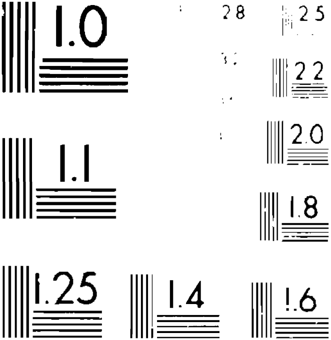
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INDUSTRIAL DEVELOPMENT ORGANIZATION

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SOLIDARITY MINISTERIAL MEETING FOR CO-OPERATION IN THE INDUSTRIAL DEVELOPMENT OF THE RWANDESE REPUBLIC *

VOLUME I

Rwanda. PROJECT PROPOSALS .

Kigali (Rwanda), 5-8 June 1984

* This document has been translated from an unedited original.

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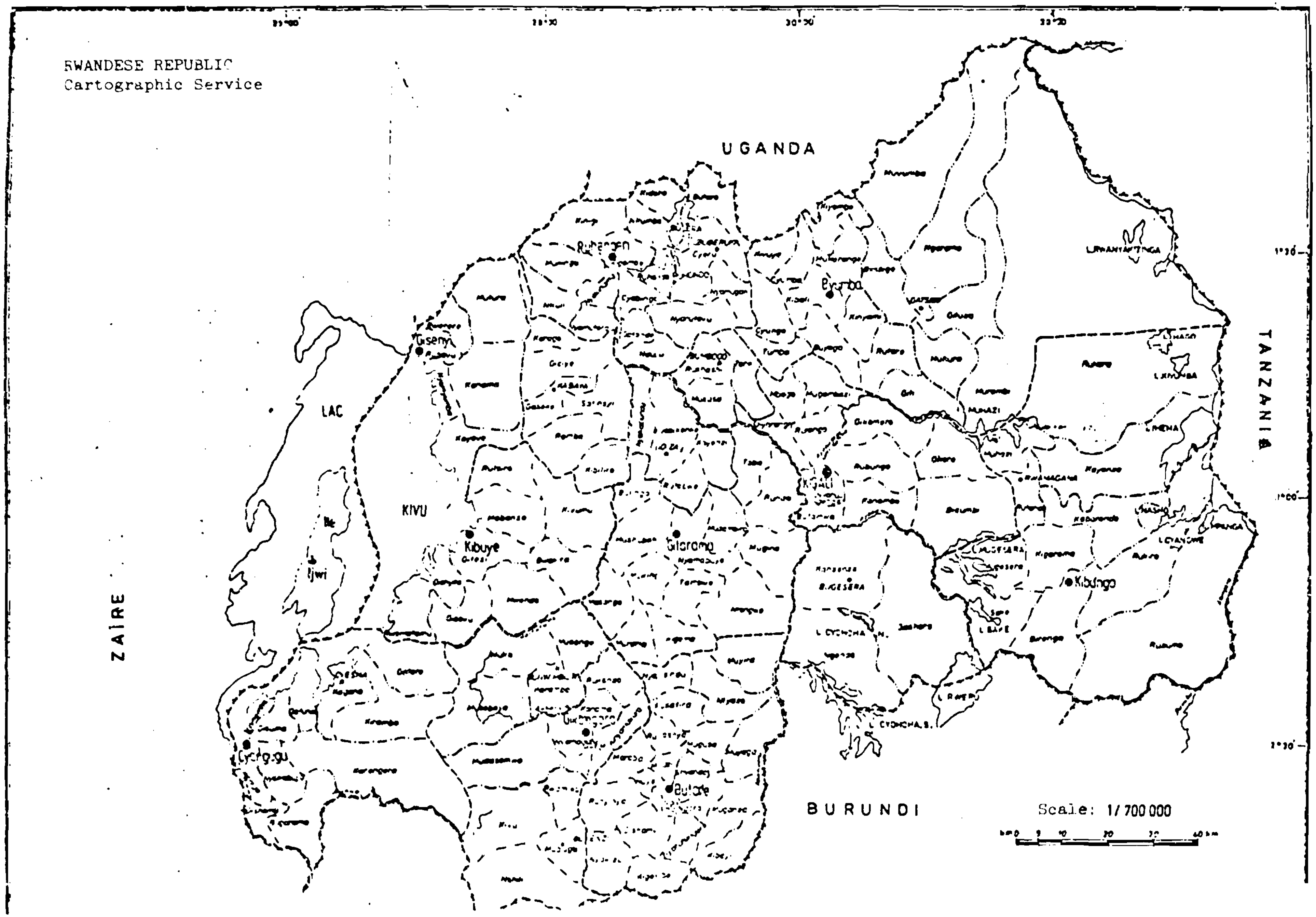

RWANDESE REPUBLIC
Cartographic Service
UGANDA
TANZANIA
BURUNDI
ZAIRE
LAC
KIVU
Ruhengeri
Byumba
Gisenyi
Kibuye
Gitarama
Kigali
Kibungo
Gikongoro
Butare
Cyangugu
Scale: 1/700 000

CONTENTS

Development Indicators

1.	Area of Rwanda	26,338 km^2
2.	Population density	197 inhabitants/km^2
3.	Number of farms	approximately 930,000
4.	Average area per farm	between 1 and 1.9 hectares
5.	Population of Rwanda	5.2 million inhabitants
6.	Population growth rate	3.7 per cent per year
7.	Death rate	1.84 per cent per year
8.	Birth rate	5.41 per cent per year
9.	Agricultural population	95 per cent
10.	Non-agricultural population	5 per cent
11.	Inflation rate (1982)	7-8 per cent
12.	Trade balance (1982)	-16,949,926,935 Rwanda francs (approximately US$169,499,269)
13.	Balance of payments (1982)	-4,137 million Rwanda francs (approximately US$41,370,000)
14.	GNP (1982)	133,560 million Rwanda francs (approximately US$1,335.6 million or US$252 per inhabitant)
15.	GDP (1982)	132,930 million Rwanda francs (approximately US$1,329.3 million or US$237 per inhabitant)
16.	Contribution of industry to GDP	approximately 17 per cent
17.	Life expectancy	47 years
18.	Chief towns	Kigali (capital) Butare Gisenyi Ruhengeri

PROJECT 1

1. Name of the Project: Protein-enriched foods.

2. Sponsor: Ministry of Industry, Mining and Crafts.

3. Capacity: 9,200 tonnes per year.

4. Location: To be decided - either at Kigali or at Mugesera.

5. Estimated cost: 572 million Rwanda francs (US$6 million).

6. Objective: Production of protein-enriched concentrates for human consumption; production of protein-enriched animal feed; and betterment of the land through the addition of organic matter.

The existing pre-feasibility study (1981) will have to be supplemented and converted into a feasibility study proper. This will involve four prior operations: (1) carrying out agricultural production tests on one of the four leguminous plants envisaged as raw material; (2) determining the conditions for growing the plants for the undertaking; (3) dispatching seven tonnes of the raw material to Europe for industrial production tests; (4) carrying out food consumption tests.

7. Justification: It is estimated that only 76 per cent of Rwanda's protein requirements are met. The leguminous plants used for the production of protein-enriched food will be harvested mainly in the regions of Kigali, Gitarama, Butare and Kubungo. The project does not call for the cultivation of new lands. Plants not at present consumed (beans, vetch, pigeon peas) can be grown on fallow land.

8. Benefit: The project will mean a reduction in the people's food protein deficit; the development of animal husbandry; an improvement in the quality of the soil by ploughing in (manure crops) and adding organic matter (animal); the creation of 25 jobs; utilization of raw materials of Rwandese origin; and the possibility of exporting the finished products.

9. Request: The Rwandese Government would like to receive financial and/or technical assistance in carrying out the study of the scheme, and in the operation. Technical assistance for the training of executives and for the management of the undertaking would be desirable.

PROJECT 2

1.	Name of the Project:	Dairy at Kigali.
2.	Sponsor:	Ministry of Industry, Mining and Crafts.
3.	Capacity:	5,000 litres of milk per day. 3,200 yoghurts per day. 150 kg of butter per day.
4.	Location:	In the immediate neighbourhood of Kigali.
5.	Estimated cost:	400 million Rwanda francs (US$ 4.4 million).
6.	Objective:	To provide the population of Kigali with the milk and dairy products it requires by bringing under cultivation an area of 120 to 190 hectares in the swampy zones unsuitable for food crops; setting up animal husbandry and food processing structures; constructing buildings on a site of between 5,000 m^2 and 8,000 m^2 for 500 milk cows; and installing milking equipment and facilities for the transport, handling and processing of milk.
7.	Justification:	Rwanda has a shortage of dairy products and imports the essential minimum of these products, mainly fresh milk, butter and yoghurt. The Government would like to set up an all-purpose dairy suited to the needs of the capital, which is the main market. A pre-feasibility study is under way. The agricultural part alone has been completed; the commercial and industrial parts are due to be completed in due course.
8.	Benefit:	The purpose of the project is to meet the needs of the population of Kigali by way of milk and dairy products within the context of food self-sufficiency, to limit exports, to save currency, and to create 220 to 350 jobs.
9.	Request:	The Rwanda Government would like to receive financial and/or technical assistance to carry out a full-scale industrial study and the project itself, as well as technical assistance for the training of executives and the management of the undertaking.

PROJECT 3

1.	Name of the Project:	Brewery.
2.	Sponsor:	Ministry of Industry, Mining and Crafts.
3.	Capacity:	250,000 hl of beer per year, which may be expanded to 400,000 hl per year.
4.	Location:	Kigali (industrial estate of Kanombe).
5.	Estimated cost:	2,500 million Rwanda francs (US$ 26 million)
6.	Objective:	Installation of a brewery at Kigali for producing ordinary beer in 72 centilitre bottles, with an alcoholic strength of between 4 and 5 on the scale. The project will involve land development (electric energy, water supply, telephone installation, waste water disposal), the construction of a full-size factory on a plot of approximately six hectares, and the training of national personnel.
7.	Justification:	There is one brewery in Rwanda, with an annual production capacity of 700,000 hl of beer, to cater for a population of 5.4 million inhabitants. The present brewery cannot supply the market regularly. There are periods when beer is in short supply. There is a cottage industry which produces banana beer, in shockingly bad hygienic conditions injurious to health. The bottling will be done by the bottle factory at Bujumbura in Burundi. In order to reduce imports of raw materials it is hoped in due course to install a malt factory.
8.	Benefit:	The aim of the project is to exploit local raw materials and to create jobs in the secondary sector. It will provide work for approximately 340 persons. The production of 250,000 hl of beer per annum should produce tax revenue of approximately US$ 13 million per year. There will be by-products from the production of beer - draff and yeast for animal feed.
9.	Request:	The Rwandese Government would like to receive financial and/or technical assistance in carrying out the feasibility study and the project itself. The Government and private individuals in Rwanda might contribute to the financing of the brewery. Technical assistance for training executives and for the management of the brewery would be desirable.

PROJECT 4

1. Name of the Project: Hides and skins industry.

2. Sponsors: Ministry of Industry, Mining and Crafts. Ministry of Agriculture, Animal Husbandry and Forestry.

3. Capacity: To be determined.

4. Location: To be determined.

5. Estimated cost: A feasibility study estimated at 7.2 million Rwanda francs (US$ 75,000) will determine the cost of the various components needed for the execution of the project.

6. Objective: The establishment of a hides and skins industry in Rwanda, consisting mainly of the following:

   Arrangements for collecting and storing fresh skins on a nation-wide scale;

   A series of centres for treating skins (industrial or artisan-type tanneries);

   A series of units for processing to produce articles for national consumption.

