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INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

LOAN ADMINISTRATION REPORT
ON THE LOANS FOR THE DEVELOPMENT
OF THE BELGIAN CONGO

December 23, 1954

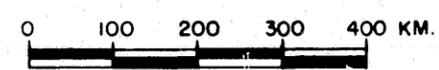
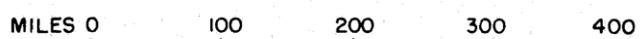
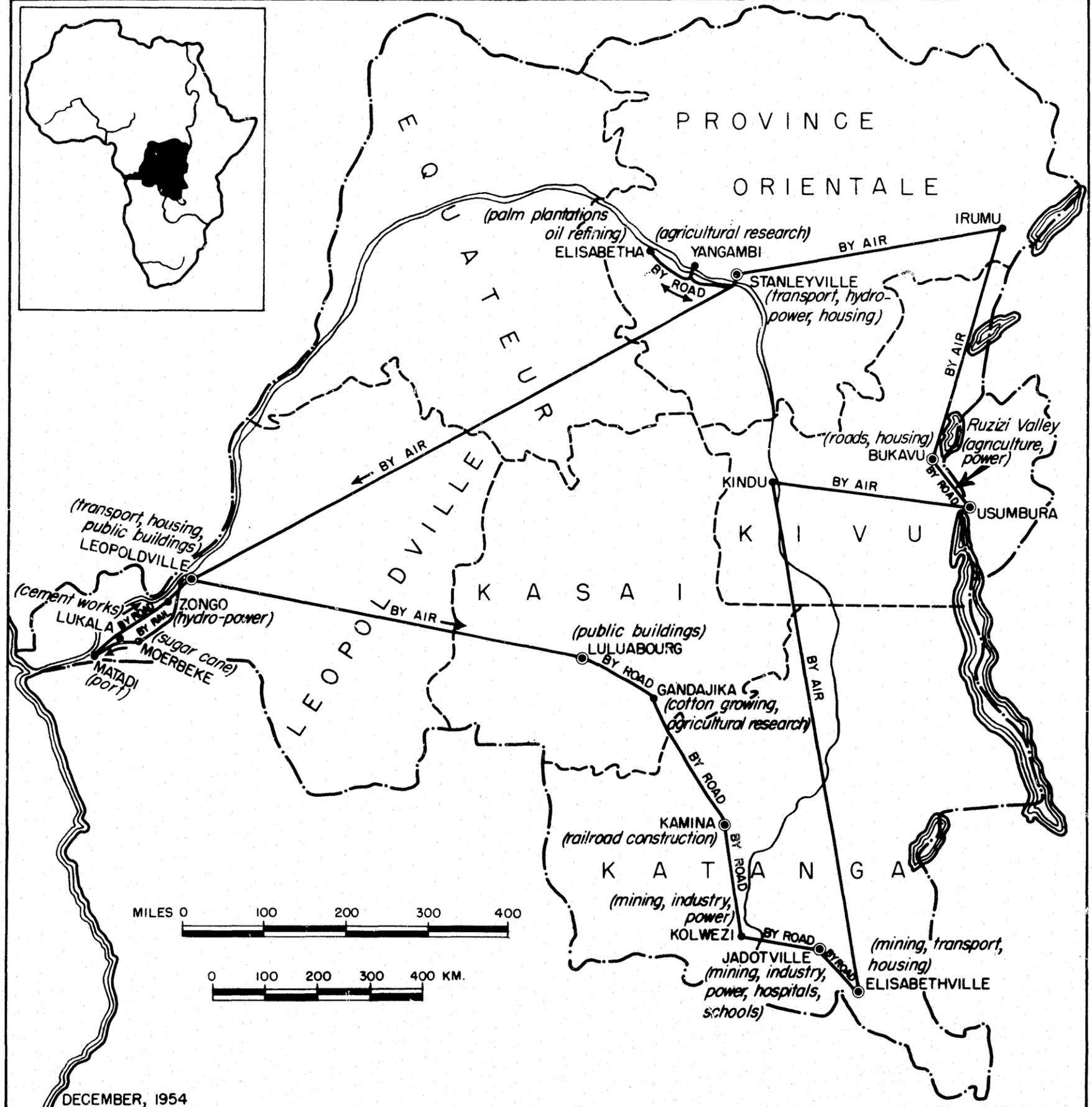
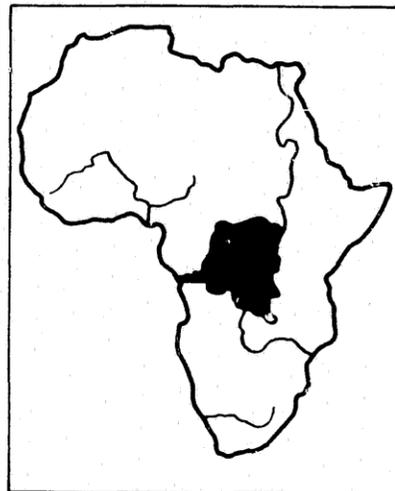
**Conversion Rates for Belgian and
----- Belgian Congo Currency -----**

