reasonably high level of economic activity in the regions in which they are important; but at present they are also encountering increasingly serious difficulties.

The immediate outlook is not encouraging. The Congolese staff of the Agricultural Service, which had been trained within the framework of an efficient administration and under normal conditions with respect to equipment and discipline, found it difficult to cope with the new situation. The ablest and most experienced members left the rural areas to take up senior positions in provincial capitals or in Leopoldville. The young staff members who might have replaced them lacked experience and the ability to exercise authority. The advisors and experts sent by international organizations or under bilateral assistance programs did not work with the same continuity, nor did they identify themselves as closely with the country as a national or even a colonial administration. The agricultural monitors, mechanics, and workers have been paid irregularly, and their performance is more and more unsatisfactory. Farmers are no longer assured of outlets for their products; in some cases they market their food crops at black market prices (for example the producers in the hinterland of Leopoldville). Deterioration of equipment and shortage of goods in shops in rural areas have discouraged farming activity.

The major problems of the period before 1960, such as those associated with the rapid technical evolution of Congolese agriculture, the relative advantage of paysannats organized on a communal basis and individual farm units, and overproduction, have for the time being been replaced by other and more urgent problems. For the present, and probably for some time to come, it will be necessary to attack the basic problems of good administration: to reestablish among the personnel of the Agricultural Service the ability to command and the readiness to obey; to ensure that qualified personnel are at work in the rural areas. It will also be necessary to make available such necessary means of production as credit and equipment, to replenish the stocks in rural shops and insure that merchandise is available at normal prices, and to make sure that roads of economic importance are maintained and that transport equipment is available. The activity of the principal INEAC research stations must be reactivated with a simplified program adapted to the new conditions, and arrangements must be made to insure the satisfactory processing of export products. Above all peace and order must be maintained and the conditions necessary for orderly economic activity reestablished in the most important agricultural regions.

These minimum conditions of recovery will require an energetic and courageous effort on the part of the Congolese, supported by realistic, substantial, and continuing external assistance. If those conditions are not fulfilled there is no hope of significant development of the Congolese agricultural economy. The Congo Republic has at its disposal all of the elements necessary to build a prosperous and productive agriculture. The investments and the efforts made in the past decades are not yet lost. Farmers have returned to their productive activi-



ties each time that public order and normal conditions have been reestablished. But each year wasted adds to the ground to be regained and multiplies the difficulties to be overcome. All friends of the Congo nourish the hope that the present crisis may soon be surmounted and that the country may move forward once again in creating a productive and prosperous economy.

## CITATIONS

1 Marcel van den Abeele and René Vandenput, *Les Principales cultures du Congo Belge* (Belgium, Ministère des Colonies, 3d ed., 1956).

2 Belgium, Administration du Plan Décennal, *Les Réalisations du plan décennal* (1960).

3 Belgium, Chambres des Représentants, *Rapport sur l'administration de la Colonie du Congo Belge pendant l'année . . .* (Présenté aux Chambres par M. le Ministre des Colonies.\*

4 Belgium, Ministère des Colonies,\* *La Situation économique du Congo Belge en 1950*, and Ministère des Affaires Africaines,\* *La Situation économique du Congo Belge et du Ruanda-Urundi en 1959*.

5 Belgium, Ministère des Colonies, *Statistique du commerce extérieur du Congo Belge et du Ruanda-Urundi*, various years (issuing agency and title vary).

6 Belgium, Ministère du Congo Belge et du Ruanda-Urundi, *Volume Jubilaire du Bulletin Agricole du Congo Belge et du Ruanda-Urundi, 1910-60* (1960).

7 M. Brixhe, *Le Coton au Congo Belge* (Belgium, Ministère des Colonies, 3d ed., 1958).

8 V. Drachousoff, "Le Développement de l'agriculture autochtone congolaise," *Bulletin de la Banque Centrale du Congo Belge et du Ruanda-Urundi* (Leopoldville), August 1959.

9 ———, "Essai sur l'agriculture indigène au Bas Congo," *Bulletin Agricole du Congo Belge* (Belgium, Ministère des Colonies), September 1947.

10 J. Hecq, "Le Système de culture des Bashi," *Bulletin Agricole du Congo Belge* (Belgium, Ministère des Colonies), August 1958.

11 F. Jurion, "L'Evolution des méthodes culturales au Congo Belge," *Bulletin d'Information de l'INEAC* (Belgium, INEAC), February 1955.

12 J. L. Robert, "Monographie agricole du District du Lac Léopold II," *Bulletin Agricole du Congo Belge* (Belgium, Ministère des Colonies), September 1952.

13 P. Staner, "Les Paysannats indigènes du Congo Belge et du Ruanda-Urundi," *Bulletin Agricole du Congo Belge* (Belgium, Ministère des Colonies), June 1955.

14 G. Tondeur, *Agriculture Nomade au Congo Belge* (Belgium, Ministère des Colonies, 1957).

\* The Belgian Ministry of Colonies became the Ministry of the Belgian Congo and Ruanda-Urundi in 1958 and the Ministry of African Affairs after June 30, 1960. In 1961 it was abolished as a ministry and its personnel were assigned to the Ministry of Foreign Affairs and several other ministries.

## CONTENTS

I. INTRODUCTION .....	137
II. CHANGES IN THE ORGANIZATION OF PRODUCTION .....	144
Agriculture Under Traditional Tenure Systems, 146	
Modified Traditional Agriculture, 147	
Rationalized Agriculture: The "Paysannats" (Agricultural Settlement Schemes), 152	
Rationalized Agriculture: Intensification, 154	
Agriculture Based on the Written Land-Tenure Code, 157	
Agricultural Inputs, 158	
III. CHANGES IN AGRICULTURAL OUTPUT .....	161
Crop Production, 161	
Livestock Production, 163	
Share of Agricultural Output Commercialized, 164	
IV. CHANGES IN MARKETING .....	167
Food Products for the Internal Market, 167	
Marketing of Export Crops, 168	
Monopolies and Competition, 173	
Marketing Facilities and Transport of Agricultural Products, 173	
Marketing Regulations, 176	
V. CHANGING ECONOMIC CONDITIONS AND GOVERNMENT POLICIES AFFECTING AGRICULTURE .....	179
The Influence of Changing Economic Conditions on Agricultural Production, 179	
Governmental Policies Influencing Agricultural Production, 185	
VI. CONCLUSIONS AND PERSPECTIVES .....	194