7. Justification: Rwanda is a producer of bovine cattle, goats and sheep. For the year 1980, slaughterings are estimated at approximately 118,000 bovine cattle, 675,000 goats and 75,000 sheep. Exports of hides and skins are estimated for the same year at 252 tonnes of cow and ox-hides (33,000 hides) and 337 tonnes of goat skins (65,000). These products are exported at very low prices, since they are processed only to the degree necessary to preserve them during storage and transport. A market study is under way; it will investigate the domestic market and the exportation of hides and skins to industrialized countries. The task of the domestic market is to produce locally at industrial and small business level the various articles needed by the people. For the external markets, contact has been made with European undertakings, which after examining samples have stated that they are interested and have proposed acceptable prices on the basis of the initial examination.

   Certain features of the hides and skins industry already exist in the country, but they need to be improved and supplemented to constitute a complete and effective whole from the technical and economic points of view. The main features which exist are cattle herds, slaughter-houses, outfall drain equipment, a tanning and dressing unit, enterprises for exporting skins, and skilled leather workers.

8.	Benefit:	The purpose of the project is to make the country self-sufficient, to increase earnings in currency by exporting better-finished industrial products, and to create jobs.
9.	Request:	The Rwanda Government would like to receive financial and/or technical assistance to carry out the feasibility study and the project itself, to train executives, and to start operations as the need arises.

PROJECT 5

1. Name of the Project: Tobacco-growing in Rwanda.

2. Sponsors: Ministry of Industry, Mining and Crafts. Ministry of Agriculture, Animal Husbandry and Forestry.

3. Capacity: 800 tonnes a year.

4. Location: To be determined.

5. Estimated cost: A pre-feasibility study estimated at 7.2 million Rwanda francs (US$ 75,000) will determine the cost of the various components needed for the execution of the project.

6. Objective: The aim of the project is to develop tobacco products of the quality required by TABARWANDA, and it will involve:

   - determining and selecting sites for cultivation;
   - determining the technology required for tobacco-growing, harvesting and drying;
   - defining the resources required at each of these stages;
   - implementing these various measures;
   - selecting leaders and training local personnel.

7. Justification: Tobacco consumption in Rwanda is catered for by a single cigarette firm situated at Kigali - the TABARWANDA company, which handles 900 to 1,000 tonnes of tobacco each year. Approximately 80 per cent of this consists of Virginia and White Burley qualities, which could be produced in Rwanda; Virginia tobacco constitutes 60 per cent of this replaceable total.

   At the present time, tobacco production in Rwanda is carried on at the level of small-holdings, and is intended to meet the needs of the rural population. The regions particularly involved in this cultivation are in the north of the country - the prefectures of Gisenyi and Ruhengeri. The qualities produced are not suitable for the manufacture of the light cigarettes preferred by the Rwandese population; these are the speciality of TARBARWANDA.

8. Benefit: The objective of the project is to substitute nationally produced high-quality tobaccos for tobaccos currently being imported, to limit imports to those qualities which cannot be obtained in the country, to create a large number of jobs and to contribute to the attainment of national self-sufficiency.

9. Request: The Rwanda Government would like to receive financial and/or technical assistance for the following:

Definition of the conditions for production and drying tests (location, cultivation technique, treatment, harvesting, drying);

Preparation of the final blueprint, involving a precise definition of all the resources needed;

Technical assistance for the scheme, and training of Rwandese personnel.

Participation in the financing of the various operations defined above would likewise be desirable.

PROJECT 6

1.	Name of the Project:	Fibreboard panels (based on crushed bamboo).
2.	Sponsor:	Ministry of Industry, Mining and Crafts.
3.	Capacity:	To be determined.
4.	Location:	Close to the Gishwati forest in the north west of the country.
5.	Estimated cost:	400 million Rwanda francs (US$ 4.2 million)
6.	Objective:	The installation of a fibreboard mill using vegetable matter available in the local region, and in particular bamboo. A pre-feasibility study will first be carried out to ensure the viability of the proposed plant (tests on the production and use of the boards). A feasibility study will be made if the pre-feasibility study produces conclusions in favour of carrying out the project. The project will involve forestry operations in conjunction with the current forest clearance project (building of access roads between the forest and the factory); the production plant; the establishment of a network for the distribution of the panels; and possibly a demonstration workshop.
7.	Justification:	An agricultural scheme for partial clearance of 5,000 hectares of the Gishwati forest in the north west of the country is now being carried out; it involves cutting a large mass of bamboo which there are no plans to exploit apart from the project for manufacturing fibreboard. At the present time this type of boarding is still very little used in Rwanda.
8.	Benefit:	The project implies improving the local value added situation by the use of the country's natural resources; improving the balance of trade by eliminating imports of fibreboard and other building materials; and creating 33 industrial jobs (1 foreman, 2 technicians, 30 workers) and 70 forestry jobs.
9.	Request:	The Rwandese Government would like to receive financial and technical assistance in carrying out the studies and the project, and technical assistance in training executives and starting up the plant.

PROJECT 7

1. **Name of the Project:** Sisal bags and cloth.

2. **Sponsors:** Ministry of Industry, Mining and Crafts. Ministry of Agriculture, Animal Husbandry and Forestry.

3. **Capacity:** 800,000 bags per year.

4. **Location:** To be determined.

5. **Estimated cost:** A feasibility study estimated at 7.2 million Rwanda francs (US$ 75,000) will determine the cost of the various components needed for the execution of the project.

6. **Objective:** Production of sisal bags and cloth, for packaging a variety of products, especially coffee (30,000 tonnes exported on an average each year) and tin ore.

7. **Justification:** Rwanda imports all the jute and sisal bags needed for packaging various products. There is already a large agricultural scheme for sisal production, which will gradually be put into operation. It should be able to ensure supplies to enable a factory to produce the 800,000 bags needed each year in Rwanda for packaging (500,000 bags for packing coffee, 100,000 for miscellaneous use, 200,000 for export to neighbouring countries) subject to confirmation on the basis of a market study.

   It will take eight years before this sisal production scheme is able to supply the 1,400 tonnes needed by the factory. It will therefore be necessary to import the fibre from the neighbouring countries (Kenya or Tanzania) which are fibre exporters.

   It will be necessary to study two variants for the project. The first would consist of importing sisal yarn ready to be used for weaving. This possible solution would help to cut investment and simplify the manufacturing process. In this event, sisal spinning could be envisaged later on, once the full range of equipment had been installed. The second alternative would be to design the plant to cover the entire process comprising all the production operations (cutting, roping, etc.) through to the finished bags. The project will also involve the arrangements for collecting and transporting the fibres between the production site and the plant. The printing on the bags is not included in the project.

8. Benefit: The project will contribute to national self-sufficiency, improve the balance of trade, and create jobs.

9. Request: The Rwandese Government is open to offers for the supply of raw materials (fibre and yarn) and financial and/or technical assistance in carrying out the studies (under each of the two hypotheses), and for the complete installation of the equipment needed for the entire plant. Technical assistance for starting up the factory and training Rwandese personnel would be desirable.

PROJECT 8

1. Name of the Project: Integrated textile industry.

2. Sponsor: Ministry of Industry, Mining and Crafts.

3. Capacity: To be determined.

4. Location: To be determined.

5. Estimated cost: A feasibility study estimated at 9.6 million Rwanda francs (US$ 100,000) will determine the cost of the various components needed to execute the project.

6. Objective: The aim of the project will be to give guidance to Rwandese private initiative in setting up a private textile industry calculated to further the national economic interests. The structure of the project will involve the following:

   A study of the textile market;

   A ramie feasibility scheme; 1/

   Adaptation of the existing finishing scheme;

   Preparation of the weaving and finishing project;

   Adaptation of the knitwear and hosiery scheme.

7. Justification: Rwanda imports all the textiles it needs; this constitutes the most costly foreign currency item in its balance of payments. These imports could be eliminated almost entirely as far as fabric in the piece is concerned, by the cultivation and industrial processing of ramie. 1/ Imports of yarn and fibre other than ramie would be needed for the production of certain types of fabrics, but this minor import item could be offset by exporting ramie to the regional market.

   The consumption of textiles in Rwanda consists mainly of some 12 million metres a year of fabrics in the piece, of various types and qualities, and second-hand clothing. The second-hand clothing industry constitutes a market separate from that of fabrics in the piece, and it is likely to disappear sooner or later as the peoples' earnings increase. Several different textile projects are being studied or are in the process of execution: a factory for refining loomstate fabrics (capacity) 5 million metres, now being financed), the ramie

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1/ See Project 9: Ramie spinning.

production project (being studied), 1/ knitwear and hosiery mill (in the process of execution), and a weaving and finishing plant (capacity approximately 5 million metres - being studied).

8. Benefit: The aim of the project is to reduce imports considerably, to create several thousand jobs, and to contribute to national self-sufficiency.

9. Request: The Rwandese Government would like to receive financial and/or technical assistance for the following:

A mission by specialist textile consultants with a view to:

- defining and evaluting the cost of full-scale agricultural tests of ramie production; 1/
- preparing pre-feasibility studies for each of the agricultural or industrial units constituting the integrated textile industry project;
- assessing the overall benefit of the textile project to the national community as a whole;
- preparing the full-scale project up to the engineering stage, and selecting technical assistance measures for the establishment and operation of the units;
- establishment of private or State production units.

PROJECT 9

1. Name of the Project: Ramie spinning.

2. Sponsors: Ministry of Industry, Mining and Crafts. Ministry of Agriculture, Animal Husbandry and Forestry.

3. Capacity: 1,100 tonnes of ramie yarn per annum.

4. Location: The swamps of Rugezi/Ruhengeri.

5. Estimated cost: 1,830 million Rwanda francs (US$ 19.9 million).

6. Objective: The aim of the project is to set up an integrated agro-industrial complex producing each year 1,100 tonnes of ramie yarn for spinning and hosiery for the Rwandese market.

The project comprises: an agricultural holding of approximately 1,000 hectares with an annual production of 3,500 tonnes of ramie yarn per annum, the installation of a set of crushing machines spread out over the farm area, the construction of a pre-spinning mill (for crushing, degumming, bleaching, etc.) and a workshop for combing and spinning. The object of the first phase of the project will be to carry out agricultural testing of optimum growing conditions, annual yield, conditions governing harvesting and crushing on the spot, etc. The object of the second phase will be to work out a full-scale feasibility study for the complex. Its execution is envisaged subject to satisfactory findings emerging from the studies.

7. Justification: Rwanda imports all the textiles it needs (13 million metres a year); this is the most costly foreign currency item in Rwanda's balance of payments. These imports of fabric by the piece could be almost entirely eliminated by the cultivation and industrial production of ramie, which is already grown in the country for uses other than textile production.

Ramie is a high quality product regarded as capable of replacing all other textiles advantageously. It can, incidentally, be used in its pure state or mixed with other natural or man-made fibres. A pre-feasibility study of ramie spinning was prepared in 1982, and it is due to be updated, since at the time the exportation of ramie yarn was envisaged, but at the present time the project no longer looks beyond the domestic market. Growing methods are under way.

The swampland population was estimated in 1970 at 80,000 people, and its annual growth rate at 2,200 persons. This population cannot find work in agricultural activities alone.

8. Benefit: The project is one of the national schemes for reducing the trade imbalance in the textile sector. It will involve the creation of approximately 1,100 local jobs.

9. Request: The Rwandese Government would like to receive financial and/or technical assistance in acquiring agricultural and industrial know-how and carrying out studies and experiments; it would also welcome participation in the installation of capital equipment. Technical assistance in starting up the undertaking and in training executives would be desirable.

PROJECT 10

1.	Name of the Project:	Agro-industrial complex for silkworm breeding.
2.	Sponsor:	Ministry of Industry, Mining and Crafts.
3.	Capacity:	30 tonnes of dry cocoons a year.
4.	Location:	Probably the prefecture of Kibuye.
5.	Estimated cost:	First and second phases: 105 million Rwanda francs (US$ 1.1 million); third phase: to be determined on the basis of a feasibility study.