1 Belgian franc	-	1 Congo franc
U.S. \$1	-	50 francs
1 franc	-	2 U.S. cents
1,000,000 francs	-	U.S. \$20,000

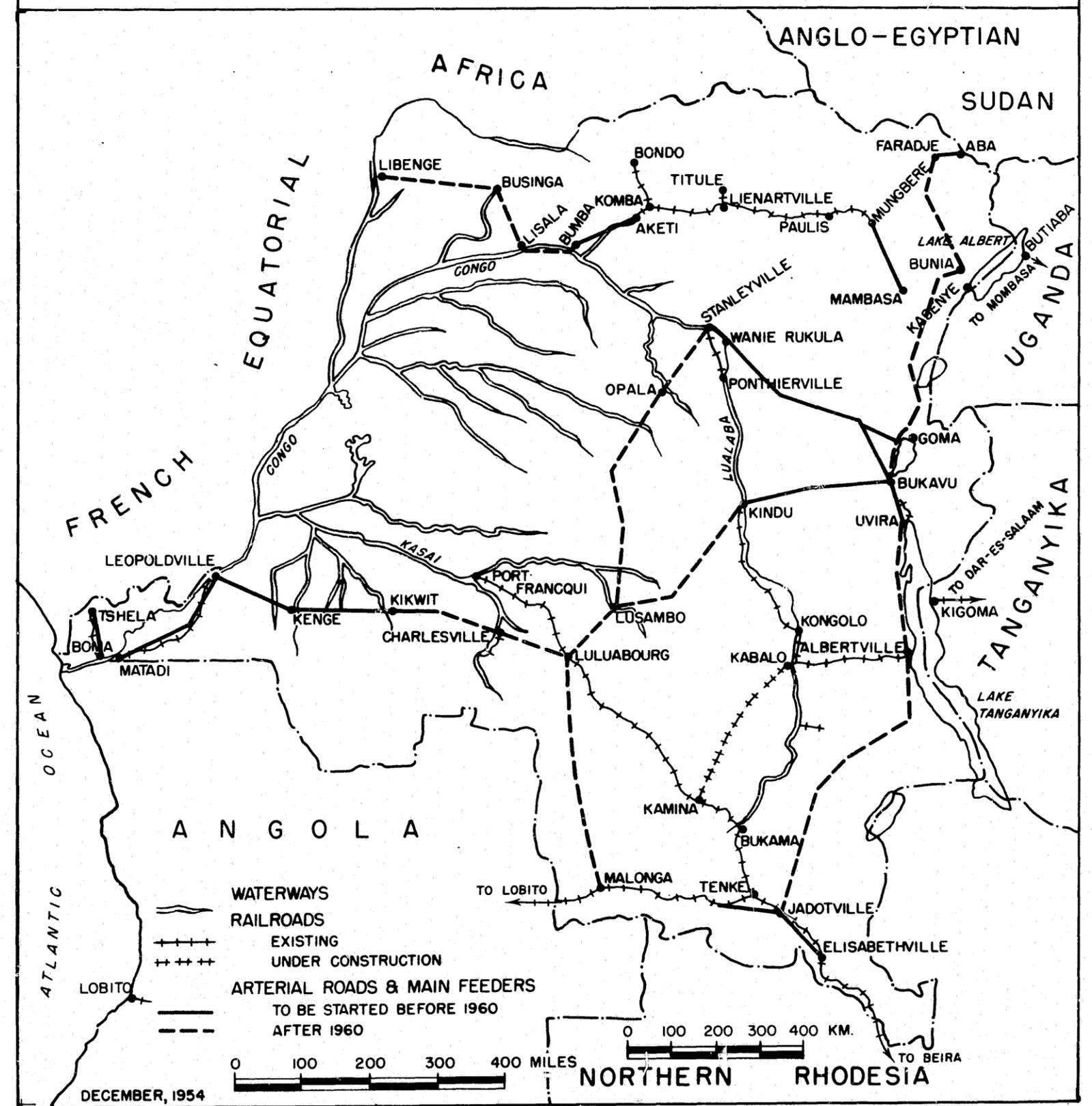
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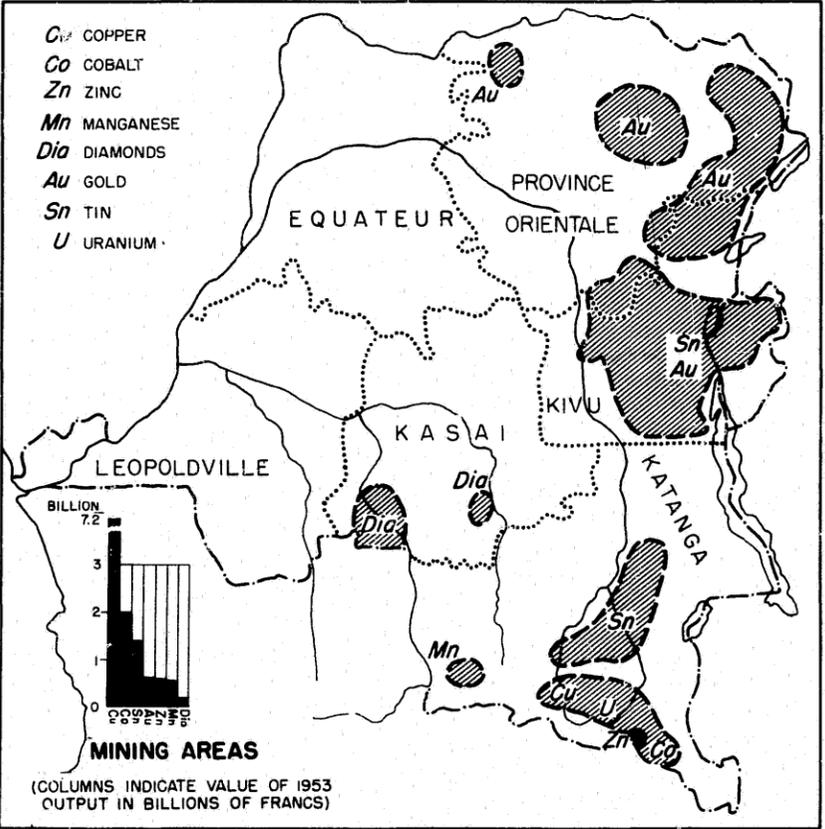
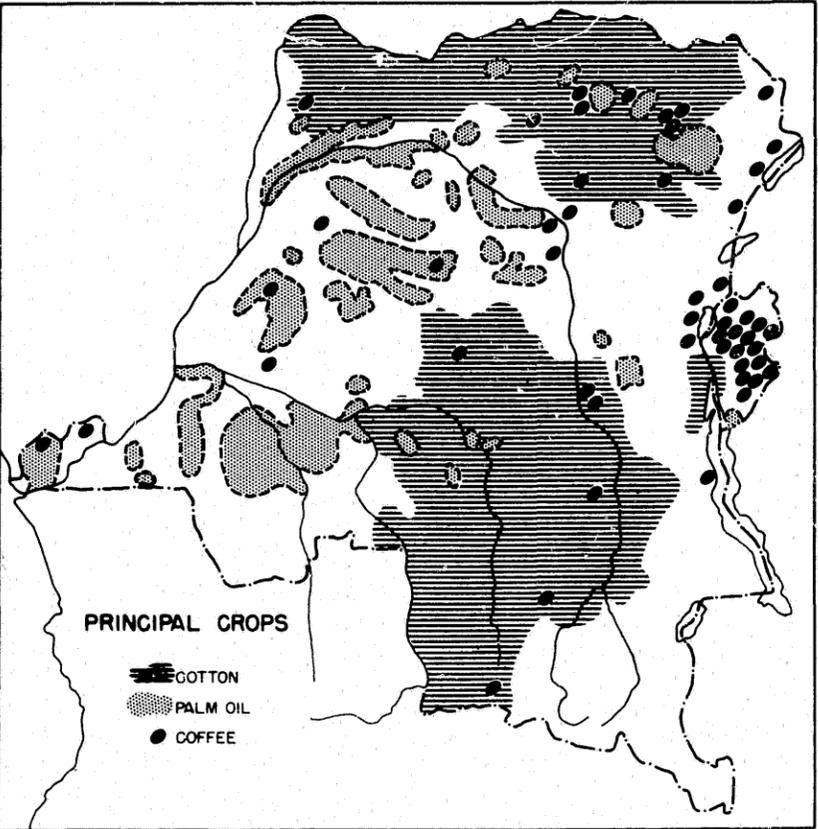
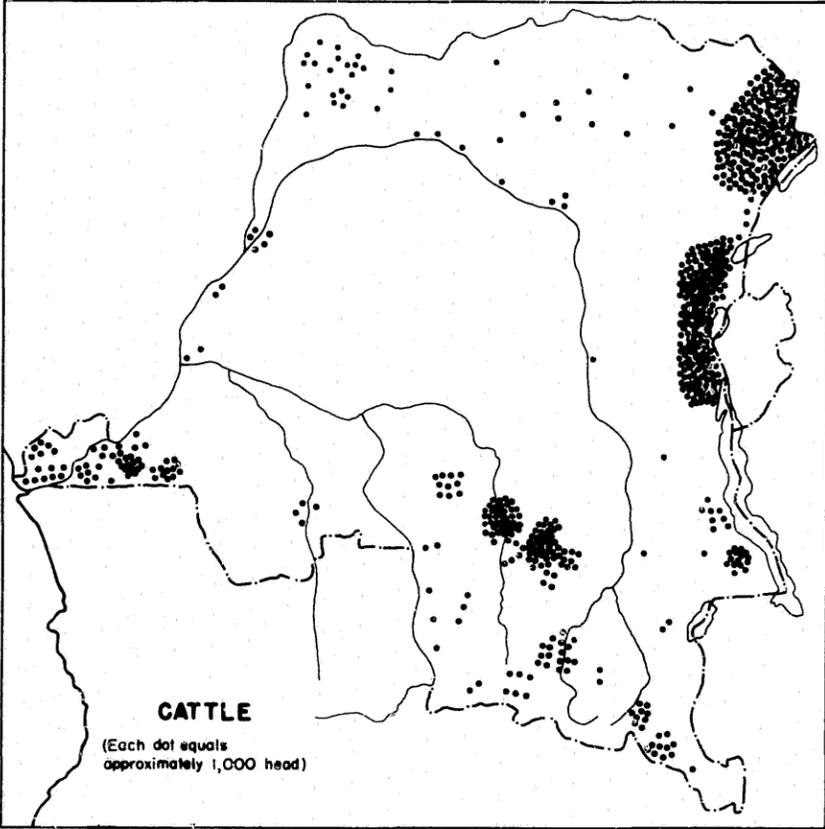
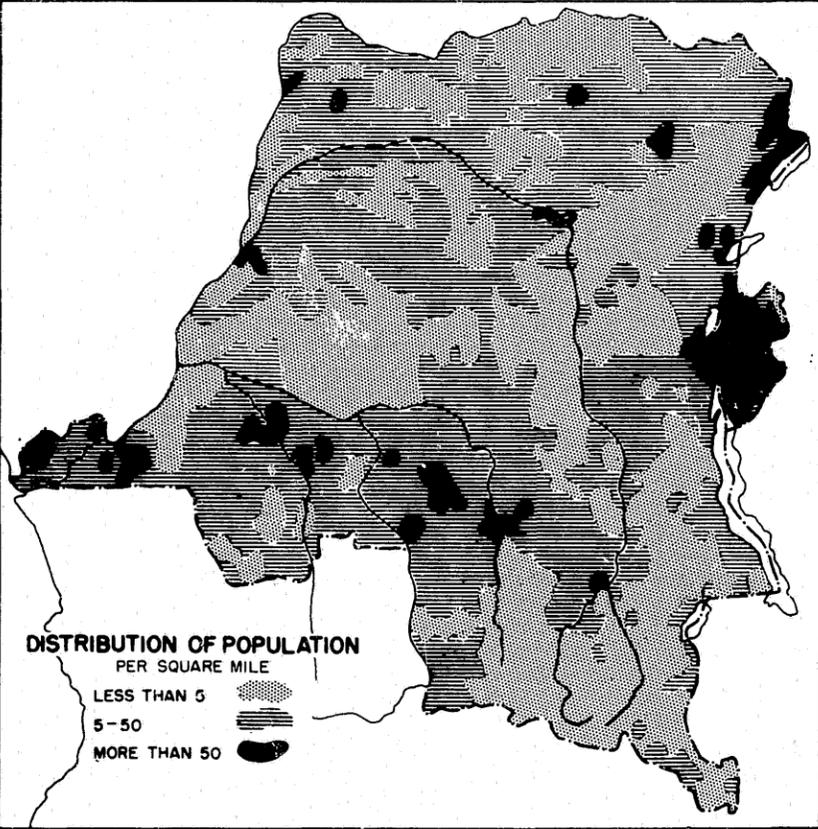
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RIVER AND RAIL SYSTEMS (and new highway program)



BELGIAN CONGO



Introduction

1. In September 1951 the Bank made two loans, totaling \$70 million, to support the Ten Year Plan for the Economic and Social Development of the Belgian Congo (Plan Decennal pour le Developpement Economique et Social du Congo Belge). One loan, of \$40 million, was to the Belgian Congo, guaranteed by Belgium, to assist in meeting the foreign exchange needs arising directly or indirectly from the execution of the Plan. The other, of \$30 million, was to Belgium and was designed to meet the drain on Belgium's hard currency resources brought about by the greater production of goods for the Congo. Belgium was to make available to the Belgian Congo for the purposes of the Plan an amount of francs equivalent to the amount of the loan to Belgium, as and when the Congo Government required additional financing. The Bank's loans were intended to help finance expenditure on the Plan in the two-year period from July 1, 1951 to June 30, 1953. This expenditure was estimated at 11 billion francs (\$220 million). The franc equivalent of the loans was to be applied to the investment in transport facilities made under the Plan by the Government-owned Office d'Exploitation des Transports Coloniaux (Otraco). In 1952, the Bank disbursed the loans on the basis of Otraco's actual investment expenditure between July 1, 1951 and June 30, 1952. In 1953/54, the rate of disbursement was determined by a special formula, which took into account total expenditure on the Plan, including Otraco, and ensured that the full amount of the loans would be withdrawn when 11 billion francs had been spent. Each disbursement made by the Bank was divided between the borrowers, four-sevenths being disbursed to the Belgian Congo and three-sevenths to Belgium, in accordance with the respective amounts of the loans.

2. By June 1954 the disbursement of the loans was nearly completed and the Bank accordingly sent a mission to the Belgian Congo to appraise the progress of the program with which its loans were associated. The mission consisted of Alexander Stevenson and Joseph Fajans of the Department of Operations - Europe, Africa and Australasia, and Bertil Walstedt of the Department of Technical Operations. After a week in Brussels for discussions mainly on financial aspects of the Plan, the mission spent the month of July in Africa, passing through Brussels on its return journey. The mission's itinerary in the Congo is shown on map No. 1.

3. The Ten Year Plan now involves expenditure at an annual rate of over \$100 million equivalent on projects of various kinds scattered throughout the Colony. In the circumstances the mission's survey could only be impressionistic. The mission discussed the progress of the Plan and related problems with those in charge in Leopoldville and the provincial capitals. It visited as many of the most important projects as possible, paying special regard to the progress made by Otraco in expanding and modernizing its transport installations. Nevertheless, there were many regions in the north, center and east of the country which could not be included in its itinerary. And limitations of time, local experience and specialized knowledge sometimes made it impossible to form a considered judgment on particular projects.

4. The mission's overall appraisal of the progress of the Ten Year Plan is contained in Chapter III. Details on investment in the separate fields of transport, agriculture, housing, etc., are given in the Annex.

Chapter I

The Belgian Congo: Country and People

5. The Belgian Congo is eighty times as large as Belgium and one-third the size of the U.S. It lies within the Congo River system and its only access to the sea is by a narrow strip of land at the mouth of the river. Equatorial rain forest covers a vast area in the center, giving place in the north and the south to zones of subtropical grassland (savannah). Climatic and physical differences are wide between the hot humid area of the central Congo basin with its luxuriant vegetation and leisurely flowing rivers, the comparatively cool eastern regions of the Kivu with its sparkling lakes, precipitous mountains and rushing torrents, and the dusty wastes of the upper Katanga in the south where, during the dry season, only scrubby trees, towering termite hills, or the pillar of smoke from some distant brush fire break the monotony of the landscape.

6. The Congo River and its tributaries bind the country together with a vast network of largely navigable waterways. Yet, transportation difficulties have constantly hampered the country's development. The mountain ranges to the west and northeast and the equatorial forest in the center presented serious obstacles to penetration and not until the series of rapids on the lower Congo between what are now Matadi and Leopoldville were circumvented by a railroad in 1898 could the inland waterways be adequately used to bring the country's produce to the Atlantic Ocean and the outside world. In the interior, railroad building by private interests and road building were in the past mainly motivated by the need to open up distant parts of the country, rich in minerals and vegetable commodities, and link them with navigable rivers. The existing transport system is thus a combination of water, rail and road transport oriented towards Matadi and characterized by long distances, frequent transshipment and many delays, and, consequently, by high freight charges (see map No. 2).

7. The development of the Congo has been further hampered by the fact that it is extremely thinly populated. There are only 12 million people in the whole country and their distribution is very uneven, as shown on map No. 3. Densities of over 100 per square mile exist, mostly in relatively inaccessible parts of the Kivu, while over much of the Congo basin and the Katanga the average density is less than 5 per square mile. Despite the fairly strict control of migration, the proportion of Congolese living outside the tribal community has risen from one-twentieth to more than one-fifth of the total in the past 20 years. This movement to the cities, particularly on the part of able-bodied men, is closely associated with the rapid industrialization, and has at times caused the authorities considerable concern lest it should affect agricultural production adversely and threaten balanced development.

8. In the future, however, the problems brought about by the growth of an urban proletariat are likely to be more serious than those arising from rural depopulation. Migration has recently slowed down somewhat, and the cities, where the population is young and increasing rather rapidly, are becoming more able to satisfy the demand for industrial labor from their own natural increase. Nowhere is this more strikingly illustrated than in the Katanga. When Union Miniere du

Haut-Katanga began mining copper about 50 years ago, the Katanga was practically uninhabited and the majority of workers had to be recruited from other parts of the country. At present, apart from underground work which the local people will no longer do, the bulk of the Company's labor requirements can be met from the natural increase of the local population.

9. The resources of the Congo are far from fully developed. While industrial workers in the Katanga or in Leopoldville may earn as much as their counterparts in southern Europe, and the number of native commercial establishments has greatly increased in recent years, very many Congolese still eke out a bare subsistence by primitive shifting hoe culture, and the average income per head is estimated at \$40 per annum. Yet the Congo has one of the most varied patterns of agricultural and mineral resources in Africa. Most of the people are engaged in agriculture, which accounts for 30% of gross national product, or 36% if the processing of agricultural commodities is included. Besides growing manioc, maize, rice, bananas, pulses and groundnuts for domestic consumption, the Congo accounts for more than one-quarter of the world's exports of palm oil and produces substantial quantities of cotton, coffee, rubber, cocoa and tropical hardwoods. More than one-fifth of the gross national product is attributable to mining. The Congo produces over 200,000 metric tons of copper, significant quantities of tin, zinc and manganese, and is responsible for well over half the world's supplies of cobalt, industrial diamonds and uranium. Manufacturing, mostly for domestic consumption, accounts for about 6% of gross national product, having risen spectacularly over the past five years.

10. The Congo has not become a country of white settlement on a large scale. Less than 90,000 Europeans live there at present, roughly half of them in the larger cities. Strict financial, professional and health requirements limit immigration and independent European settlers, merchants, craftsmen, industrialists and farmers, excluding their families, number only about 7,000. Most of the 30,000 European adult men are employees of the Government and large corporations, and missionaries. Thus one significant source of racial friction in Africa, the conflict of interests, real or apparent, between the white settlers and Africans living on the land, is, in general, not found in the Congo.

11. The population of the Belgian Congo, both Congolese and European, has no elected representation. Government Councils, composed of Government officials and appointed European and Congolese members, advise the Governor General, who is the chief administrative officer in the Colony, and the Governors of the six provinces. Changes in the prerogatives and composition of the Councils are being considered at present and, if enacted, should give a larger voice to the local population, particularly as regards the Government budget. The administrators of the 128 territories, many of which are more than half the size of the mother country, form the backbone of the Congo administration. These territorial administrators keep in close touch with local Congolese chiefs who play an important administrative and judicial role where tribal traditions and custom take precedence.

12. The close relationship between business and government is perhaps a unique feature of the economic and administrative organization of the Belgian Congo. To obtain the necessary financial and human resources to pacify, organize

and administer the Congo Free State, King Leopold II granted vast concessions around the turn of the century to various private groups. Such groups, for example, first explored the Katanga and initiated the development of its mineral deposits, prospected and worked the diamond concessions in the Kasai, and obtained transportation, land and mining concessions over large parts of the country. Since Belgium took over the administration of the Congo, the influence of government has asserted itself but its close relationship with business remains a striking feature of colonial affairs. The Government has acquired large holdings and interests in many leading companies and its security portfolio is now valued at the equivalent of \$440 million.

13. Because of the historical role of private enterprise in administration and development, it is often difficult to distinguish clearly between the spheres of private and public investment in the Congo. Besides building plants and railroads, opening up mines and organizing plantations, large private companies commonly provide housing, hospitals, schools and recreation grounds for European and Congolese workers and their families, and, indeed, often for all the inhabitants in the area. Thus, private enterprise shares with the Government the burden of providing investment in basic services. Furthermore, religious missions continue to play an important role in financing and running health and educational facilities.

Chapter II

The Ten Year Plan: Execution and Financing

The Plan

14. The Ten Year Plan was conceived in the postwar years, drawn up in 1948/49 and launched in 1950. The Congo had emerged from the war both economically stronger and more confident in that strength. At the same time investment in basic services had inevitably lagged behind the expansion of production. The chief limitations on further economic development were shortages of transport and power, and a lack of skilled labor. While the first could be dealt with directly by expanding capacity, the second was more complicated and had to be attacked on many fronts. It involved reorganizing native agriculture to raise productivity and thus release manpower. It involved further extending general and technical education, and improving living conditions both in the urban areas to which labor was being attracted and in the rural tribal societies from which it was drawn. Accordingly, the Plan provided for the following distribution of investment by the Government and Government owned organizations:

	<u>in million francs</u>	<u>%</u>
Transport and communications	12,962	51
Power and water supply	2,961	12
Agriculture	1,638	6
European settlement	586	2
Research and surveys	165	1
Housing	1,900	8
Native education	1,838	7
Medical facilities	1,978	8
Administration	1,200	5
Total	<u>25,228</u>	<u>100</u>

The Conditions in Which the Plan Began

15. Just as the Plan was getting under way, the Korean war broke out. World demand for raw materials soared and commodity prices followed suit. In the Congo, the output of minerals, except tin, rose substantially and already in 1951 production of copper, cobalt, zinc and industrial diamonds exceeded the estimates for 1960 made when the Plan was drawn up. Production of palm oil and other vegetable products increased considerably. Exports nearly doubled between 1949 and 1951 and the surplus in current payments was supplemented by an inflow of long term capital. Employment and money incomes expanded, and private consumption and investment were stepped up sharply. However, the threat to financial stability from the export boom was moderated when imports also expanded fairly quickly and the Government's ordinary budget continued to show substantial surpluses.

16. The end of the commodity boom in 1951/52 brought a change in the situation. A period of readjustment set in as the terms of trade worsened and local banks grew more wary of financing stocks. Wholesale and retail sales fell, merchants sometime found their resources strained, and the volume of residential construction declined sharply. Nevertheless, the tide turned quickly and since the middle of 1953 conditions of prosperous stability have ruled in the country, with the exception perhaps of Kivu province which is affected by price changes in coffee, pyrethrum and cinchona, by tourist expenditures and the inflow of refugee capital. Production and employment have continued to expand and private investment has remained high, although dipping appreciably as expansion programs neared completion. Imports have remained large, with a switch within their total from consumers goods to materials required for the Plan. Although the movements of prices of the individual commodities have not been uniform, the index of export prices has held at a level about 30% above 1948/49. In 1952 and 1953, the Congo had a deficit on current account which, however, was more than covered by drawings on the Bank's loan of \$40 million and the MSA loans of 1951 and by new loans floated in Switzerland. The financial position of the Government has remained favorable. Ordinary revenue exceeded ordinary expenditure but the surplus was lower.

17. In the early years of its execution, therefore, the Plan had to compete with strong private demand for goods, manpower and services. Shortages of labor made it difficult to recruit adequate numbers of men to work on public investment projects. Qualified European personnel were also hard to find in a world of full employment. Delivery dates of equipment grew longer and supplies were delayed by transport bottlenecks. Indeed, in the fall of 1951 the port and railroad facilities at and between Matadi and Leopoldville became so congested that temporary import restrictions had to be imposed. Not until the spring of 1952, when additional handling and hauling equipment had been delivered, were normal transport conditions reestablished. Another bottleneck appeared late in 1951 when the supply of cement and the capacity of the building trades proved insufficient to satisfy both private and public construction needs.

18. In these circumstances, the authorities proceeded cautiously with the execution of the Plan, and only in 1952 did it really gain momentum. Indeed, in the readjustment at the end of that year, the increased rate of investment

under the Plan helped to keep the economy on an even keel. The initial delay meant, however, that a much greater effort was now called for in the field of public utilities and social services to match the higher level of production and export capacity achieved and thus ensure the country's balanced development.

19. Execution of the Plan was slow at first also for other reasons. Cost estimates had to be revised because of mounting prices, native workers had often to be trained in advance for specific jobs, and access roads had to be built to bring equipment and materials to construction sites. Terrain and weather conditions sometimes raised unexpected obstacles. Soils had to be analyzed in order to make proper plans for agricultural development and river flows studied before work could start on irrigation and hydroelectric projects. Similarly, surveys had to be carried out to find the most appropriate routes for roads and railroads. Plans for new airports had to be revised because new types of aircraft needed longer runways.

Investment Expenditure and Disbursement of the Bank's Loans

20. The total cost of the Plan for the ten years 1950-1959 had been estimated originally at 25 billion francs (\$500 million). Mainly because of higher costs this had already been raised to 33 billion francs at the time of loan negotiations with the Bank in the middle of 1951. The latest revision submitted by the Governor General to the Ministry of Colonies in July 1954 incorporates substantial physical changes, particularly in the road program, and puts the cost at 48 billion francs (\$960 million). When the mission arrived in the Congo, 15 billion francs had been spent under the Plan. In the first two years, public investment was only about 3 billion francs and the annual rate of expenditure of 5-6 billion francs envisaged at the time of the loan negotiations was not reached until 1953.

21. Disbursement of the Bank's loans consequently took longer than had been anticipated. The closing date of September 30, 1953 was postponed for a year and the last disbursement was made on August 5, 1954. The following table shows expenditure on the Plan and disbursements by the Bank by years.

	Expenditure in francs till June 30, 1954	Equivalent in dollars (in millions)	Disbursement expressed in dollars till August 5, 1954	
			To Belgium	To Congo
1950	655	13.1	-	-
1951	2,468	49.4	-	-
1952	3,876	77.5	10.6	14.1
1953	5,346	106.9	13.5	18.0
1954 (1st half)	2,695	53.9	5.9	7.9
	<u>15,040</u> ^{1/}	<u>300.8</u>	<u>30.0</u> ^{2/}	<u>40.0</u> ^{3/}

^{1/} Excluding investment by the Fonds du Bien-Etre Indigene.