6. Objective:

The project will develop in three phases, the first two covering the agricultural programme (cultivation of mulberry trees) and silkworm breeding, and the third phase involving the establishment of an agro-industry:

- an experimental phase - cultivation of mulberry trees and breeding of silkworms - over a period of 2 1/2 to 3 years;
- a phase involving a pilot project to grow mulberry trees on a plot of 108 hectares and to breed silkworms in 34 cocconeries;
- cruising speed will be reached in four years with an annual production of 30 tonnes of dry cocoons for export;
- depending on the results obtained in the first two phases, the plan is to extend the cultivation of mulberry trees to cover 400 hectares and to set up a spinning mill with a view to marketing products as highly finished as possible.

7. Justification:

Silk production in Rwanda is technically feasible: the mulberry tree grows very well in the country, the climate suits the silkworm, and there is plenty of manpower available.

The project has already seen tests on cultivating the mulberry tree and a pre-feasibility study, but the market has not yet been studied. Apart from that, the high price of silk should make it possible to absorb the cost of transport from a land-locked country.

The terms of reference of the agricultural phases have been drawn up by the Minister of Agriculture and Animal Husbandry. Industrial exploitation as desired can only be undertaken after the main agricultural phases have given satisfactory results. On the technical side, the conditions governing success are on two levels: (a) the possibility of three crops of mulberry leaves a year, at intervals of two months; (b) the existence of outlets for the export of dry cocoons.

8. Benefit: The establishment of a silk agro-industry in Rwanda would make a substantial contribution to the country's social and economic development, particularly by earning foreign currency and creating jobs. It is estimated that during the second phase, the project will provide 19 permanent and approximately 223 temporary jobs, or 47,000 man/days a year. Side by side with the project there is the possibility of developing a cottage industry using the waste.

9. Request: The Rwandese Government would like to receive financial and/or technical assistance for the following:

- engagement of consultants for the agricultural phase and the study of the silk market;
- the whole agricultural phase of experimentation and finalization;
- a feasibility study of the industrial scheme;
- implementation of the industrial scheme;
- launching of the undertaking and training of Rwandese personnel.

PROJECT 11

1.	Name of the Project:	Banana fibre production.
2.	Sponsor:	Ministry of Industry, Mining and Crafts.
3.	Capacity:	To be determined.
4.	Location:	To be determined.
5.	Estimated cost:	A feasibility study estimated at 7.2 million Rwanda francs (US$ 75,000) will determine the cost of the various components needed for the execution of the project.
6.	Objective:	Production of hard fibres for local manufacture of handicraft articles and the establishment of industries such as rope-making, bag manufacture, insulating slabs, etc.
7.	Justification:	Apart from local cottage-type industries, the main interest of the banana fibre market is for the establishment of an import substitution industry in the following branches:

Bags for packaging goods (imports in 1981 approximately 1,000 tonnes);

Rope-making (imports in 1981 approximately 50 tonnes);

Ceiling insulation panels (the 73,000 m^2 used each year are almost entirely imported).

There is an export market for high quality fibre. The main purchasers at the present time are the United States, Japan and the European countries.

Production problems are mainly of two kinds:

Yield: in banana fibre-producing countries the yield is approximately 1 to 1.5 per cent by weight;

Quality: obtaining high quality fibres means treating the trunk at flowering time. This makes it impossible to have fruit production and fibres at the same time; but it is possible to use a lower quality fibre obtained after the fruit has been harvested for certain purposes such as small-scale insulating tile industry, insulation filling materials, etc.

8. Benefit: The aim of the project is to reduce imports within the range of industrial uses; to create jobs and provide additional earnings for the planters; and to contribute to national self-sufficiency.

9. Request:

The Rwandese Government would like to receive assistance for the following:

Remuneration of consultants specializing in the treatment and uses of banana fibres. Their function will be to determine which products can be exploited, to specify the techniques for fibre removing and treatment prior to processing, and to work out a utilization programme; assistance in drawing up the final project; financing or part-financing of the various tasks defined above.

PROJECT 12

1.	Name of the Project:	Pharmaceutical products.
2.	Sponsors:	Ministry of Industry, Mining and Crafts. Ministry of Health and Social Affairs.
3.	Capacity:	To be determined.
4.	Location:	To be determined.
5.	Estimated cost:	The cost of the various components needed for the execution of the project will be determined on the basis of a feasibility study.
6.	Objective:	The aim of the project is to set up a pharmaceutical products factory, particularly for solutions to be taken internally or injected.
7.	Justification:	At the present time all the modern medicinal drugs used in the country are imported and therefore a drain on foreign currency. The production of medicinal plants is at the moment being studied by UNIDO. A technical and economic feasibility study is called for with a view to setting up a pharmaceutical industry with as comprehensive a range as possible and determining the structure of the project. The question of packaging will have to be studied in the case of all mass consumption products. All studies and activities will be co-ordinated and kept under control in the context of an overall scheme so as to reduce costs to a minimum to ensure the quality of the products and services.
8.	Benefits:	The main objective of the project is to substitute local production for certain imported products and gradually to develop a strictly Rwandese production based on medicinal plants.
9.	Request:	The Rwandese Government would like to receive assistance for the following: - financing and execution of an initial visiting mission by a consultant to set up the full programme of studies and schemes with a view to the progressive establishment of the pharmaceutical industry desired; - financing and execution of the schemes (the items of the programme indicated above); - contributing to the financing and supply of materials needed for the execution of the project; - technical assistance in making up the pharmaceutical preparations and training Rwandese personnel.

PROJECT 13

1.	Name of the Project:	A chemical complex for the production of calcium carbide and calcium cyanamide.
2.	Sponsor:	Ministry of Industry, Mining and Crafts.
3.	Capacity:	3,000 tonnes of calcium carbide and 10,000 tonnes of calcium cyanamide per annum.
4.	Location:	To be determined.
5.	Estimated cost:	3 billion Rwanda francs (US$ 31.2 million).
6.	Objective:	Production of 3,000 tonnes of calcium carbide for industrial use each year - metal soldering and cutting and household consumption of acetylene as a fuel; Production of 10,000 tonnes of calcium cyanamide a year for use as a fertilizer in agriculture, especially for tea and coffee-growing.
7.	Justification:	Rwanda has large limestone deposits (7.9 million tonnes) and peat (62 million m^3). To reduce imports of paraffin, to produce fertilizers and peat coke, and to exploit to the utmost by-products such as gas, tar, acetic acid, etc., it is planned to set up a chemical complex which would exploit some of the deposits indicated above. The possibility of using peat coke in the calcium carbide furnace is not certain, and tests on peat coke production are being carried out in France. If the results of these tests are satisfactory, the project will be developed on the basis of the test findings. The programme of work is as follows: - initial operation: a study of the deposits and the tests (this is in progress); - second operation: a pre-feasibility study; review of the structure and characteristics of the complex, based on the results of the tests; - third operation: a feasibility study and execution of the complex blueprint. The proposed complex would likewise produce 10,000 tonnes of lime, of a quality adequate for use as raw material for the production of calcium carbide. In addition, it is hoped to produce coke in greater quantities than are actually needed for the chemical plant, with a view to replacing wood by coke in certain factories and in craft workshops. Production of metal drums and acetylene lamps will be studied separately.

8. Benefit: The project will improve the income of farmers, and the balance of trade, by increasing the quantities of tea and coffee exported. Savings in foreign currency should be possible through the substitution of carbide for paraffin used for lighting isolated dwellings. Furthermore, the project implies the creation of 237 industrial jobs.

9. Request: The Rwandese Government would like to receive financial and/or technical assistance for the feasibility study and the engineering and execution of the complex, as well as technical assistance in the management of the undertaking and the training of executives.

PROJECT 14

1.	Name of the Project:	Pesticides and insecticides.
2.	Sponsor:	Office of Industrial Crops for Rwanda (OCIR), Coffee Division.
3.	Capacity:	2,000 tonnes of insecticides per year. The production of pesticides will be determined in due course.
4.	Location:	Kigali.
5.	Estimated cost:	Total cost of industrial investments: 80 million Rwanda francs (US$ 834,000).
6.	Objective:	Local production of the insecticides and pesticides needed for a good coffee-growing yield.
7.	Justification:	At the present time, Rwanda imports all the pesticides and insecticides it needs for coffee-growing. In 1981, the effective level of coffee production was 31,200 tonnes, of which 21,000 tonnes were exported. The project will only involve setting up the industrial production plant. Marketing will be in the hands of an existing office. There is a pre-feasibility study, which needs to be completed.
8.	Benefit:	The project will help to improve the trade balance by economizing some 10 million francs a year (US$ 105,000) on direct imports. In addition, the project involves the creation of 28 industrial jobs and an increase of about 30 per cent in the production and export of coffee.
9.	Request:	The Rwandese Government would like to receive financial and/or technical assistance in carrying out a new study and for the project iself, including the supply of raw materials, technical assistance on the operational side, and the training of executives.

PROJECT 15

1. Name of the Project: Urea production.

2. Sponsor: Ministry of Industry, Mining and Crafts.

3. Capacity: 44,000 tonnes a year, with the possibility of expansion.

4. Location: Gisenyi.

5. Estimated cost: 3.2 billion Rwanda francs (US$ 33.8 million).

6. Objective: The aim of the project is to provide the agricultural producers of Rwanda and the neighbouring countries, particularly those coming within CEPGL (Economic Community of Countries of the Great Lakes) with urea (nitrate fertilizer), which they badly need for fertilizing their agricultural land and stepping up production. This will mean supplying annually 50 to 100 million m^3 of methane gas (from Lake Kivu) at normal pressure to the urea factory, according as its capacity is 44,000 or 100,000 tonnes a year. The following are the main components of the scheme: design and construction of catchment stations, purifying of the methane gas (as part of the methane gas project as a whole), and design and construction of the urea production plant (as part of the present project). The urea production schedule will be: methane - ammonia - urea.

7. Justification: The urea project is part of a regional scheme designed to furnish all the fertilizers needed for agriculture by the CEPGL countries. Rwanda would produce nitrate fertilizer (urea), while the other two countries would provide phosphate and potassium to enable each country, subject to adequate supplies and mixing, to obtain the multi-purpose "NPK" fertilizers to suit their needs.

An important preliminary study will be undertaken shortly and will include research and investigation into deposits of raw materials other than methane gas; an attempt to determine the tonnage needed by each country; and a definition of the fertilizer mixing equipment and of arrangements for distribution to agricultural producers. There is already a pre-feasibility study on methane gas from the Lake Kivu area, prepared in 1982. At the present time, CEPGL is engaged on studies relating to the extraction of methane gas. Manpower is abundant in the three countries concerned, but vocational training will be necessary. Rwandese agriculture has the utmost need to improve its productivity and to increase production so as to meet the food requirements of a growing population at a time when the productive land area per head of the population is diminishing. Imported fertilizers are far too expensive for the agricultural producers to purchase.

8. Benefit:

The aim of the project is to increase agricultural productivity with a view to food self-sufficiency; to create approximately 300 industrial jobs; and to comply with the regional development policy of the States members of CEPGL.

It is estimated that agricultural production can be doubled or trebled through the proper use of fertilizers. The project will improve the levels of living of the population and increase exports.

9. Request:

The Rwandese Government would like to receive financial and/or technical assistance in carrying out these studies and executing the project.

PROJECT 16

1.	Name of the Project:	Paper mill.
2.	Sponsor:	Ministry of Industry, Mining and Crafts.
3.	Capacity:	6,000 tonnes of paper per annum.
4.	Location:	To be determined.
5.	Estimated cost:	A feasibility study estimated at 7.2 million Rwanda francs (US$ 75,000) will determine the cost of the various components needed for the execution of the project.
6.	Objective:	An annual production of 6,000 tonnes of paper (reel-wound) of various types for a variety of uses (writing, copying, wrapping, etc.). The project will involve arrangements for collecting raw materials (vegetable matter and used paper) and the paper-making plant.