^{2/} Dollars only.

^{3/} \$32.8 million in dollars and \$7.2 million in Swiss francs.

Financing of the Plan

22. To date, the financing of the Plan has not raised any problems. Because of the policy of the Congo Treasury to borrow in advance of needs and the favorable ordinary budget results, ample means have always been available to meet the requirements of public investment. The Congo Treasury has even been able to make substantial amounts of Belgian francs and foreign currencies available to the Belgian Treasury, either directly or through the large balances which it maintained at the Central Bank of the Belgian Congo and Ruanda-Urundi, and which the latter invested in Belgian Treasury paper.

23. How the Plan was financed can best be seen from the following table showing the increase of the Belgian Congo debt between the end of 1949 and the middle of 1954, expressed in billion francs.

	<u>Congo francs</u>	<u>Belgian francs</u>	<u>U.S. dollars</u>	<u>Swiss francs</u>	<u>Total</u>
Short-term debt	5.7	-0.5	-	-	5.2
Long-term debt	2.8	4.1	2.4	2.4	11.7
	<u>8.5</u>	<u>3.6</u>	<u>2.4</u>	<u>2.4</u>	<u>16.9</u>

24. The increase was greatest in obligations denominated in Congo francs, which had been very small in 1949. Practically all the Congo franc debt is held by Congo commercial banks, leading corporations and public institutional investors like the Caisse Coloniale des Pensions and the Caisse d'Epargne du Congo Belge et du Ruanda-Urundi. Before the second World War these organizations, insofar as they were in existence during the thirties, used to transfer available funds to Brussels and invest them there either in metropolitan securities or in Congo bonds denominated in Belgian francs. Cut off from the Belgian market during the war, and thereafter mindful of the "geographical risk" involved in keeping funds in Belgium, colonial organizations got into the habit of holding substantial funds in Congo francs. Consequently, there has been in the Congo in the past five years a continuing demand for short, medium and, more recently, even long-term securities, which the Treasury was able to tap by selling Treasury bills and placing longer term bonds with institutional investors, and in December 1953 by offering to the public an issue of long-term bonds which brought in over 2 billion francs.

25. New loans in Belgian francs consisted of two public issues in 1950, of five and ten year bonds respectively, which brought in 2.3 billion francs, and an issue of twenty year bonds in April 1954 which gave 2.2 billion francs. These loans all give the holder the option of receiving payment in Leopoldville.

26. Loans obtained in foreign currencies are at long-term only. The Belgian Congo borrowed in the Swiss market 60 million Swiss francs each in 1950, 1952 and 1953; in addition, \$7.2 million of the Bank's \$40 million loan represents a Swiss franc obligation. The dollar debt consists of two U.S. Government (MSA) loans totaling \$17.1 million, contracted in 1950 and 1951 by Belgium and transferred to the Congo which services them, and of the bulk of the Bank's \$40 million loan of which \$2.3 million is now held by private investors without

the Bank's guarantee. The greater part of the foreign currency loans was drawn down in 1952 and 1953, and, in the latter year, the Congo Government was able to consolidate 25% of its domestic floating debt.

27. The position of the Congo Treasury has improved very considerably since the end of 1949. Through June 1954, it borrowed about 17 billion francs, about 2 billion francs more than it spent on the Plan. It accumulated additional funds since ordinary budget surpluses for 1950-1953 exceeded extraordinary budget expenditure other than that on the Plan. On June 30, 1954, the Treasury had balances amounting to 11.2 billion francs, of which 7.5 billion francs represented the Budget Equalization Fund earmarked to cover future deficits in the ordinary budget. The remainder, 3.7 billion francs, was freely available to the Government for making payments on the Plan or otherwise.

The Use of the Bank Loans

28. The Bank's participation in the financing of the Plan has so far been smaller than was envisaged when the loans were made. Although the full \$70 million has been made available in foreign exchange to the Belgian monetary area, only the proceeds of the \$40 million loan to the Belgian Congo, equivalent to 2 billion Congo francs, have accrued to the Colonial Treasury. The Belgian Congo has not yet used the 1.5 billion Belgian francs which represent the counterpart of the \$30 million loan to Belgium. The Convention of December 2, 1951 between the Belgian Ministers of Finance and of Colonies governing the use of these funds provides that the Congo can draw on its claim against Belgium when it is short of Belgian francs to cover the needs of the Plan. So far the Congo has had ample franc reserves, which the Belgian Government allowed it to supplement with an issue of 2.2 billion francs in the Brussels market in April 1954.

29. The Congo Treasury does not earmark specific funds for particular uses. Receipts flow into one pool and payments are made from it without any differentiation as to the source of funds. It is thus impossible to say that the 2 billion francs which accrued to the Congo Government over the period of disbursement of the Bank's \$40 million loan, was applied to investment by Otraco. Nevertheless, Otraco has invested 4.5 billion francs since July 1, 1951 and its management confirmed to the mission that their investment requirements have always been met promptly by the Congo Treasury.

Chapter III

General Appraisal of the Program

Control and Execution

30. The work of supervising the execution of the Plan falls principally to the Ten Year Plan Office (Commissariat du Plan Decennal) in Leopoldville, the Director of which reports to the Vice-Governor General. In each province there is an Inspector of the Plan, usually a former territorial administrator familiar with local conditions and problems. His office checks terms of contracts relating to particular works, compares actual costs and rate of expenditure with

estimates, and watches the progress of the different sectors of the Plan in the province. Close contact is maintained both in Leopoldville and in the provinces between the Plan office and other Government departments concerned (for example, those of Public Works and Agriculture), the contractors, and last but not least the local territorial administrators on whose shoulders falls much of the work, for example, of organizing a native agricultural settlement or directing the construction of a rural dispensary.

31. The Commissariat du Plan does not, however, supervise all investment under the Plan. The various autonomous organizations, Otraco, Institut National pour l'Etude Agronomique du Congo Belge (Ineac), Office des Cites Africaines (OCA), Regie de Distribution d'Eau et d'Electricite (Regideso) and the two Societes des Forces Hydroelectriques have full responsibility for planning and supervising work in their respective fields of operations. While these organizations appear entirely competent to carry out their allotted tasks, most of them have their headquarters in Brussels and it seemed to the mission that the planning authorities in Leopoldville did not always have as much information about their activities as would have been desirable. More recently, however, steps have been taken to secure better liaison.

32. With regard to organization, another point may be worth making. The Commissariat du Plan has also recently been charged with the important task of coordinating the revision of the Plan in the light of experience. The office is highly efficient and can draw on the services of the various Government departments. Nevertheless, its staff is small and the complicated task of revising the Plan, superimposed on the day-to-day job of supervising work in progress, placed a very heavy burden on it.

33. In principle, the Government tries to get private contractors to undertake construction. Sometimes, however, particularly in rural areas, this may be impossible, and sometimes the bids are too high. In such cases the provincial services of the Public Works Department of the Government or the autonomous organization involved carries out the work itself.

34. On one or two projects the mission visited, for example the Tshopo power station, it appeared that contracting firms had taken on jobs that were larger than they were accustomed to and that some delay has resulted. Occasionally, conditions of soil and climate have given rise to unforeseen difficulties during construction. In the enlargement of the Stanleyville airport, for instance, the stone and gravel used had such a high affinity for moisture that the asphalt coating stripped off and the work has had to be redone at considerable added cost. Sometimes delays have occurred because of difficulties in obtaining replacement parts speedily. But these were isolated examples.

35. On the whole, the mission felt that the work was being carried out efficiently and without more than the normal teething troubles to be expected in a program of this magnitude. Much of the credit for this appears to be attributable to the officials charged with supervising and executing the various parts of the program, both at headquarters and in the field. The mission was very favorably impressed with their efficiency and imagination, their knowledge of local conditions, and their up-to-date information on the progress of particular projects.

The Test of Balanced Development

36. The Ten Year Plan was intended to provide the added basic services required to make possible a smooth and rapid expansion of production, and at the same time to improve living standards of the Congolese. The rate of its execution has so far clearly been dictated by physical and technical rather than by financial limits. It was slowed down when it appeared that to try to force the pace at the height of the private investment boom during the Korean war would have had inflationary consequences. Since then it has been speeded up, and total Government consumption and investment, including all expenditures on the Plan, are now equivalent to about one-third of the national income. At the present rate of spending on the Plan - 5-6 billion francs a year - the productive apparatus appears to be running at full speed without being overloaded. The authorities have not yielded to the temptation of trying to go too fast because finance was available and, with a few exceptions, expansion in the various fields of public investment has so far complemented the expansion in the private sector well.

37. By far the largest expenditures under the Plan have been on transportation. Here, although the Matadi-Leopoldville railroad always tends to be a bottleneck, the expanded and improved facilities of Otraco are already handling with dispatch a load nearly twice as heavy as in 1948 and considerably heavier than had been anticipated five years ago. Efficiency should be increased further as more new rolling stock and river craft are added and by the recent relatively cheap installation of "Scotchlite" markings which make night navigation possible on the Congo and Kasai Rivers. As regards roads, the delays in construction are explained by the fact that the earlier conceptions of the road program proved erroneous and had to be radically changed. Economic development has probably been hampered somewhat by these delays, particularly in the east by the postponement of the construction of roads such as that between Bukavu and Stanleyville.

38. Forecasting the demand for power in a country like the Congo is extremely difficult and expert estimates often differ widely. The completion of the Zongo station near Leopoldville will come none too soon, for only the availability of excess energy across the Congo River at a new station in French Equatorial Africa saved the capital from an acute power shortage before Zongo was completed. In the east, on the other hand, a major question, to which the mission could not form a firm opinion, is whether the scheduling of the projected hydro-stations at Stanleyville and in the Ruzizi Valley may not have been based on rather optimistic estimates of expected demand.

39. In agriculture the research and development work of Ineac, particularly in improving plant strains (notably coffee and oil palm) are impressive and probably well worth their comparatively high cost. The main aim of the agricultural program proper is to transform the primitive shifting subsistence agriculture of the Congolese into permanent settlements called "paysannats", practicing a rational system of tillage and crop rotation, and producing a substantial surplus for the market. The paysannat program was naturally slow to get under way but, once started, the results look extremely encouraging. However, largely because costs of organizing and settling farmers are higher than had been anticipated and more

qualified personnel are required, the Government has cut the ten-year target from 450,000 to 300,000 farms. This cut is probably inevitable, but the fact that 200,000 new farmers will have been added in the same period means that the transformation of Congolese agriculture will still be very slow.

40. In housing, though the need for improved housing for the Congolese will, of course, remain very great, the public programs, supplemented by those of the private sector, are making possible a radical improvement in living conditions for Congolese in most of the major towns. Only in Leopoldville does the continued influx of people and the large backlog of substandard housing make the problem rather intractable. As regards medical facilities, schools and other administrative buildings, the same generally favorable conclusions apply.