7. Justification:

In 1982 a market study was carried out and produced the following estimates of annual needs by way of writing paper and newsprint, kraft paper, wrapping paper, etc.:

1983: 2,564 tonnes; 1984: 3,351 tonnes;
1985: 4,447 tonnes; 1986: 5,987 tonnes;
1987: 8,166 tonnes.

There is already a small unit for the manufacture of carton operating in Rwanda. Thus the study will have to decide first and foremost whether it is possible to add a line of paper production to the existing unit.

The project will involve the following:

- research into the various existing processes for small-scale paper manufacture;
- a study of the various raw materials available or to be produced in Rwanda;
- selection of the manufacturing process and a decision as to the specifications of the various types of paper to be manufactured;
- designing of the undertaking;
- construction of the undertaking.

8. Benefit:

The aim is to replace imports by local production and to create jobs. For 1981, the total value as declared to the customs authorities for imports of paper and carton was 560 million Rwanda francs, or approximately US$ 6 million. A saving of some 50 per cent of this currency should be possible by setting up local production.

9. Request: The Rwandese Government would like to receive the following assistance:

- remuneration and assignment of one or more consultants to carry out the research and the various studies and the designing of the undertaking plans;
- offers to supply the necessary materials for building the factories;
- contributions to the financing of the scheme;
- technical assistance to the scheme in crystallizing manufacture and training Rwandese personnel.

PROJECT 17

1.	Name of the Project:	Manufacture of bags for cement.
2.	Sponsor:	Ministry of Industry, Mining and Crafts.
3.	Capacity:	1.1 million bags a year, with the possibility of expansion.
4.	Location:	To be determined.
5.	Estimated cost:	A feasibility study, estimated at 4.8 million Rwanda francs (US$ 50,000) will determine the cost of the various components needed for the execution of the project.
6.	Objective:	Establishment of a factory for the production of bags made of special paper, with several folds, but sewn and not fitted with a valve, so as to simplify production installation.
7.	Justification:	A cement factory with an annual capacity of 50,000 tonnes of Portland cement will be set up in Rwanda at the beginning of 1984. In order to save foreign currency and to contribute to industrial development, it is planned to manufacture paper bags for packaging in the country instead of importing them. The production of 50,000 tonnes of cement a year represents requirements of something like 1.1 million sacks (including a 10 per cent margin for losses). In addition, the factory will be able to produce bags for other types of products such as flour (a flour mill is planned), etc. The unit price of cement bags should be approximately 50 Rwanda francs (US$ 0.5).
8.	Benefit:	The project will help to save foreign currency, to improve the balance of trade and to create jobs.
9.	Request:	The Rwandese Government would like to receive financial and/or technical assistance in preparing the feasibility study, designing and starting up the undertaking, and training Rwandese personnel.

PROJECT 18

1.	Name of the Project:	Compost from urban waste.
2.	Sponsor:	Ministry of Industry, Mining and Crafts.
3.	Capacity:	To be determined.
4.	Location:	Probably Kigali.
5.	Estimated cost:	A feasibility study estimated at 1.9 million Rwanda francs (US$ 20,000) will determine the cost of the various components needed for the execution of the project.
6.	Objective:	Manufacture of organic fertilizers from urban waste.
7.	Justification:	Agriculture in Rwanda lacks low-cost fertilizers. The needs are great, far beyond the possibilities of fertilizer production. But the main factor limiting demand is the price of these fertilizers, since the farmers have an extremely low level of purchasing power, and this is likely to subsist even with an improvement in agricultural productivity on the part of the fertilizer users, since the area cultivated by each individual farmer is on an average about 1 hectare, and often less. There are processes for manufacturing organic fertilizers from urban waste, and the waste from the towns in Rwanda is not being used. This project will mean preparing a feasibility study to determine the viability of the project. The objects of this study will be to make a critical analysis of the present means of collecting and evaluating the waste matter, and of the quantity and quality of what is collected; to determine the best site for the plant; to weigh the possibilities of exploiting compost manufactured from household garbage and of marketing the compost, and to prepare the blueprint of the factory.
8.	Benefit:	The aim of the project is to dispose of the waste from large built-up areas, to return to the land the organic matter it lacks, and to create jobs.
9.	Request:	The Rwandese Government would like to receive financial and/or technical assistance in preparing the feasibility study, constructing the factory, starting up the factory, and training Rwandese personnel.

PROJECT 19

1. Name of the Project: Industrial zones and industrial estates.

2. Sponsor: Ministry of Industry, Mining and Crafts.

3. Location: Kigali, Butare, Gisenyi, Ruhengeri.

4. Estimated cost: 6 billion Rwanda francs (US$ 62.5 million)

5. Objective: The aim of the project is to establish in Rwanda four new industrial zones and to establish industrial estates in two of them.

(a) Industrial zones: it is proposed to set up four industrial zones at Kigali (70 hectares), Butare (20 hectares), Gisenyi (20 hectares), Ruhengeri (20 hectares), arrange in lots accessible by service roads and equipped with all the necessary facilities for the installation of enterprises: electric power, water, telephone, pipe-laying, lighting, etc.

(b) Industrial estates: it is planned to set up two industrial estates within the industrial zones of Kigali and Butare with a view to the establishment of very small businesses whose owners do not have enough capital. There will be buildings for letting, plots of small dimensions, means of transport, storage space, a common repair workshop, etc.

The work to be undertaken will be divided into several phases:

(a) Pre-investment, including preliminary studies, land soundings, layout planning and the feasibility study;

(b) Investment, including blueprints, surveillance of the work site and carrying out of all the facilities needed for the installation of enterprises (water, electricity, pipe-laying, telephone, etc.);

(c) Construction of the industrial estates: prefabrication of standard-type industrial buildings of various sizes on plots of land prepared beforehand.

Each industrial estate will comprise:

A central administration to manage and maintain the compound and to ensure cohesion between the various enterprises;

Common services (security in the form of a guard system. a sick-bay, lockers for hire, collective life insurance), etc.;

Other services such as roads and pavements, common cloakrooms, parking lots;

Assistance to enterprises, e.g. managerial aid, common purchasing services, sales organization, technical office, and documentation centre;

Training for business chiefs and executives;

An all-purpose mechanical workshop for the upkeep of the estate and the installations;

Other ancillary services such as a bank branch, post office, canteen, service stations, etc.

6. Justification:

For the last few years there has been a considerable growth in the number of national and foreign industrial promoters. The number of schemes for setting up or extending businesses grew from 9 in 1979 and to 136 in 1983, with 10 brought into operation in 1983 alone; 41 are under way, and the rest are at the study stage.

Most of the promoters are looking for land, and some have been led to adopt costly or unsuitable solutions such as expensive land development, temporary use of existing buildings, etc.

It is therefore desirable to set up a reception infrastructure designed to promote and concentrate industrial development, and in particular that of small-scale private industry in Rwanda. Land has been officially set aside by the town-planning services for the establishment of industrial zones and estates. The undertakings to be installed are small but numerous. The plots required are nearly always between 5,000 and 20,000 m^2.

Since the demand for land is far greater in the capital than in the provincial towns, it will be necessary to give priority to setting up the Kigali industrial zone and industrial estate.

It seems likely that the World Bank will finance feasibility studies for the Kigali zone and that these studies will be carried out in the first half of 1984.

7. Benefit:

The implementation of this project will help to facilitate the installation of new undertakings by reducing the investment needed for setting them up, improving their technical facilities and removing the difficulties encountered by promoters in finding land for establishing their undertakings. Moreover, the project aims at encouraging trade between the various industries, and subcontracting. It implies the creation of approximately 20,000 jobs.

8. Request: The Rwandese Government would like to receive financial and/or technical assistance for the following:

The development and equipment of the Kigali industrial zone;

A feasibility study of the industrial estate of Kigali;

Construction of the industrial estate;

Feasibility studies on the industrial zones of Butare and Gisenyi;

Execution of the work of setting up the above-mentioned zones.

PROJECT 20

1. Name of the Project: Shipbuilding on Lake Kivu.

2. Sponsor: Ministry of Industry, Mining and Crafts.

3. Capacity: To be determined.

4. Location: On the shore of Lake Kivu.

5. Estimated cost: 351 million Rwanda francs (US$ 3.8 million).

6. Objective: The construction of a yard for the maintenance, repair and construction of Lake Kivu craft. The yard will be set up on the lake shore and when finally completed it will have the following main features: a designing and drawing office, sheet metal storage, a boiler-making and soldering shop, an engineering and mechanical soldering workshop, a craft building berth and slipway and maintenance equipment: automatic cranes, drum winches and gantry cranes.

7. Justification: Lake Kivu, with a surface area of 2,400 km^2, is of considerable importance for Rwanda's economy, particularly because of the deposit of 60 billion m^3 of methane gas it contains (approximately 25 billion m^3 can be recovered for the exclusive benefit of Rwanda), and the transport facilities it offers along the Rwandese coast or between Rwanda and Zaire. This transport already exists, using barges and other craft, and it needs to be developed. With regard to the exploitation of methane gas, schemes are already afoot, and a considerable tonnage of nautical craft needs to be put into operation over the short and medium term.

It is not possible to study the market at the present time except in regard to the existing freight fleet and its foreseeable development. The most important aspect of the market is the methane programme, which has not been defined with sufficient technical precision to determine what tasks will be entrusted to the yard. The result is that the various components of the execution of the ship-building project should be achieved gradually, as and when the necessity arises. Some of the needs of the gas conversion factories need to be taken into consideration, since the shipyard could be used as a centre for major repair work and the construction of new craft for all the factories.

It is nevertheless foreseeable even now that the basic tasks will be a variety of projects for alterations to existing craft and fixed installations, projects for new navigable or stationary craft, maintenance and repair work, construction of material and new installations, large-scale boiler-making and fitting, soldering, painting, launching, etc.

8. Benefit:

The project will make it possible to guarantee the effectiveness of the waterways, where transport is less costly than by land; to avoid the unduly high cost of purchasing and transporting boats from abroad and the deterioration of craft at present poorly maintained and hence unsafe, and to create jobs.

9. Request:

The Rwandese Government would like to receive financial and/or technical assistance for the following:

A market study, an appraisal of manpower and technical needs, and preparation of the shipyard blueprint;

Construction of the shipyard and supply of the necessary materials;

Inauguration of the shipyard and training of Rwandese personnel.

PROJECT 21

1. Name of the Project: Manufacture of electric pylons.

2. Sponsor: Ministry of Industry, Mining and Crafts.

3. Capacity: 300 pylons a year.

4. Location: To be determined.

5. Estimated cost: A pre-feasibility study estimated at 2.4 million Rwanda francs (US$ 25,000) will determine the cost of the various components needed for the execution of the project.

6. Objective: Establishment of a factory for the production of galvanized steel pylons. The pylons are the metal supports for carrier cables and accessory equipment for medium and high voltage lines. They consist of commercial sectional steel girders which are cut, adjusted and perforated, piece by piece (all different) and then galvanized in a zinc bath to protect them against corrosion. One electric line will have a large number of pylons all different one from another. Some are highly complex and of great height (20-30 m, for example). Others are smaller and simpler, but every pylon needs a considerable amount of work, both in the factory where each of the parts is manufactured and when they are constructed, piece by piece, on the electric line site.

7. Justification: Between 1970 and 1982, 1,000 km of medium and high voltage lines were constructed for Rwanda involving the use of metal pylons, or an annual average of 77 km of line and 500 pylons.