41. The Government is now undertaking a thorough-going review of investments to be carried out in the next five years. Many important decisions have not yet been finally taken. The mission was, however, impressed with the care and thoroughness with which particular problems were being attacked, and is confident that the ultimate result will correspond closely both to the existing needs and to the available resources.

Financing Problems

42. So far the development of the Belgian Congo has not been hindered by any shortage of funds for public investment. Financing the Plan has brought the Colonial debt up to about one-half the national income, still a fairly modest burden. Yet when the authorities saw that the completion of the Plan would cost far more than had originally been estimated, they undertook a thorough-going examination and revision of the Plan in order to see more clearly what it would cost and what its physical and financial implications might be. The revised Plan is now estimated to cost about 48 billion francs in all. It has still not been decided whether this should be spent in the ten-year period 1950-1959 or whether expenditure on some of the works included should be extended into the early sixties.

43. It is not, of course, possible to say in any detail how the remaining expenditures, estimated at about 30 billion francs, will be financed. The 1954 ordinary budget surplus will probably again be large enough to cover extraordinary budget expenditure not related to the Plan and leave something over to finance Plan expenditure. The balances of the Colonial Treasury could provide, say, about 3 billion francs more. Nevertheless, at the present rate of expenditure, particularly for purchases in Belgium, this would not last long and it would not be wise to let Treasury balances fall too low. In the circumstances, it would not be surprising if the Congo were soon to turn again to the Brussels capital market or to call on the counterpart of the Bank's \$30 million loan to Belgium.

44. Beyond this, the Congo Treasury will have to borrow 5 to 6 billion francs per annum to meet the cost of the Plan. Most of the capital should continue to come from the Congo and from Belgium in the form of public issues, loans by institutional investors such as Government pension funds, and the sale of Treasury bills. The rest, probably at least one billion francs per annum, will

have to be found abroad. In view of the structure of the Congo balance of payments, the proceeds of Congo issues in Brussels and also a part of the proceeds of external loans would be used to cover Congo deficits with Belgium on current account.

The Impact of the Plan on the Ordinary Budget

45. Though there are technical and economic reasons for many of the changes being made in the Plan, the decision to hold total expenditures to 48 billion francs and to trim investment accordingly came largely from a scrutiny of the costs of operating and maintaining the larger facilities built, and from a realization of the effects of these costs on the ordinary budget.

46. The heavy investment in hospitals, schools, agriculture and transport facilities will also lead to a rise in current expenditure on personnel, materials and maintenance. Salaries of Government personnel, for instance, absorb over 40% of ordinary budget expenditure and it now appears that rather more personnel than originally envisaged may be required to staff the new installations. For instance, whereas one agricultural agent was previously provided for each 10,000 Congolese cultivators, one such agent can supervise adequately only 3,000 natives in a newly organized paysannat. Again, the contracting inflow of members of religious orders will necessitate staffing hospitals and schools with lay European medical and teaching personnel whose cost to the Government is far higher than that of missionaries. It is the Government's policy to employ more Congolese workers in more and more responsible administrative positions and thereby reduce the burden on the ordinary budget. However, this can be done only very gradually as the required level of professional aptitude is achieved.

47. Ordinary budget expenditures on health may reach about 1.5 billion francs in 1959 compared with about 500 million francs in 1950 and 900 million francs in 1953, while the cost of maintaining and staffing the schools may be over 1.3 billion francs in 1959 compared with 300 million in 1950 and 720 million in 1953. Ordinary expenditures on agriculture, transport and communications will also increase substantially. The borrowing of an additional 30 billion francs in the next five years (or eight years if the Plan is stretched out until 1962) will increase the annual debt service to about 2.5 billion francs in 1959 compared with about 200 million francs in 1950 and 500 million francs in 1953. As a result, total ordinary budget expenditure may reach 12-13 billion francs by the end of the decade, and 14-15 billion in the early sixties, compared with only 4.3 billion in 1950 and 6.1 billion in 1953.

The Ultimate Burden

48. The significance of these figures depends on the rate of growth of the economy. At the present time, Government expenditures, recurrent and capital, are equivalent to about one-third of the national income. By the end of the decade they will have risen by about one-third. Thus, if they were to continue to bear the same proportion to national income, the latter would have to grow at a rate of about 6% per annum. Though this is by no means improbable if world economic conditions remain favorable, it would nevertheless require a very considerable effort, particularly since the labor force in the Congo is expected to grow by only 20-25% over the same period. On balance it would appear likely

that, at least for a time around 1960 when capital expenditure is still high, consumption and investment by the Government will take a somewhat larger share of available resources than they now do.

49. The Congo, of course, remains a raw material producing country subject to the vicissitudes of the world market. Provided, however, that the long-run expansion in world demand for its products continues, the burden of Government expenditure should not place an undue strain on the economy. In view of the Congo's strong reserve position, its ability to borrow abroad, and also the present structure and incidence of taxation, there is no reason to expect that what additional real burden might ensue should have untoward consequences.

ANNEX

TRANSPORT

General

1. The backbone of the transport system of the Belgian Congo is the railroad from the ocean port of Matadi to Leopoldville and the river links to the northeast with the Congo River port of Stanleyville and to the south-east with Port Francqui on the Kasai River. These facilities are operated by Otraco. The interior is served by three private railroads connecting with Otraco (see map No. 2). In the south, the Compagnie du Chemin de Fer du Bas-Congo au Katanga (B.C.K.) connects the Upper Katanga mining region with Port Francqui. Further north, the Compagnie des Chemins de Fer du Congo-Superieur aux Grands Lacs Africains (C.F.L.) provides a rail-river connection between Lake Tanganyika and Stanleyville. Finally, the Societe des Chemins de Fer Vicinaux du Congo (Vicicongo) connects the north-eastern agricultural and mining region with the Otraco River system west of Stanleyville. A substantial number of roads and navigable rivers feed into the above main traffic arteries.
2. About one-fourth of Congo foreign trade is carried on foreign railroads, primarily through Angola to Lobito on the Atlantic Ocean, but also through British Central and East Africa to Beira, Dar-es-Salaam and Mombasa on the Indian Ocean. Because of shorter distances and fewer trans-shipments, these are natural outlets for the Katanga and Kivu provinces. Nevertheless, to secure a higher degree of utilization of the Congo transport system, the Government seeks by means of special tariffs and agreements to guarantee that a substantial proportion of the Kivu and Katanga traffic moves via Matadi.
3. To ensure cheap and rapid transport over this "Voie Nationale" is of vital importance to the Congo and at the same time very difficult. Distances are enormous. It is 1,750 km. from Leopoldville to Stanleyville and a further 1,000 km. by poor road to Bukavu; 2,300 km. by river-rail from Leopoldville to Elisabethville. Frequent trans-shipments are necessary, and traffic densities in the interior (except for the Upper Katanga) are low. Only about 300,000 tons per year move through Stanleyville and Port Francqui, only about 200,000 tons over most portions of the C.F.L. network, and only about 100,000 tons over the Vicicongo railroad.
4. In the last five years, goods traffic has grown by roughly 50%, but local traffic on the Matadi-Leopoldville railroad has increased more rapidly and inbound traffic has grown much faster than outbound. This put a heavy strain on the ports and on the Otraco river fleet, ship requirements being largely determined by the upstream movement. Although the worst congestion in the ports of Matadi and Leopoldville was remedied in 1952, the Matadi-Leopoldville railroad, beset by occasional derailments in the rainy season, still tends to be a bottleneck. In the east, low water disrupted traffic on the Lualaba river in 1953, but the arrival of new dredges and the regulation resulting from the new dam at the Delcommune power station should bring some improvement.

5. Against the above background, it is easily understandable that one-half of the original cost of the Plan was to be spent on transport. The objectives were to equip the transport system to handle a two-fold increase in traffic over 1948/49 level, and to provide in certain regions new transport facilities, mainly roads. In general, the Government was to carry out permanent civil engineering works for ports, waterways, railroads, roads and airports, while the government-owned and private carriers would finance buildings and equipment. Owing to the rise in prices and the inclusion in the Plan of certain additional facilities for Otraco, the estimated expenditure on transport was raised to 22.5 billion francs. To the time of the mission's visit 8.6 billion francs had been spent.

Investment by the Government in Water and Rail Transport

6. The Plan included the extension of the quays at Matadi from 1,050 to 1,750 meters and at Leopoldville from 390 to 1,600 meters. At Matadi, work on the new 560 meters quay has progressed slowly because of much earth filling and excavating, but completion is now confidently expected for the end of 1955. Work is also far advanced on a wide rail outlet through the rocks behind the port, replacing the tunnel envisaged in the Plan. At Leopoldville, a 270 meter extension to the old quay was completed in 1950, while bids have been invited for a 313 meter extension scheduled for completion by the end of 1956. Similar improvements at other river and lake ports are well advanced.

7. The use of "Scotch-lite" markings has made possible night navigation on the rivers at a lower cost than originally estimated. Night traffic between Leopoldville and Stanleyville was opened in October 1953. The marking of the Kasai River has been completed. It was in progress along the estuary of the Congo River when the mission visited Matadi.

8. The 450 km. long rail connection between B.C.K. at Kamina and C.F.L. at Kabalo will probably be opened by the end of 1956. Although this link is primarily of strategic importance, it will also open up new tracts of land for agricultural development. The Government finances the eastern half of it, work on the western half being carried out by B.C.K. itself. The Kamina-Kabalo railroad may be the first step towards a continuous trans-African railroad on Belgian and British territory, interrupted only by a ferry across Lake Tanganyika. The second step would be a 850 km. connection linking Port Francqui the northernmost point on the B.C.K. railroad, with the Leopoldville-Matadi railroad, a project which is now under study.

Investment by Otraco in its Installations

9. By the middle of 1954, Otraco had invested 5.6 billion francs under the Plan. Investment reached a peak of 1.8 billion francs in 1953; only 1.3 billion was to be spent in 1954, and a further slight reduction was predicted for 1955. Roughly, 30% of the total had been spent on the river fleet and 10% on port equipment, while 20% paid for rolling stock for the Matadi-Leopoldville railroad. Housing for employees accounted for another 20%. Smaller amounts were used to improve the track between Matadi and Leopoldville, for railroad repair shops, and for equipment for the small Kivu and Mayumbe railroads which will probably be dismantled after the completion of parallel highways.

10. The ports are rapidly being converted from their previous congested and outmoded layout to modern loading and unloading plants. The warehouse area at the Otraco port in Leopoldville will have more than doubled by early 1955. At Matadi the number of electric cranes has been tripled, and warehouse space moderately expanded. It appears that, due to rationalization measures, both Leopoldville and Matadi will be able to handle on a given quay frontage a larger volume of traffic with less equipment than originally foreseen. Because of the rise in prices of building materials and the insufficient capacity of the local construction industry, some of the warehouses built in the early 1950's were very expensive. Thus, a warehouse which cost 4,000 francs per square meter in 1952/53 can now be built at 2,800 francs per square meter.

11. The capacity of Otraco river tugs was 60% higher and the loading capacity of Otraco barges 85% higher at the end of 1953 than at the end of 1949. Present plans envisage further increases to respectively 110 and 125% above the 1949 level by the end of 1958. A large part of the new tugs and barges are designed for push-towing which will permit barges to average about eight round trips per year between Leopoldville and Stanleyville as compared with 4.3 trips under the old system. The first "integrated tug-boat", carrying both passengers and cargo, was put into traffic last year. Several similar vessels have been ordered, although there may be some question as to their economy of operation. However, there are savings in time and labor.

12. Since 1950, the conversion of the Matadi-Leopoldville railroad to diesel traction has been proceeding steadily. At the end of 1953, the railroad had at its disposal about 3,400 wagons as compared with 2,300 at the end of 1949, and another 400 were being assembled. Additional investment will probably be entailed in replacing 1,200 small cars dating from 1910-1925. Expenditure on track improvement and on new sidings has thus far been moderate. The capacity of the heavily traveled first 100 km. from Leopoldville will be doubled through the installation of a central traffic control system in the next three years. In addition, Otraco has asked the Government to finance substantial improvements in the present roadbed (curves, grades, ballasting) with a view to reducing maintenance cost and improving safety and speed.

13. Repair and construction of small river craft have in the past been done for Otraco by a private shipyard. Their agreement expires in 1956. Otraco now intends to do much of this work itself and is consequently building a shipyard at Leopoldville. Substantial investment in railroad maintenance shops and in marshalling yards, both at Matadi and Leopoldville, will also be made over the next two to three years. Major repairs will remain centralized at Thysville, half-way between the two cities, where a new workshop for diesel locomotives has been installed.

14. Investment in housing, hospitals and welfare facilities has been heavy, particularly in 1953. The housing program for European personnel, partly aimed at improving present standards, may soon taper off. Family dwellings for Congolese workers, however, are to be built at the rate of 1,500 per annum for some years to come, since Otraco aims at lodging the majority of its 33,000 Congolese workers in its own settlements.

15. In the light of the preceding information, it seems doubtful whether Otraco will in fact be able to reduce its present rate of investment, or whether, on the contrary, some increases will not prove necessary.

16. The cost per ton-km. of traffic (including depreciation but not interest) has increased by about 25% in the past four years, both on the rivers and on the Matadi-Leopoldville railroad. While this was largely the result of a rise in wages and fuel prices, the 40% expansion in traffic has not been accompanied by any reduction in the number of personnel per unit of transport. On the other hand, depreciation allowances which are based on replacement values have increased roughly in proportion to the increased traffic, and interest charges have more than doubled. Primarily because of automatic sliding scale adjustments of tariffs on export products, Otraco's receipts in 1953 did not quite suffice to cover operating expenditures, including interest. Because of the Government's policy to keep transport costs at the lowest possible level, Otraco has not insisted on a rate increase. Nominally, since 1952, Otraco has "financial autonomy". In practice this means little, as long as its tariffs are set by the Government, the bulk of its investment is financed by the Government, and borrowing requires Government approval and guarantee.

Roads

17. In 1949, there were almost 100,000 km. of public roads in the Congo, of which about one-fourth were classified as national and provincial, and the rest as local. In addition, there were about 13,000 km. of private roads. Even the national roads were narrow and winding, and generally incapable of supporting anything heavier than 4-ton trucks. On many routes, bridges were lacking and ferries had to be used. Depreciation of motor vehicles was excessive. There were only about 10,000 trucks and an equal number of passenger vehicles, but their numbers have now doubled.

18. The Plan called for the construction of five trunk-roads, totaling 9,000 km. Two of these would span the Colony from east to west and two from north to south, while the fifth would provide the important Bukavu-Stanleyville connection. In addition, there would be 11 main feeder roads exceeding in length 3,000 km. The total cost was put at over 6 billion francs. The highest possible degree of mechanization was to be introduced, both in construction and maintenance.

19. These plans have not proved appropriate. The benefits of trunk roads spanning the whole country - and often duplicating rail-river connections - had been exaggerated, particularly in view of the light traffic, while the immediate and urgent need for improving the existing road network and building new access roads had not been fully realized. Secondly, road building costs had been greatly underestimated and the actual cost of the original road program would now appear to be three times the estimate and quite out of proportion to the financial possibilities. Thirdly, the idea of having the trunk roads follow existing roads as far as possible was challenged in favor of building new and more direct roads. Finally, execution was limited by the lack of trained personnel and the capacity of the construction industry.

20. At the end of 1953, only about 250 km. of trunk roads and feeder roads were approaching completion, while work on another 200 km. was in progress. The Boma-Tshela feeder road, paralleling the Mayumbe railroad, should be ready about the end of 1954, and the Bukavu-Uvira road, paralleling the Kivu railroad, is expected to be completed in mid-1956. Total expenditure had reached 1 billion francs.

21. A new road program has now been worked out. It envisages cutting the trunk and feeder road program from 12,000 km. to less than 5,000 km., and extending its completion to 1962. About 4.5 billion francs would be spent on trunk and feeder roads and 3.0 billion francs on secondary roads ¹/_{and} bridges during the period 1954-59 and another 4 billion francs on trunk roads in 1960-1962.

22. The Bukavu-Stanleyville trunk road with a feeder road from Goma and the Bukavu-Kindu section of the east-west road to Matadi will, when completed in 1959-62, greatly improve the transport situation of the eastern Congo. At the present moment, the coordination of the new public highway network with the established private railroads in this area raises a number of difficult and delicate problems. One of them, for instance, is the feeder-road program for North-eastern Congo (Mambasa-Mungbere and Aketi-Bumba) which is essentially geared to the Vicicongo railroad. This railroad, however, is already operating close to capacity, and would have to be expanded to handle additional traffic. Hence, there may be an argument for an alternative new direct highway from Bunia to Mambasa and Stanleyville, which would provide an efficient outlet for Lake Albert fish, Ituri cattle and other products of the region.

23. Progress on mechanized road maintenance has been slow. Often machinery could not be used until certain bridges had been built. Now the whole maintenance problem is being reappraised. Although the Government has accumulated a sizeable fleet of road maintenance equipment, this fleet is dispersed and lacks homogeneity. What is required, according to some experts, is, first, to create several new "road laboratories" to establish the best construction and maintenance techniques for each region, and, secondly, to screen existing equipment and concentrate the best types in a limited number of regional pools where they could be used to maximum effect.

Airports

24. Air transport in the Congo has become the chief means of medium and long distance travel for Europeans. Since 1949 the number of passenger-trips in internal traffic has almost tripled to 63,000 in 1953. In international air traffic 40,000 passengers were carried. The 4.7 km. long landing strip for the new international airport near Leopoldville was inaugurated while the mission was in Leopoldville. The new airport at Elisabethville, capable of accommodating DC-6 planes, should be ready by early 1955, and a similar one at

¹/_{This classification includes 15,000 km. of national and provincial roads not designated as trunk roads or feeder roads.}

Stanleyville is nearing completion. Progress in improving four provincial airports (DC-4 traffic) and 20 local air fields (DC-3 traffic) is slower. Partly because of considerable technical difficulties in constructing satisfactory landing strips under Congo soil conditions, expenditure on airports is now expected to run at about twice the original estimate. This does not include any margin for improvements which would be necessary if DC-3 planes had to be displaced as standard carriers in local traffic.

Telecommunications

25. The Plan provided for expanding and modernizing urban telephone networks, and for developing radio services, both to facilitate communication between the widely scattered European population and as an important element in safe and efficient airline operations. Thus far, work has progressed roughly according to plans. It now appears, however, that all facilities will have to be expanded beyond initial plans and that the cost will exceed the original estimate by about 140%.

POWER AND WATER SUPPLY

26. The Belgian Congo has vast undeveloped water power resources in several regions. Early in 1949 installed hydroelectric capacity totalled about 100,000 KW, which was only slightly more than the 96,000 KW available in 1939. However, the existing plants were fully utilized in 1949 and delivered 550 million KWH, compared with only 400 million KWH before the war. Both in 1939 and 1949, the Union Miniere stations concentrated in the upper Katanga furnished about three-quarters of the total hydroelectric power, mainly for use by the Company. In addition to hydroelectric installations, there were a number of local diesel units, including public utility capacity in major centers outside the upper Katanga and Leopoldville.

27. There was a marked power shortage in early 1949. By the end of 1953, however, power capacity had been increased to 310,000 KW, producing over 1,100 million KWH. Out of these totals, Union Miniere was responsible for 210,000 KW and about 800 million KWH; its production potential will be more than doubled when the new Le Marinel station is ready about the end of 1956. This 220,000 KW installation will supply 1,400 million KWH in a normal year, of which 500 million KWH have been earmarked for Northern Rhodesia under a five-year contract.

28. In order to promote industrialization and to take advantage of the unexploited water power resources, the Plan envisaged four new public hydroelectric stations, with a capacity of 68,000 KW and an annual production of some 350 million KWH, serving the Leopoldville, Stanleyville, Albertville and Ruzizi Valley regions. The total cost was estimated at 1,150 million francs. In addition the Regie de Distribution d'Eau et d'Electricite (Regideso), a government-owned organization charged with water distribution and provision of thermal power to urban areas, would spend 1.6 billion francs to furnish ten large and twenty-seven smaller towns with water and thermal power.

29. Two of the hydroelectric projects are now under construction for two government-controlled corporations - the Societe des Forces Hydro-electriques du Bas-Congo and the Societe des Forces Hydro-electriques de l'Est. The Zongo station (initial capacity 21,000 KW, ultimate capacity 42,000 KW) 90 km west of Leopoldville is expected to supply power by the middle of 1955. The Tshopo station at Stanleyville (initial capacity 12,000 KW, ultimate capacity 18,000 KW) will probably be ready about the middle of 1957. The Albertville and Ruzizi Valley stations (each planned for about 16,000 KW) have not been started. At Albertville, an alternative thermal power project has come up in connection with a proposal to produce synthetic gasoline from the substantial low-grade coal deposits nearby. In the Ruzizi Valley, construction was postponed because of soil conditions on the site first selected. A new site for a 23,000 KW station was chosen, but now a proposal has been put forward for a multipurpose project to harness, in stages, the water of the western tributaries of the Ruzizi to produce ultimately 50,000 KW of power and irrigate 25,000 hectares of land. ^{1/}

30. Through June 1954, 1.1 billion francs has been spent on the hydroelectric projects. Higher prices and increases in planned capacity are now likely to require an investment of 3 billion francs in the four stations. The cost will be about \$500 per installed KW for Zongo and about \$600 for Tshopo, roughly comparable to the cost of some new stations in France and Switzerland. The 23,000 KW station in the Ruzizi Valley, however, would be considerably more expensive.

31. The Zongo station, now well advanced, will come on the line none too soon. Power was short in Leopoldville in 1952; only the transfer of power from the new Djoue plant across the Congo River in French Equatorial Africa prevented a serious crisis. The opposite situation exists at Stanleyville. There the Tshopo station will provide 12,000 KW by 1957, whereas present peak demand is put at about 3,000 KW.