Since the number of pylons to be installed is extremely variable from one year to another, and since the undertaking has to function on a permanent basis if it is to be a viable proposition, it is essential that it should supply several countries. The CEPGL countries are the ones which would have to purchase pylons manufactured by the Rwandese factory. A market study for Rwanda is under way, and the needs of the two other countries will be determined in the near future.

The Rwandese factory will import the raw materials: sectional steel in 6 to 12 metre lengths, sheet metal, special accessories, chemicals and zinc for galvanizing. The nuts and bolts can be manufactured in Rwanda, which has a factory specializing in this type of goods. Each pylon is studied and calculated in the light of its maximum load, its position in relation to the cables, land relief and the climate.

Normally, the plans are made by specialist design shops. But the undertaking may in due course set up its own design shop, on a modest scale at the beginning but more ambitious as time goes on, with a view to installing a complete unit as soon as possible.

8. Benefit: The project will help to improve the trade balance and regional development of the States members of CEPGL, and to create jobs.

9. Request: The Rwandese Government would like to receive financial and/or technical assistance in carrying out the pre-feasibility study, setting up the undertakings, inaugurating the factory, and training Rwandese personnel.

PROJECT 22

1. Name of the Project: Ceiling insulation tiles.

2. Sponsor: Ministry of Industry, Mining and Crafts.

3. Capacity: 100,000 m^2 of tiles per year.

4. Location: Zaza.

5. Estimated cost: The cost of the various components needed for the execution of the project will be determined on the basis of a feasibility study.

6. Objective: Local production of ceiling insulation tiles, using papyrus, in conjunction with an existing plant ("Papeteries du Rwanda" - Rwanda Paper-mills), located at Zaza in the south east of the country.

7. Justification: The "Rwanda Paper-mills" plant manufactures insulating ceiling tiles, using papyrus as the main raw material. Papyrus grows in great abundance in the swampy areas of the country. It grows without any effort on the part of the farmers, and it is very little used.

   The tiles manufactured hitherto by the undertaking have the disadvantage of poor mechanical resistance and unattractive appearance, which makes marketing difficult and explains why users prefer imported tiles.

   Improvements in the manufacturing process would make it possible to obtain a quality product at a price right for the user, and to cut out imports almost entirely except for a few luxury articles indispensable for certain types of construction.

   A study of the market for ceiling tiles was carried out in 1982.

   The existing plant has an annual capacity of 25,000 m^2, but both the equipment and the working conditions need to be improved and upgraded to raise the standard of the products and to increase production capacity. Apart from this, the undertaking will have to be reorganized, especially on the commercial operations side.

8. Benefit: The project will mean a saving in foreign currency by reducing imports; it will create jobs; it will exploit a natural asset readily available and little used; and it will contribute to the country's self-sufficiency and to the growth of domestic production.

9. Request: The Rwandese Government would like to receive financial and/or technical assistance for the following:

A study leading to improvements in the manufacturing process, reorganization of production and implementation of the recommendations;

Reorganization of the marketing of the tiles.

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SOLIDARITY MINISTERIAL MEETING FOR CO-OPERATION IN THE INDUSTRIAL DEVELOPMENT OF THE RWANDESE REPUBLIC*

VOLUME II

INFORMATION DOCUMENT ON RWANDA

Kigali (Rwanda), 5-8 June 1984

* This document has been translated from an unedited original.

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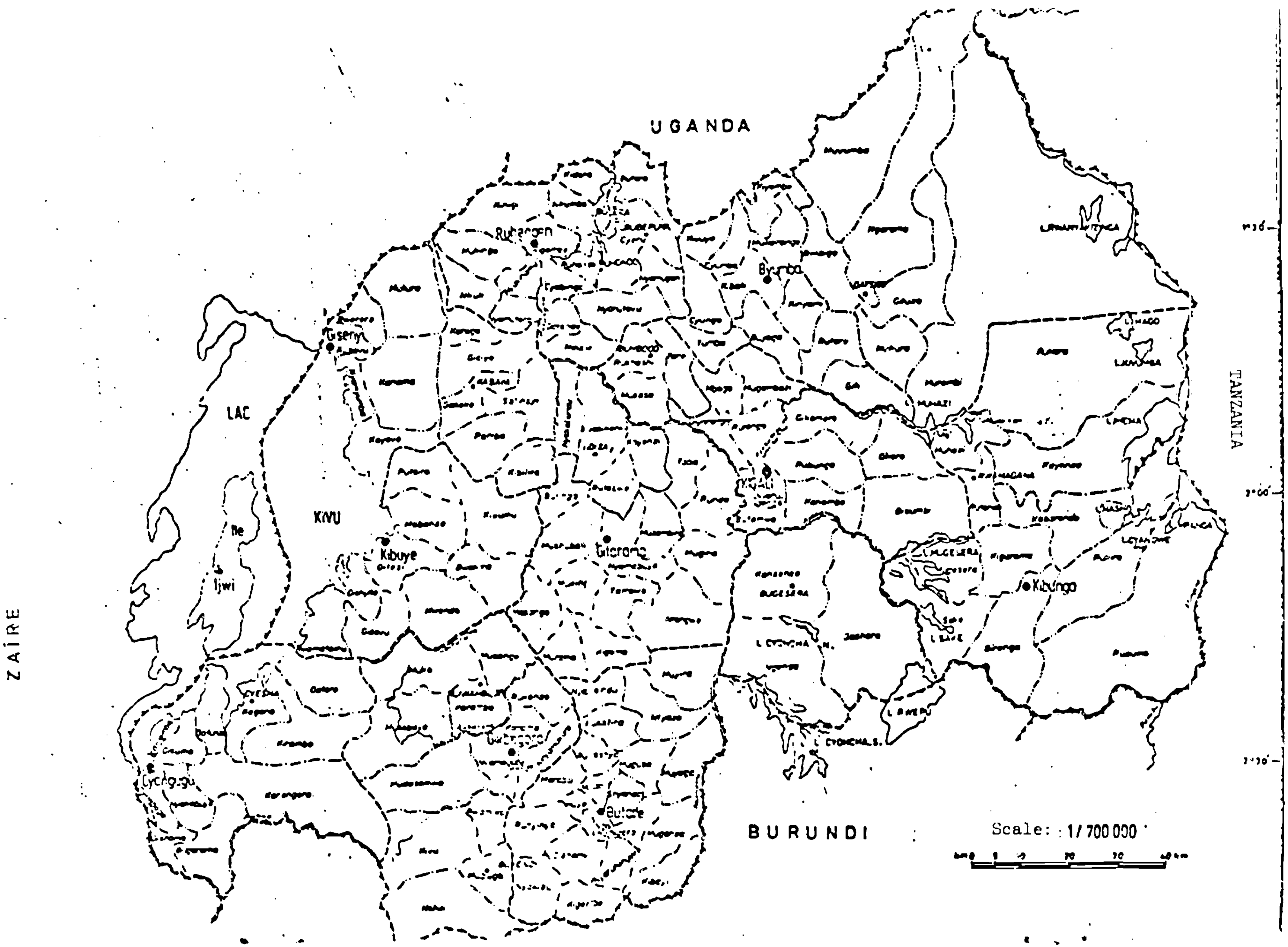
UGANDA
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Ruhengeri
Gisenyi
Byumba
Kigali
Kibuye
Gitarama
Kibungo
Gikongoro
Cyangugu
Butare
Scale: 1/700 000

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Development Indicators

1.	Area of Rwanda	26,338 km^2
2.	Density	197 inhabitants/km^2
3.	Number of farms	approx. 930,000
4.	Average area of farms	between 1 and 1.9 hectares
5.	Population of Rwanda	5.2 million inhabitants
6.	Rate of population growth	3.7 per cent per annum
7.	Mortality rate	1.84 per cent per annum
8.	Birth rate	5.41 per cent per annum
9.	Agricultural population	95 per cent
10.	Non-agricultural population	5 per cent
11.	Rate of inflation (1982)	7-8 per cent
12.	Balance of trade (1982)	-16,949,926,935 Rwanda francs (approx. US$169,499,269)
13.	Balance of payments (1982)	-4,137 million Rwanda francs (approx. US$41,370,000)
14.	GNP (1982)	133,560 million Rwanda francs (approx. US$1,335.6 million or US$252 per inhabitant)
15.	GDP (1982)	132,930 million Rwanda francs (approx. US$1,329.3 million or US$237 per inhabitant)
16.	Contribution of industry to the GDP	approx. 17 per cent
17.	Life expectancy	47 years
18.	Main cities	Kigali (the capital) Butare Gisenyi Ruhengeri

Part One. BACKGROUND DATA ON RWANDA

I. Geographical sketch

(a) Geographical situation

Rwanda is situated in the centre of the African continent between 1 and 3° latitude south and between 29 and 31° longitude east. The country is bordered by Uganda to the north, Tanzania to the east, Zaire to the west and Burundi to the south. Lake Kivu in the west, a chain of volcanic mountains to the north, the river Akagera to the east and the river Akanyaru to the south form the natural frontiers of the country. Rwanda is situated more than 1,700 km from the Indian Ocean and more than 2,000 km from the Atlantic, thus being one of the most completely land-locked countries in Africa.

In the west of Rwanda, the Zaire-Nile ridge crosses the country from north to south. Some of the peaks reach 3,000 m in altitude. To the north, the Zaire-Nile ridge ends in a chain of extinct volcanoes, the highest of them (Kalisimbi) reaching 4,507 m in altitude. The eastern part of the country is less rugged, and the average altitude is approximately 1,300 m. It includes the plain of Mutara, the Bugesera plateau and a large number of lakes.

(b) Climate

The average temperature in Rwanda is 18° centigrade. The country owes its Mediterranean-type climate to its high altitude (average 1,600 m) and to the effect of the trade winds. The temperature remains more or less equable throughout the year, but the four seasons are marked by the degree of rainfall: the short dry season (December to February), the main rainy season (February to May), the long dry season (May to September), and the short rainy season (September to December).

(c) Demography

The population of Rwanda is 5.2 million inhabitants, spread over a total area of 26,338 km^2. Thus the country has a population density of 197 inhabitants per km^2, the highest in the whole of Africa, and a population growth rate of 3.7 per cent per annum.

II. Political and Administrative Organization

Rwanda is a democratic republic which has been independent since 1962. It is divided into 10 prefectures: Kigali (which includes the capital), Gitarama, Butare, Gikongoro, Cyangugu, Kibuye, Gisenyi, Ruhengeri, Byumba and Kibungo. Each prefecture is governed by a Prefect. The 10 prefectures embrace 143 communes.

The régime is of the presidential type. The President of the Republic, Chief of State and Government is elected by universal suffrage for five years. His mandate may be renewed. The Rwandese people likewise elect by universal suffrage the parliament, known as the "National Development Council". Rwanda also has a Constitutional Council, a Council of State and an Audit Office, which together constitute the judiciary.

III. Rwanda as a Member of Subregional Organizations

Rwanda is a member of the Economic Community of the Great Lakes countries (CEPGL), the Economic Community of Central African States (CEEAC), the Organization for the Management and Development of the Kagera Basin (KBO), and the Preferential Trade Area (ESAPTA).

Within the framework of CEPGL, which covers Rwanda, Burundi and Zaire, machinery designed to promote the free movement of goods and services within the community has been set in operation, and the three countries are moving more and more towards a common market in which co-operation on the economic level embraces a number of spheres, particularly planning, agriculture, industry, natural resources and tourism.

KBO, which links together Rwanda, Tanzania, Uganda and Burundi, has the task of solving the problems of energy and of arable land affecting the member countries.

ESAPTA brings the countries of East Africa and Southern Africa within a common monetary organization designed to facilitate payments arrangements and trade expansion in the member countries through a clearing-house and an ESAPTA unit of account.

Rwanda's membership of the recently-created CEEAC has provided it with the opportunity to join an expanded customs organization and to take a further step towards solving its problems as a land-locked country.

IV. Economic Development: An Overall View

(a) Agriculture and animal husbandry

Immediately after the achievement of national independence in 1962, the policy in regard to agriculture aimed at breaking with the single crop tradition in favour of diversification into food crops and cash crops. Thus, in addition to the cultivation of coffee, the only agricultural product of capital importance during the colonial period, this diversification aimed at promoting the cultivation of tea, pyrethrum and quinine. Rice and sugar cane growing followed, with a view to meeting the needs of the domestic market. A co-operative movement also enabled the peasants to launch fruit and vegetable growing with success.

Table 1. Trend in the production of industrial export crops, in tonnes

(1975-1982)

Products	1975	1976	1977	1978	1979	1980	1981	1982
Coffee	18,045	20,334	15,306	16,275	17,478	18,029	19,414	-
Tea (dry)	3,995	4,476	5,356	5,342	5,670	6,627	5,849	7,050
Pyrethrum	1,753	1,500	1,136	943	795	869	955	-
Quinine	-	-	-	-	-	644	485	-

Source: Annual reports of Minagri (Ministry of Agriculture, Animal Husbandry and Forestry).

The period when these industrial crops were at their most prosperous was between 1973 and 1975. The production of commercial coffee increased by 13 per cent between 1975 and 1976, after which there was a spectacular drop in 1977 (21 per cent). From then onwards, production improved at a fairly slow rate, and finally reached the 1975 level by 1980. In 1981 production rose by 8 per cent over that of 1980.

Tea production increased by 71 per cent between 1975 and 1980, with a negligible regression in 1978 (-26 per cent). There again, we find that the marked increase in 1976 (25 per cent) was followed by a period of average growth until 1979. In 1980, tea production increased by 20 per cent, but 1981 was marked by a decline which brought the level of production to more or less that of 1979. In 1982, production for the first time reached the level of 7,050 tonnes or an increase of 6 per cent in relation to 1980, the year which had so far beaten all records.

The pyrethrum plantations are steadily diminishing, the peasants preferring to grow potatoes and tobacco. Production of the dry flowers, which was 1,753 tonnes in 1975, was only 955 tonnes in 1981 - a drop of 46 per cent.

Cotton has been abandoned in favour of rice-growing on the Imbo Plain, and has no longer been practised in Rwanda since 1978.

With regard to animal husbandry, efforts to improve the quality of the cattle have been pursued by means of persuasion and education of the farmers. Certain pasturage areas which still exist have been banned for crop-growing purposes, and intensive propaganda has been made in favour of setting up farmers' co-operatives.

Table 2. Trend in the herd situation (head of cattle)
1975-1982

	1975	1976	1977	1978	1979	1980	1981	1982
Bovine cattle	686,813	637,641	628,731	647,206	631,353	634,321	610,627	626,615
Sheep	252,286	248,146	257,310	267,146	278,622	295,523	335,584	326,647
Goats	633,001	682,085	736,062	774,862	824,053	885,570	943,087	985,064
Pigs	74,542	70,640	83,126	98,558	113,518	119,851	139,468	128,784
Poultry	652,609	785,704	847,952	911,504	1,049,301	1,051,523	1,089,658	1,137,967
Rabbits	55,380	114,432	126,538	134,553	144,094	133,804	107,048	123,983

Source: Annual reports of Minagri.

Bovine cattle-raising is decreasing steadily. As compared with 686,813 head of cattle counted in 1975 there were only 626,615 head in 1982 (-9 per cent). During this period there was a systematic falling-off in the bovine population, as a result of the growing scarcity of pastureland.

With regard to sheep, since 1976, when there was a fall of 2 per cent over 1975, the sheep population increased by 29.5 per cent between 1975 and 1982 Similarly with goats, the overall increase between 1975 and 1982 was approximately 56 per cent.

The figures for pigs show a strong upward tendency, especially since 1979. The highest level ever attained was in 1981, when the growth rate was 87.1 per cent as compared with 1975. However, in 1982 there was a slight falling-off in comparison with 1981 (8 per cent). This large increase can be explained by the fact that these omnivorous animals are not difficult to feed, their basic food coming from household waste.

With regard to poultry, there was a doubling of the population between 1975 and 1982. The annual increase was 15 per cent from 1975 to 1979, 0.2 per cent between 1979 and 1980, 3.6 per cent between 1980 and 1981, and 4.4 per cent between 1980 and 1982.

The annual increase in the rabbit population was 8.9 per cent between 1975 and 1979. Between 1979 and 1980 there was a drop of 7 per cent, and this grew worse between 1980 and 1981 to reach 20 per cent. In 1982 there was a recovery in the form of a rise of 21 per cent in relation to 1981.

(b) Mining

Cassiterite is the main product mined in the country. Between 1975 and 1977, the production of cassiterite ore rose from 2,084 tonnes to 2,239 tonnes (+7 per cent). The years 1978 and 1979 saw a falling-off in production (2,138 and 1,910 tonnes respectively). In 1980 there was an increase of 8 per cent to 2,069 tonnes, but this figure was still below the 1975 level. From 1981 onwards, production has been dwindling, showing the lowest levels ever recorded since 1975 (1,788 tonnes in 1981 and 1,655 tonnes in 1982).

Wolfram holds second place after cassiterite, representing more than 25 per cent of the country's mining production. The trend here is similar to that of cassiterite, with a period of growth between 1975 and 1977 (5.3 per cent) followed by a period of regression from 1979. With regard to the other mining products, gold and columbite-tantalite, the trend has followed a zigzag pattern. Beryl followed a fairly marked upward trend until 1980. In 1981, production fell by half in relation to 1980, while in 1982 there was a marginal recovery, bringing production to the 1977 level.

Table 3. Trend in mining production (in kg)

Products	1975	1976	1977	1978	1979	1980	1981	1982
Cassiterite (see No.2)	2,083,915	2,179,526	2,239,486	2,137,689	1,910,141	2,069,165	1,787,728	1,654,901
Wolfram (WO3)	757,577	826,073	835,975	713,853	732,323	678,429	521,228	600,678
Columbite-tantalite	46,437	45,416	64,380	53,623	47,437	59,863	56,557	62,159
Beryl	18,000	45,687	67,950	80,120	85,640	107,617	59,130	68,925
Gold	11	29,122	62,719	34,957	14,693	29,390	37,450	8,906

Source: Ministry of Natural Resources.

(c) Communications infrastructure

(1) Roadwork infrastructure

Rwanda has no sea frontier, no railway, no navigable waterways except Lake Kivu. The main highways giving access to the country and marked by an official frontier post are the following:

Between Rwanda and Uganda

Kampala-Merama-Hill-Kagitumba-Kigali;

Kampala-Kabale-Gatuna-Kigali;

Kampala-Kabale-Cyanika-Kigali.

Between Zaire and Rwanda

Kisangani-Bunia-Goma-Gisenyi-Kigali;

Kisangani-Walikale-Bukavu-Cyangugu-Kigali.

Between Burundi and Rwanda

Bujumbura-Kayanya-Akanyaru-Butare-Kigali;

Bujumbura-Bugarama-Mururu-Cyangugu-Kigali.

Between Tanzania and Rwanda

Kigali-Kayonza-Rusumo-Mwanza-Dar-es-Salaam.

Some of these roads are asphalted and others are in the process of being asphalted.

Asphalted roads: Kigali-Kibungo-Rusumo (direction Tanzania): 160 km;

Kigali-Gatuna (direction Uganda): 65 km;

Ruhengeri-Gisenyi (direction Zaire): 60.6 km;

Kigali-Butare-Akanyaru (direction Burundi): 154 km.

Roads in the process of being asphalted:

Kigali-Kibungo-Rusumo (internal transversal section): beginning of operations 1 April 1981, duration 35 months (until April 1984);

Ruhengeri-Cyanika (direction Uganda): financing is available and preparations are under way to launch the scheme;

Kayonza-Kagitumba (direction Uganda): the blueprints are under way;

Butare-Cyangugu (direction Zaire): work already under way;

Kibuye-Ntendezi (internal transversal sector): the studies financed by BAD are available and it only remains to find financing;

Gitarama-Ruhengeri (internal transversal sector): financing for the studies is available;

Byumba-Gabiro (internal transversal sector): the blueprints and file of tenders have already found financing.

(2) Air routes

The airport of Kanombe (Kigali) provides a landing strip for planes of the Boeing 747 and DC10 types. There are a number of direct flights, and weekly services to other countries are arranged by AIR RWANDA, AIR BURUNDI, SABENA, AIR FRANCE, ETHIOPIAN AIRLINES, TANZANIA AIRLINES, etc.

(d) Industry

The secondary sector in Rwanda consists essentially of the following:

Agriculture and food industry. Factories for coffee and tea, flour milling, cigarette-making, fruit juice manufacture, dairy production, sugar milling, brewing, rice milling, lemonade manufacture, plant for the manufacture of banana wine, bakeries, confectionery, pasta product manufacture, etc.

Textile industry. Manufacture of blankets, a workshop for ready-made clothing and the reconditioning of second-hand clothes, plastic footwear production, tanning and leather working;

Chemical industry. Soap making, paint manufacture, pyrethrum extraction, re-treading of car tyres, production of foam rubber mattresses, production of plastic articles, production of PVC tubing, match manufacture, quinine sulphate manufacture, etc.;

Building materials industry. Joinery, production of cement slabs and blocks;

Paper industry. Three printing shops, a factory for hardboard production and a carton factory;

Mechanical engineering industry. Workshops for metal frames and boiler-making, workshops for small metal products, nail-making, corrugated and galvanized metal sheet-making, manufacture of agricultural implements;

Electronics industry. A radio set assembly chain.

The industrial sector, which was virtually non-existent when the country became independent in 1962, has developed fairly well since then and now comprises about 100 businesses, including garages and construction enterprises. Its rate of growth between 1970 and 1980 was 16 per cent a year, and its share of the GDP is 15-17 per cent.

The agricultural and food industries constitute the most important branch, accounting for 50 per cent of the value added.

The number of jobs in the industrial sector is nearly 13,000, not counting handicrafts or mining.

(1) Trends in industrial production

Over the past decade, beverages (beer and lemonade) have represented the bulk of manufacturing production. Bottled beverage production rose from 27.2 million bottles in 1973 to 42.2 million in 1980 - in other words, the production of beverages nearly doubled between 1973 and 1980. At the present time, production amounts to nearly 126 million bottles, which means that it has trebled between 1980 and 1983.

After a sharp increase between 1973 and 1976, sugar production remained stationary over the period 1977-1980. There was an increase of 31 per cent in 1974, 83 per cent in 1974-1975, 38 per cent in 1975-1976 and 69 per cent between 1976 and 1977. After 1977, the growth rate for sugar production tended to fall off: 1.6 per cent between 1977 and 1978, 4 per cent between 1978 and 1979, and 0.4 per cent between 1979 and 1980; between 1980 and 1981, production settled down at the same level. The forecasts for 1983 indicate that production is likely to fall by one half in relation to 1981.

Soap production was at a standstill throughout the entire period 1972 to 1974 at 3,000 tonnes. In 1975, production rose to 3,363 tonnes (+12 per cent). After that, it showed variations downwards (1976-1978) and upwards (1979-1980). At the present time the two soap factories installed at Kigali are producing approximately 7,000 tonnes of soap a year.

The production of blankets (Zamu) began in 1974 with 77,873 blankets during the year. By 1978, production amounted to 179,471 units (+130 per cent). Following a 10 per cent drop in 1979 (159,411 units), production rose to 195,867 units in 1980 (+21 per cent). Following extension work on the factory in 1982, production has now risen to a level of 400,000 units a year.