32. Indeed, the hydroelectric program illustrates some of the thorniest problems of balanced development. In a country like the Congo, estimates of future demand for power are often bound to be highly conjectural. Local interests are, of course, always in favor of expanding hydroelectric power. But even experts differ widely. In the Ruzizi area, for instance, forecasts range between a doubling and a tripling of power demand over a ten-year period. There is also a general and probably reasonable tendency to build power plants somewhat ahead of demand. This tendency is influenced by technical considerations of minimum size and by the assumption that it would be worse to err on the side of caution than to over-estimate future requirements. In the Ruzizi area the problem is particularly complex. To build a 23,000 KW plant in the Ruzizi Valley now may be too ambitious, even though the mines of Ruanda-Urundi are expected to absorb a substantial part of its output. On the other hand, it would be inopportune to delay all construction until a complete investigation had been made of the feasibility of the multipurpose project. At first sight the latter would have a high benefit-cost ratio and a greater effect upon the development of the area. Whether part of it could be engineered and constructed

^{1/} Methane has recently been discovered in considerable quantities in Lake Kivu, but studies have not progressed enough to judge how this might affect the energy picture of the area.

fairly soon and whether the installation of additional thermal capacity should be sought in these circumstances as a transitional solution the mission was not in a position to determine.

33. The Regideso program, on which 170 million francs was spent at the end of June 1954, appears to be going forward smoothly. In the large towns, the first stage of the power program, including over 3,000 KW in new capacity and substantial strengthening of the network, is nearly completed. Similarly, water distribution systems are nearly completed, though it is not clear whether the capacity of the water works has been brought up to that envisaged for 1959. The program for the 27 smaller towns has advanced more slowly, mainly because priority was given to the larger centers. Regideso is now installing electricity in four and water in ten of these towns. In the future, Regideso plans to equip five centers a year with power and water.

AGRICULTURE

General

34. The hot, humid climate of the equatorial forest of the Congo is particularly suited to tropical cultures (see map No. 3) like the oil palm, Robusta coffee, rubber and cocoa. These export crops are mainly cultivated on European plantations, which cover an area of 330,000 hectares. In the savannah, the principal crop is cotton in rotation with groundnuts and maize. These are almost exclusively native crops. In the mountain areas of the Kivu, European plantations of Arabica coffee, tea and various medicinal herbs have been successful. Cattle raising by Congolese is widespread in the north-eastern highlands, and European settlers have established cattle ranches in the high plateaus of the Katanga.

35. Native agriculture covers an area of 2.4 million hectares with an output valued in 1952 at 11.4 billion francs or about 5,000 francs per hectare. Most of it is subsistence agriculture, although the part reaching commercial channels, valued at 3.5 billion francs, is roughly equal to the European output. In recent years there has been a substantial expansion in cotton which is now responsible for about one-third of the cash income of Congolese farmers, and competes with palm oil as the major export crop. But otherwise there is no marked tendency towards greater diversification or increased yields in native agriculture.

36. A generation ago there was enough land to allow nomadic hoe culture without exhausting the soil. The native village farmed a certain tract of land for two or three years; when the yields began to fall the tribe moved on to a new tract, returning to the old sites only after the land had been regenerated through a long fallow period. In the last thirty years, however, the tribal population has grown from 7.5 to 9.5 million, and has become increasingly concentrated along major transport routes. In these circumstances, the primitive rotation tends to break down and the soil becomes exhausted.

37. It was therefore necessary to organize Congolese agriculture along new lines, and to establish permanent agricultural settlements ("paysannats"). In these paysannats a scientific system of crop rotation is organized as a

primary defense against soil exhaustion. But the paysannats are also becoming a vehicle through which many other agricultural and social improvements can be introduced and rural Congo transformed from subsistence agriculture to agriculture producing large supplies for the market.

38. In the original Plan estimates, investment in the paysannat and related programs accounted for over 700 million francs. (In addition, an estimated 1.4 billion was to be spent in planning and installing the paysannat expenses which, although financed from the ordinary budget, would also represent an investment in a wider sense). Investments in agricultural research and development were put at 300 million francs, as were improvements in meat and fish production, and expenditures on silos, warehouses and refrigeration facilities. So far investment in storage and refrigeration facilities has been very small. Through June, 1954 about 600 million francs had been spent on agriculture, no less than one half on agricultural research and the rest mainly for the paysannats and soil conservation.

Paysannats

39. Before a paysannat is established, the available land is carefully studied as to its physical characteristics and tribal rights to it. Where new territory is to be put under the plough, land has often to be cleared, drained, sometimes even irrigated, and access roads have to be built. Finally, the land is divided into sections to be cultivated one after the other, according to a predetermined system of crop rotation, including the necessary fallow period.

40. Because of the time involved in planning and in carrying through these preliminary steps, the paysannat program got under way relatively slowly. At the end of 1953, about 125,000 farmers had been installed as compared with a target for the decade of 450,000. Although the rate of installation could now be stepped up, experience has shown that supervision of a paysannat in the initial years will require more trained men (Europeans and Congolese) than originally expected. For this reason, the Government has cut the target for the ten-year period from 450,000 to 300,000 farms. The total cost, however, will be well above the original estimates in view of price increases, higher costs of supervision and the inclusion of several items at first expected to be financed through the ordinary budget.

41. It remains to be seen whether the Government will really be able to stabilize the paysannat program at the present level. A cut-back in areas where the program is well under way will probably be strongly resisted. In other areas, notably in the Kivu and Leopoldville provinces, experiments have been conducted regarding the economics of more intensive agriculture and the stage is set for action on a wider front. Since the pressure of population upon limited soil resources is particularly serious in these areas, they can put in a strong claim for additional funds. Nor must the overall aspects be forgotten. The present rate of installation of about 30,000 farmers per year compares with a total rural population of about 2 million families and an annual net increase of 22,000 new farmers.

The Work of Ineac

42. Progress has been particularly rapid in research and development carried out by the Institut National pour l'Etude Agronomique du Congo Belge (Ineac). Among its projects are several new research buildings at the main station at Yangambi, and continuing experiments in plant and animal selection, in new methods of cultivation including mechanization and use of fertilizer, and in forest planting and management. In some thirty regional stations, Ineac selections are tested under local conditions and the best varieties multiplied. Thus far, the most important benefits have probably been obtained from plant selection. Yields from plantations of new hybrid oil palms average about 3 tons of oil per hectare as compared with about 1.5 ton from previous selections. The latest Ineac variety of Robusta coffee has given yields of roughly 2 tons per hectare as compared with the present Congo average of 0.75 ton. Similar results have been obtained for several other crops.

43. Although much remains to be done, both in plant selection and dissemination of the results among the Congolese, the emphasis is now shifting towards improved methods of cultivation. The recent doubling of cotton yields in certain territories of the Kasai is attributed primarily to better cultivation. Mechanization and the use of fertilizer have so far played only a minor role in Congo agriculture, but this situation may gradually change. Mechanization is potentially important in clearing the tropical forest and the savannah, and in tilling the hard tropical soils. Both are extremely arduous operations, and explain partly why, even in the paysannat, the annual area cultivated by each family is set as low as 0.6 to 1.0 hectare. According to experiments at the Ineac station at Gandajika, tillage to a depth of 25 cm. by the aid of disc cultivators would cost about 1,000 francs per hectare, but would raise cotton yields by 20%, an increment worth about 1,200 francs. The fact that mechanized cultivation would make it possible for a farmer to cultivate three or four times as much land as he now does adds greatly to the attraction of higher yields. The use of fertilizer may also be a paying proposition. Experiments suggest that a modest dose of mixed fertilizer, applied before each crop rotation, would raise yields substantially. Mechanized tillage in conjunction with the use of fertilizer might also enable the farmer to use his land more intensively by reducing the fallow period. Obviously, such changes take a long time to be worked out in detail and generally applied. They can hardly be expected to have much effect on Congo agriculture under the present Plan.

Forestry, Cattle Raising and Fisheries

44. The equatorial forest is a valuable natural resource. Besides providing the country with fuel and meeting most of its lumber requirements, it also furnishes valuable hardwoods for export. Recently four plywood and veneer mills have been built and the establishment of a pulp and paper industry is being studied. The Plan target was to plant annually 5,000 hectares of forest for industrial uses, of which 1,500 hectares were required to maintain the existing cut. So far achievements have lagged behind this goal. However, Ineac is developing promising new techniques for the conversion of the existing low value forest to high value forest, which should permit to step up this program considerably.

45. In the savannah, forest corridors of fast-growing and relatively fire resistant species, such as eucalyptus and bamboo, are planted around the paysannats. The primary purpose is fire protection. According to one expert, the suppression of bush fires for three years would double agricultural output. At the same time these forest bands would also provide the farmer with wood for fuel and building. About 5,000 hectares of protective forest were to be planted under the Plan. The program has, however, run into difficulties. In certain areas the seedlings can be successfully planted only during a short period of the year and maintenance of young trees requires much labor. Also, questions have been raised as to the real efficacy of these forest bands for fire protection. Thus, until more experience is gained, the Government will probably proceed slowly in this field.

46. Expansion of meat and fish production is important in the Congo because the native diet is deficient in animal proteins and because one half of the meat and one-third of the fish supplies come from abroad, notwithstanding low consumption levels. There are many obstacles, however. The tsetse fly is widespread and in the tropical climate cattle have low weight and low resistance to disease. Climate and long distances make meat distribution costly and cause sanitary problems. Moreover, many tribes have little experience in, and sometimes no inclination for, animal husbandry.

47. Thus far expenditure on the livestock program has been on slaughter houses and local breeding stations, on imported cattle for the new paysannats and Ineac, and on selective breeding and improved feeding practices. Plans are under way to introduce cattle-raising on the arid Kwango plateau in the Leopoldville province. In the east the pastoral tribesmen are slowly being induced to raise cattle for productive purposes rather than for prestige reasons. The Government now intends to expand the livestock program by including grass land improvement, strengthening the veterinary service and constructing more dipping tanks and slaughter houses.

48. Construction of fish ponds and the parallel expansion of fish hatcheries is also being promoted on the assumption that one hectare of land under a fish pond would provide as many proteins as 160 hectares under cattle. A dozen hatcheries are in operation, but only 3,400 hectares of ponds have been constructed by the Congolese as compared with 30,000 hectares required to meet the ten-year target of 60,000 tons of fish per annum. Although the pond program is not yet safely under way, another program for intensified exploitation of the Great Lakes on the eastern border of the Congo has already been initiated.