The production of paints and varnishes evolved in zigzag fashion between 1973 (256.3 t) and 1977 (360.6 t), with a rise of 12.3 in 1974, a decline of 7.8 per cent in 1975, a rise of 17.5 per cent in 1976 and another of 16.1 per cent in 1977. In 1978, production increased by 82.7 per cent (658.9 t) but after that it fell steadily to 617.6 t in 1979 and to 565.5 t in 1980. At present, total effective production for the two factories installed at Kigali (Rwanda Paints and SIRWA Color) is about 850 t of paint a year.

Statistics on the production of radio sets are available from 1975 onwards: 8,875 sets in 1976, ?,552 in 1977, 7,533 in 1978, but only 789 in 1979. In 1980 and 1981, production of radio sets was literally non-existent. For 1982, the factory was proposing to produce approximately 10,000 sets on a firm order from a national institution.

Table 4. Trend in Manufacturing production (1973-1980)

Product	Unit	1973	1974	1975	1976	1977	1978	1979	1980
Primus beer	1,000 bottles	26,683.2	30,298.5	35,433.7	46,584.3	54,275.3	63,577.6	53,629.5	70,191.8
Lemonade and aerated water	"	512.6	204.7	6,730.0	11,436.0	16,574.1	19,909.3	23,317.3	27,766.8
Banana wine	"	-	-	-	-	36.0	424.4	392.1	226.2
Banana juice	"	-	-	-	-	6.9	93.3	70.1	32.4
Fruit juices	"	-	-	-	-	733.7	61.2	?	?
Jam	tonnes	15.7	19.2	27.0	30.1	26.0	35.5	41.1	34.4
Sugar	"	400.0	533.0	959.5	1,320.4	2,229.0	2,263.0	2,355.0	2,363.7
Plastic footwear	pairs	-	-	-	-	-	-	397,954	412,790
Zamu blankets	units	-	77,873	89,596	87,905	159,471	179,397	161,316	195,867
Soap	tonnes	3,000.0	3,000.0	3,363.2	3,605.9	2,936.1	2,381.6	3,867.4	5,280.0
Paints and varnishes	"	256.3	287.8	265.0	310.7	360.6	658.9	617.6	565.5
Radio sets	units	?	?	?	8,775	2,552	7,533	789	-
Pyrethrum extracts	tonnes	62.5	74.2	87.8	79.6	60.3	50.0	42.1	51.1

Production of crude pyrethrum extract evolved rather uncertainly between 1973 and 1980, the characteristic trend being downward. The period of prosperity for this product was when the factory started up. Between 1973 and 1975, production rose from 51.4 t in 1973 to 87.8 t in 1975 (+71 per cent). From 1976 onwards, production of pyrethrum extract showed a gradual falling away to 42 t in 1979 - a drop of 52 per cent between 1975 and 1979. In 1980, production reached a level lower than that of 1972 (51 t). Since 1981, production of crude extract has been non-existent as a result of the factory's new policy of producing a refined product known as "pale extract". A refinery has recently been set up for this purpose.

Production of banana wine, a variety of juices (banana and other fruits) and jam reckoned either in tonnes or in litres is estimated as follows for 1982: 13,765.1 of banana juice, 382,885.1 of wine (vin ordinaire), 48,861.1 of wine (vin spécial), 20 t of jam, 65.7 t of fruit juice. The lack of reliable statistics for the earlier period makes it impossible to estimate the trend of these products over the period under consideration.

The annual production of the factories recently installed in Rwanda is given below (effective capacity recorded in 1982): plastic footwear - 600,000 pairs; leather footwear - 1,250 pairs; nails - 1,100 to 1,200 tons; plastic materials - 1,331 tons; iron and steel sheet - 8,000 tons; matches - 216,000 boxes; quinine sulphate - 50 t; pasta products - 40 t; agricultural implements - 1.2 million hoes; carton - 700 sheets; insulating tiles - 14,000 units.

(2) Rwanda's industrialization problems

The industrialization of Rwanda is faced with problems which at times are difficult to solve. The main ones have to do with the inadequacy of natural resources, the land-locked nature of the country, the smallness of the market, and the lack of skilled manpower.

Inadequacy of natural resources

At the present time, the area capable of cultivation is exploited almost entirely, with the exception of a few regions of poor land and a certain area of swampy land which remains to be developed.

Some 95 per cent of the population is engaged in agriculture; this sector includes 75 per cent living exclusively from agriculture and 20 per cent engaged in mixed activity, both as farmers and as wage-earners. According to the 1978 statistics, family agricultural holdings, approximately 930,000 in number, are very small farms between 1 and 1.9 hectares in size, according to the region. The average is 1.3 hectares. In 1980, estimates showed that the average size of holdings had fallen to 1 hectare per household and that for 50 per cent of the households, the part suitable for cultivation was smaller. Earnings from farming are also small, and the possibilities of a surplus which could be used as raw material for industry are limited.

Because of the poverty of the subsoil in Rwanda, the only available resource for industrializing the country is agricultural production. In fact, it is from its industrial crops (coffee, tea, pyrethrum, quinine) that Rwanda obtains most of its foreign currency earnings, while the people make their livelihood mainly from agriculture. Another conclusion to be drawn is that agriculture has reached saturation point and consequently can no longer absorb the increase in population, so that the industrialization of Rwanda is an absolute necessity.

Land-locked nature of the country

Rwanda is one of the most completely land-locked countries in the whole of the African continent, being approximately 1,700 km from the Indian Ocean and more than 2,000 km from the Atlantic, the only means of access to the great international trade routes over which Rwanda can obtain supplies and dispose of its products. Nor does Rwanda have a railway line to link it to the main ports of the East African coast. The nearest railway station is Kampala, and the unstable political situation in Uganda over the last few years has helped to make the isolation of the country still more marked. Since the only means of transport for goods at the moment are road and air traffic, the freight costs amount to more than 30 per cent of the selling price of goods, whether imported or exported.

Smallness of the market

Although the density of the Rwandese population already ensures a fairly large market, it is limited by the low purchasing power of the citizen. Even if well-paid jobs are created in the secondary and tertiary sectors, the level of wages will for many years to come do no more than meet the most elementary needs - food, housing, clothing and articles of basic necessity. The market for other products will still be modest. On the other hand, the policy pursued by the Third Five-Year Development Plan, namely to speed up food production, should enable Rwanda to obtain surpluses for sale which could bring in extra income to the household, to be used for:

Improving the diet, which at present is at its lowest limits;

Purchasing inputs for agriculture (fertilizers, insecticides, better implements, selected seed, etc.);

Improving living conditions (clothing, cleanliness, health, housing), which are at the moment very poor.

Lack of skilled manpower

In Rwanda, the shortage of skilled and specialist manpower, and the lack of medium and higher grade experienced supervisory staff, put a brake on industrialization. At the present time, vocational training in the educational institutions is distinctly inadequate to cover the needs by way of jobs which will be created by industrialization as envisaged in the Third Five-Year Plan. The intention is therefore to develop a type of industrial technical education to meet this lack, more particularly by means of in-service training and by setting up a system of apprenticeship.

V. Trade

Table 5. Trend in Rwanda's trade balance between 1973 and 1982

(in millions of Rwanda francs)

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
1. Exports	2,786.8	345.9	3,918.4	7,535.2	8,390.6	5,191.4	11,592.0	7,085.5	7,560.6	8,650.6
2. Imports	2,819.2	5,394.3	8,923.1	9,606.9	10,562.8	16,699.0	18,302.5	23,309.8	24,166.1	25,600.5
3. Balance of trade	32.4	5,048.4	5,004.7	2,071.7	2,172.2	11,507.6	6,710.5	16,224.3	16,605.5	16,949.9

Source: External Trade Authority, Ministry of Finance and Economic Affairs.

(a) Exports

In general, the curve of export variations follows the curve of exports of coffee, which represents approximately 70 per cent of the total value of Rwanda's exports. The other products exported are tea, pyrethrum and mineral ores. By and large, exports showed a distinct rise from 1973 to 1977, the reason being that during this period the coffee harvest was particularly good. In 1978 there was a falling-off in exports, followed by an extraordinary rise in 1979, attributable in part to the existence of stocks of coffee which could not be exported in 1978. From 1980 onwards, the trend has followed a normal upward curve, reflected in rates of 7 per cent in 1981 and 14 per cent in 1982.

(b) Imports

In relation to 1973, the value of imports almost doubled in 1982, increasing from 2,819 million Rwanda francs to 25.6 billion. The rates of growth between 1973 and 1982 were as follows:

1974 - 91 per cent; 1975 - 55 per cent; 1976 - 8 per cent;

1977 - 10 per cent; 1978 - 58 per cent; 1979 - 10 per cent;

1980 - 27 per cent; 1981 - 4 per cent; 1982 - 6 per cent.

A detailed analysis of the structure of Rwandese imports makes it clear that consumer goods represent the majority of the imports into the country. However, over the last few years, it has been found that the relative proportion of consumer goods in imports has been falling in favour of capital equipment.

Following a satisfactory trend in the years 1976 and 1977, with a favourable situation in the level of the balance of payments as a whole, the situation deteriorated considerably in 1978. As a result of a falling-off in proceeds from the sale of coffee, due partly to export difficulties, there was a sharp increase in imports and a rise in transport costs and insurance; and in spite of the considerable increase in non-reciprocal transfers, the balance of current transactions showed a deficit of 4,336 billion Rwanda francs. This was offset, however, by capital movements, and the balance of payments finally showed a surplus.

In 1979, the situation improved very considerably following a swift rise in revenue from exports of coffee, the balance of trade changing from a deficit of 3,106 billion in 1978 to a surplus of 4,031 billion in 1979. During the same period, the balance on current account showed a surplus of 4,346 billion, and the overall balance, taking capital movements into account, showed a surplus of 6,542 billion Rwanda francs.

In 1980, the balance of current transactions showed a deficit of 4,448 billion, but this was offset by considerable inputs of capital (7,331 billion) so that the overall balance stood at a surplus of 2,883 billion.

In 1981 and 1982, the balance of trade showed a deficit of 8,709 billion and 9,641 billion respectively. The surplus of 9,533 billion in 1981 and 9,947 billion in 1982 in the balance of transfers could not make up for the deficit in the balance of goods and services (15,749 billion in 1981 and 18,753 billion in 1982), so that the balance on current account was in deficit for the two years (6,216 billion and 8,806 billion). Similarly, the overall balance showed a deficit of 1,387 billion in 1981 and 4,137 billion in 1982.

VI. Balance of payments

Table 6. Trend in the balance of payments (1973-1982)
(in billions of Rwanda francs)

Aggregates	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
Balance of trade	930.0	-605.4	-2,209.9	758.3	2,125.1	-3,106.2	4,031.0	-5,775.0	-8,709.1	-9,640.9
Balance of services	-1,843.6	-2,345.7	-4,129.9	-4,622.6	-6,727.7	-9,968.0	-11,830.0	-8,355.0	-7,039.7	-9,111.8
Balance of goods and services	-913.6	-2,951.1	-6,339.8	-3,864.3	-4,602.6	-13,074.2	-7,799.0	-14,130.0	-15,748.8	-18,752.7
Balance of transfers	2,790.1	2,977.2	5,375.1	5,397.6	6,670.6	8,738.4	12,145.0	9,682.0	9,532.8	9,947.2
Current balance	1,876.5	26.1	-964.7	1,533.3	2,068.0	-4,335.8	4,346.0	-4,448.0	-6,216.0	-8,805.5
Balance of capital	-224.2	-31.0	2,479.8	1,562.9	392.9	4,420.5	2,196.0	7,331.0	4,829.4	4,668.5
General balance of payments	1,652.3	-4.9	1,515.1	3,096.2	2,460.9	84.7	6,542.0	2,883.0	-1,386.6	-4,137.0

Source: National Bank of Rwanda (BNR)

VII. Trend in GDP

Table 7. Trend in the main items

Aggregates	in billions of Rwanda francs				Base: 1976=100			
	1976	1977	1978	1979	1976	1977	1978	1979
GDP	[illegible]1,874	71,631	81,050	98,288	100	115.8	131.0	158.9
Available national revenue	64,050	73,262	86,732	103,005	100	114.4	135.4	160.8
GNP	65,857	75,372	89,315	106,062	100	114.4	135.6	161.0
Final consumption by households	46,072	51,152	62,580	76,118	100	111.0	135.8	165.2
Fixed capital formation (gross)	7,993	9,141	11,320	14,270	100	114.4	141.6	178.5
Wages and salaries	10,299	11,888	12,552	14,462	100	115.4	121.9	140.4

Source: Ministry of Planning (National Accounts of Rwanda, 1976, 1977, 1978, 1979)

The data for the years since 1979 are not yet available.