EUROPEAN SETTLEMENT

49. To help independent European settlers to go into business in cities or to establish themselves as farmers, the Government has been providing them with credit through the Societe de Credit au Colonat et a l'Industrie. Early in 1951, the capital of this organization was raised by 200 million francs to make it compatible with new tasks under the Plan. In addition, facilities for the processing of agricultural products have been promoted, particularly in the

Kivu. Plants for grading and packing of tea, for extraction of soya oil and processing of fish are in various stages of study or construction. Further, three schools and several reception centers have been built in rural areas to provide training in practical agriculture and temporary accommodation for European immigrants. Altogether over 300 million francs has been spent on European settlement.

RESEARCH AND SURVEYS

50. Knowledge of natural resources, topography and weather conditions is a prerequisite to economic development. Geological surveys are essential to mining development, while maps have to be made and soils surveyed before roads, railroads, hydroelectric projects or irrigation schemes can be set in motion. In a vast tropical country like the Congo all of this requires an enormous effort which has been undertaken by numerous public and private organizations, ranging from Ineac in the field of agriculture to the Geographic Institute of the Belgian Congo responsible for cartography.

51. To date about 100 million francs has been spent and work appears to be going forward smoothly. Indeed, new methods of, for instance, aerial photography have made it possible to push ahead more rapidly in map-making than was expected. However, the expansion of research programs, and the general rise in prices have made it necessary to almost double the original estimate of the cost of work in cartography, geology and meteorology.

HOUSING

General

52. The task of housing the detribalized population is among the most challenging in the Congo. About 2.6 million Congolese now live and work outside the tribal organization, and the number is growing steadily. As is indicated by the following table, the growth of urban agglomerations during the past 15 years has been spectacular.

Leopoldville		Elisabethville		Jadotville		Matadi		Stanleyville		Bukavu	
1940	1954	1940	1954	1940	1954	1940	1954	1940	1954	1940	1954
47	270	27	115	19	60	9	54	17	50	2	25

(thousands of Congolese inhabitants)

This growth necessitated the erection of entire urban communities. Land had to be cleared, leveled and drained, streets and sewers laid out and electricity supplied, and schools, hospitals, market places and playgrounds built. These works are costly. Expenditure on infrastructure is equal to 60% and that on communal buildings to 40% of expenditure on house construction itself.

The Fonds d'Avances

53. Quite apart from its responsibility as a large employer to provide housing for the 76,000 Congolese in its service, the Government also helps to house people who come to cities without employment contracts ensuring living quarters. Already before the war the Congolese willing to build houses themselves and deemed able to carry the financial burden could obtain the required materials from the municipalities on credit generally repayable over five to six years. Funds for this activity come from the Fonds d'Avances, an appropriation in the extraordinary budget, and are lent to municipalities. Since the householder often repays the municipality more rapidly than the latter is bound to repay the Government, the municipality is in a position to step up the rate of operations by means of a revolving fund. In Elisabethville, where the Fonds d'Avances method has been outstandingly successful, about 65,000 Congolese not housed by their employers, live in 8,000 durable houses which they own. Of these, 6,000 were built between 1950 and 1954 with the help of advances averaging some 25,000 francs. Half of the houses have water and there are sewers and electricity in many streets.

The Work of the O.C.A.

54. The Fonds d'Avances method was too slow to cope with the housing problem in certain cities. Consequently, the Plan provided for the creation in the Congo of several Offices des Cites Indigenes to organize and direct rapid mass construction of 20,000 durable houses in Leopoldville and 20,000 in other large cities. In 1952 the work of the Offices was taken over by the Office des Cites Africaines (O.C.A.) established in Brussels. The mission observed the work of O.C.A. in Leopoldville, Stanleyville and Bukavu. As may be seen below, the rate of operations has increased spectacularly in the last two years:

	<u>1951-1952</u>	<u>1953</u>	<u>Jan.-April</u> <u>1954</u>	<u>1954</u> est.	Total	
					<u>April</u> <u>1954</u>	<u>Dec.</u> <u>1954</u> est.
Houses started	3624	4887	3546		12057	
Houses completed	2383	4266	1561	7500	8010	14000

55. Conditions in which O.C.A. operates are different in the three cities. In Leopoldville, where 10,000 houses are expected to be completed by the end of 1954, and in Stanleyville, infrastructure is lagging. The sandy soil on the flat outskirts of Leopoldville required deep drainage works, and at Stanleyville land clearing was difficult, particularly during the rains. Streets and the electric y distribution network have been completed in only one of the Leopoldville developments, whereas in Stanleyville the question of water supply was only recently studied. In Bukavu, on the other hand, despite great difficulties in terracing rocky hillsides, progress on streets, sewers, water mains and communal buildings has been impressive. In order to reduce the cost of infrastructure per dwelling, and sometimes also for reasons of topography,

settlement in O.C.A. developments is fairly dense. Two to six dwellings are usually grouped under one roof. Two-story houses are being tried in Leopoldville and are a regular feature at Bukavu - an innovation for people used to living at ground level.

56. The organization of O.C.A. work depends on the availability of contractors and manpower. In Leopoldville, O.C.A. either constructs whole developments for its own account or lets large contracts to private enterprise. In Bukavu work on infrastructure is done by contractors, while O.C.A. builds all the houses itself with its own equipment and labor; bids for house construction were invited in 1952 but the lowest was 50% above the estimated cost to O.C.A. In Stanleyville shortage of local enterprise compelled the Office des Cites Indigenes, and subsequently O.C.A., to undertake most of the construction work. The recruitment and training of manpower took a long time and even now the shortage of labor hampers the smooth progress of operation.

57. The mission could not make any adequate judgment of housing costs. These are substantially lower than for comparable imported prefabricated houses. Moreover, it is clear that O.C.A. is making great efforts to keep construction costs low. In Leopoldville, a square meter of floor space costs between 1,100 and 1,350 francs and in certain instances as little as 1,000 francs. Costs are roughly the same in Stanleyville, after having been reduced in the past three years by more than one-third. In Bukavu, construction cost per square meter is about 20% over the Leopoldville level because building materials are much more expensive due to high incidence of transport charges.

58. The accomplishments of O.C.A. are impressive. At the Bagira development near Bukavu, for instance, where the first foundations were laid in January 1954, long rows of houses were nearing completion at the time of the mission's visit. O.C.A. should be able to fulfill or even to exceed the original goals of the Plan. Its expenditure is now running at the rate of 1.1 billion francs per annum, including expenditure on infrastructure for which funds are appropriated under the heading of "Administration". Its sphere of activity is expanding: Elisabethville will be included in its program in 1955.

59. This does not mean that the Fonds d'Avances method has failed. Indeed, it appears to have many advantages. It encourages permanent settlement and gives the owner, to whom the concepts of credit and private property are both new, a more personal interest in his home. At the same time it is less of a financial drain on the Treasury. But in the largest, most rapidly growing urban areas, where unsanitary and unsightly shanty-towns are still in evidence, it was insufficient and a mass construction program such as that of O.C.A. was imperative.

NATIVE EDUCATION

60. As in all African territories, the need for more education is only too obvious in the Belgian Congo. Probably between one half and two-thirds of the children of school age do not go to school, those who go now numbering over 1 million. Less than 50,000 are in vocational or secondary schools and almost none have passed through a university. Since far more boys than girls have in the past been sent to school, the cultural gap between the educated men and the

women rooted in tribal tradition is now a striking and unfortunate feature of urban society in the Congo. The implications of this situation are recognized by the Government but it can be eliminated only gradually. Schools for Europeans are open to the Congolese provided the latter come from similar backgrounds; but for the time being very few Congolese children attend them. This is not merely a matter of learning French - the adaptation of a western education to a primitive society raises difficulties not yet fully understood, far less solved. Although the Government's financial responsibility for the capital and recurrent costs of education is steadily growing, teaching itself is still primarily in the hands of religious missions, often subsidized by the Government.

61. Within the framework of the Plan, a very considerable effort is being made to expand and improve educational facilities in which, according to present estimates, 2.1 billion francs is to be invested during the current decade. To June 30, 1954, 700 million francs has been spent. The greatest emphasis is being placed on primary education for both sexes, but vocational training for boys and home economics for girls are being more widely taught.

MEDICAL FACILITIES

62. The need for improved medical facilities in tropical Africa is no less than that for more education. In the Congo one child out of ten dies in infancy and the average life expectancy of a Congolese at birth is still under 40 years. This does not detract from the great and, in some cases, spectacular progress which has been made. Regular spraying of insecticides, for instance, has in recent years greatly reduced the danger of malaria. About half the expectant mothers are now estimated to benefit from prenatal care, and in some of the advanced urban centers four children out of five are born in hospitals. From 28.8 per 1,000 inhabitants in 1930, the death rate has fallen to 21.5 per 1,000 in 1953.

63. Many organizations have contributed to this result. The missions have long been active in the building and operating of hospitals, and large private companies and parastatal organizations typically have their own medical facilities. Over the past six years the Fonds du Bien-Etre Indigene (FBEI), financed by Government grant and by the proceeds of the Colonial Lottery, has spent about 1 billion francs on medical and sanitation facilities in rural areas. A large part of the campaign for improved health falls within the framework of the Plan. To June 30, 1954, 600 million francs have been spent on medical facilities and total expenditure planned for the decade has now been raised to about 2.8 billion francs, mainly because of the rise in prices.

ADMINISTRATION

64. The Belgian colonial administration now employs 7,300 Europeans in the Congo, compared with 4,800 in 1949. The great majority of these officials are in Africa with their families, a marked contrast with the years before the war. Work in an underdeveloped country in the tropics is exacting and adequate

living conditions, educational facilities and office accommodation must be available if the Congo is to attract qualified and efficient staff. The employment of a European in the Congo costs the Government 450,000 francs a year against 375,000 francs in 1949. This includes housing, travel within the country, salary, which is roughly twice as high as that for comparable positions in Belgium, a share of capital invested in health and educational installations, and, every three years, home leave for the whole family.

65. The Plan foresaw investment in administrative buildings and in housing for 3,000 European officials and 10,000 Congolese Government workers. At the time of the mission's visit, 1,500 European homes had been completed and about 500 were in the course of construction. Although detached one-family houses are the rule, some large apartment buildings have recently been erected in Leopoldville. Several thousand houses for Congolese Government workers have also been built. Further substantial amounts have been spent on asphalted streets, the benefits of which no one who has not experienced the dust of the dry season in Africa can fully appreciate.

66. To June 30, 1954, 2.4 billion francs have been spent throughout the country on office buildings, court houses, customs depots, schools for European children and houses for Government personnel. That actual expenditure on administration in $4\frac{1}{2}$ years was twice as large as the original ten-year estimate can be ascribed to the general rise in prices and to the expansion in the colonial service which in 1954 includes 400 Europeans more than the number foreseen for 1959. Moreover, costly European schools and work on infrastructure carried out in native cities by the O.C.A., which do not seem to have been originally included under this heading, were actually financed from the appropriation for administration. Investment in administration is now put at 7.5 billion francs for the ten years of the Plan. Consequently, about 5 billion francs are to be spent between now and 1960. The larger part of this expenditure will be in housing for Government personnel and in urban infrastructure, as the need for office buildings and European schools should be largely met by the end of 1955.