An in-depth analysis of the structure of the GDP shows that the Rwandese economy is still dependent on the agricultural sector, whose contribution to the GDP is far more important than the other sectors. Between 1975 and 1978, the agricultural sector was losing ground, the percentage of its yield falling from 49 to 42 per cent. In 1979 it regained its momentum (47 per cent). The falling-off in the importance of the agricultural sector was made up by a breakthrough in the secondary sector, where the relative proportion of the GDP rose from 19 per cent in 1975 to 21 per cent in 1979.

With regard to value added, manufacturing industry enjoyed a particularly favourable trend; value added in this sector rose in relation to the GDP from 12.5 per cent in 1975 to 15.2 per cent in 1979. The relative share for the services sector increased from 28.8 per cent in 1975 to 32 per cent in 1978, after which it fell to its starting level (28.6 per cent) in 1979. This trend in the tertiary sector is explained in part by tourism, which started off well before being hampered by the petrol shortage in 1979.

Part Two. THE OUTLOOK FOR INDUSTRIAL DEVELOPMENT IN RWANDA

I. Focus of Economic Development

(a) Demographic policy

(1) Objectives

The aim of the Government is to plan human resources in such a way as to enable the people to work first of all to satisfy their essential needs and then to take over the overall and harmonious development of the nation. To this end, the Government's target is food self-sufficiency, in other words it would like the food production per inhabitant to be such as to make it possible to satisfy, quantitatively and qualitatively, the basic needs of all citizens. If the average annual rate of growth of the population in the 1980s was 3.7 per cent, production would have to grow at the same rate at least as that of the population. The population must be enabled to become a productive force and a real asset for the development of the nation.

(2) Ways and means

Food self-sufficiency will be achieved through the intensification and modernization of methods of cultivation in the rural areas. This will help to increase soil productivity. The same policy will bring about an increase in the production of food crops at not less than the same rate as the population increase. At the same time, a family planning policy is being formulated within the framework of the National Population Office (ONAPO). Another means of making the population productive is through the policy of adapting education to the needs of production as planned, and the educational reforms at primary, secondary and higher education levels now under way are being directed towards the execution of this adaptation policy.

(b) Development of the infrastructure

In the infrastructural context, the Third Five-Year Economic, Social and Cultural Development Plan (1982-1986) intends to pursue, supplement, adjust and if possible complete the schemes envisaged and undertaken during the Second Plan (1976-1981). These are:

Asphalting the main highways;

Studying the question of a railway network;

Improving the existing aircraft landing strips, and constructing others;

Providing the entire country with an adequate and efficient postal service;

Improving telecommunications.

(c) Agriculture

Agriculture constitutes the backbone of the Rwandese economy. The essential objective of food self-sufficiency is the initial task of the Third Five-Year Plan and continues to be part of the strategy of endogenous, self-reliant development of the country with 1990 as target date.

Production lines using national raw materials - or imported materials in the event of their insufficiency - are envisaged for the decade 1980-1990. The more important are:

Leather, using local cowhides and goat leather;

Timber, using imported boards until such time as constructional timber forests are developed;

Building materials, using bricks, tiles and fibreboard;

Fibres, using sisal, ramie and banana fibres;

Cigarettes, using local tobacco.

(d) Mining

This sector is concentrating on increasing the already existing mineral resources and developing mining research with a view to discovering new deposits. To do this, it is important to restructure the mining sector, at the same time giving special assistance to small mining concerns, modernizing mining techniques and improving the rate of extraction of wolfram and cassiterite in the mines already exploited. Over the short and medium term, it is hoped to produce a geomorphological map and to introduce modern prospecting methods. It is also proposed to exploit the deposits by deep mining methods so as to increase the yield.

(e) Services

There are plans to refurbish this sector by improving among other things the conditions governing both domestic trade and foreign trade, by developing combined passenger and goods transport, and by regulating the internal transport of goods in such a way as not to add unduly to the cost of the goods while ensuring that they are carried efficiently. With regard to foreign trade, it is planned to make the airport installations at Kanombe (Kigali) pay, opening up the country to air traffic and improving the efficiency of the national airline company, Air Rwanda. With regard to imports of finished products, we shall have to import the basic necessities and articles for mass consumption.

(f) Public finance

The characteristic feature of public finances will be sound budgeting, to be achieved through the collection of State revenue. The Ministry of Finance and Economic Affairs will have the task of increasing the revenue of the State through an appropriate tax law and by diversifying and increasing the value added tax on export products.

(g) Industry and craft trades

The industry and handicraft sector comprises the industry as such and the non-structured productive sector, which embraces in particular all production and service craft trades and a large number of small businesses.

During the 1981-1990 decade, industrial development will have a decisive role to play in the economic growth of Rwanda. A preliminary approach to industrial development envisages the gradual establishment of a sound basis for an industrialization process which will be self-supporting at the national and subregional level through the achievement of sectoral integration.

II. Rwanda's industrial policy

(a) A glance at the past

Rwanda was formerly a German colony from 1898 to 1916; later it was placed along with Burundi under Belgian trusteeship by the League of Nations until 1 July 1962, when it became independent. During the colonial period, Rwanda had virtually no industry, first of all because its peculiar status as a Trust Territory did not encourage initiative on the part of the colonizing Power, and secondly because the latter preferred to develop its own industry at home, with the result that Rwanda was regarded merely as a permanent source of raw materials, especially in the mining and agricultural sectors.

The few industries installed on the Rwanda-Urundi territory were concentrated at Bujumbura (today the capital of Burundi) which was the capital of the two countries and hence developed around it an infrastructure and a market suitable for light industry. After independence in 1962, Rwanda tried to develop an industrial fabric of its own, first of all haltingly until 1964, and then through the emergency Interim Plan (1961-1970), the prime motivation for which was the breakdown of the economic and customs union between Rwanda and Burundi.

The Second Republic which came into being as a result of the coup d'etat of 5 August 1973 tried to round off the schemes begun under the First Republic, and it was only with the implementation of the Second Five-Year Plan (1977-1981) that Rwanda experienced the first beginnings of industrialization proper. Apart from the concern to ensure the continuation of projects under way, the plan was based on a new strategy marked by a more opportunist attitude towards the country's potential. This led to the identification of new ideas for projects and to the abandonment of those which had no chance of success. The emergency Interim Plan had stressed in particular the exploitation of agricultural products, since agriculture was clearly the main resource, and the result was a rapid development in agro-industry, more particularly tea and pyrethrum.

The period 1971 to 1973, while not losing sight of the effort to develop an agro-industry, was marked by a concern to give support to the other industrial sectors. This was to be reflected later on in the main industrial objectives assigned to the Second Five-Year Plan (1977-1981), namely:

(i) To develop agricultural industry and rural crafts by exploiting agricultural and livestock products and by-products, and also by building up industries for the production of capital goods;

(ii) To establish industrial and craft undertakings of a strongly labour-intensive type;

(iii) To create industrial undertakings for export and for import substitution;

(iv) To try to make better use of human and natural resources.

(b) The present policy and strategy

(1) The situation at the outset, and constraints

At the time when the Third Five-Year Development Plan (1982-1986) was worked out, Rwanda was able to fall back on the experience gained during the previous 16 years. It was generally agreed that, on the whole, the objectives sought had been only partially achieved. Of 56 industrial and craft schemes selected under the Second Development Plan, only 22 had begun to be executed. In addition, by their very nature these schemes were developed in branches other than agro-industry, and since they were generally carried out by private enterprise, they only to a slight extent reflected the objective of using highly labour-intensive techniques. Also, it was pointed out that the production capacity of most of the undertakings set up during the period of the Second Plan was below the national demand level and economics made it impossible for them to cope. In the face of this situation, the Rwandese industrialization policy and strategy had to be rethought out, with a view to developing a more "industrialization-oriented" industry than in the past, starting out from a strategy bearing in mind a number of constraints. These many obstacles to the industrialization of Rwanda include the following:

A food crop agriculture, which in general means subsistence agriculture and hence does not produce a sufficient surplus which can be processed by the food industries to generate jobs;

The poverty of the subsoil, which does not allow any important industry to be launched to exploit mining resources;

The land-locked nature of Rwanda, which makes it difficult for the country to be competitive because of the high cost of transport and irregularity of supply;

The fact that the Rwandese domestic market is limited by its small size and its dispersal, and also by the low level of purchasing power of the population;

Lack of skilled labour and competent medium-grade technical executives;

Limited domestic savings;

Lack of appropriate technology;

Inadequacy of the basic infrastructure - developed land, water and electricity.

(2) Main objectives and strategies

In the face of the constraints, the Third Plan has set itself the objective of developing an industry based on local resources and giving priority to the satisfaction of the people's needs.

Exploitation of natural resources

The aim here will be to encourage the establishment of undertakings which exploit the country's natural resources so as to provide a better response to national demand and to export products which have acquired a maximum of value added, with a view to earning foreign currency.

Industrial decentralization

Decentralization, calculated to put a brake on the exodus from the rural areas and to prevent Kigali from spreading its tentacles too far, aims mainly at setting up industrial units close to the sources of raw materials, thus enabling them to be used more rationally. This strategy will be conditional first on establishing on the spot certain types of infrastructure such as well-equipped industrial zones, and secondly on the grant of certain specific benefits under the Investment Code to entrepreneurs operating in the peripheral areas.

Complementarity of industrial concerns

In contrast to what is to be observed at the present time, it will be necessary to develop inter-industrial and inter-sectoral trade by introducing fragmentation manufacturing procedures: thus there would be several interdependent units using their own techniques while maintaining complementarity links.

Industrial co-operation at subregional level

The subregional entity will be seen as a means of making up for the inadequacy of natural resources and the small size of the market for placing the finished products.

(3) Objectives

Since the main function of Rwandese industry is to take over from agriculture in regard to creating jobs and earning the currency indispensable for a growing import situation, the objectives laid down for achieving this include the following:

Production of certain types of equipment

Domestic production of certain types of agricultural equipment will be one of the measures calculated to increase agricultural productivity.

Production of inputs for agriculture

This will involve studies with a view to setting up industries to produce fertilizers - an indispensable aid to the development of agriculture.

Production of mass consumption goods

The strategy of endogenous economic development means that industry will have to organize with a view to meeting the need for the ordinary consumer goods while giving priority to goods essential for the development of the agricultural sector.

Production of export articles

The aim here will be to develop industry with a view to exports of products with a high value added component.

Management of invested capital and accumulation of productive capital

This item will affect all activities aimed at systematically managing and safeguarding the existing productive capital so as to avoid premature breakdowns and maintain the depreciation schedule. This will be achieved by making a start with standardization of equipment and local production of spare parts.

Creation of industrial jobs

Industrial development will give preference to industries which are highly labour-intensive or little mechanized, with a view to creating the maximum number of jobs, the development of crafts in particular being envisaged under this heading.

(c) The instruments of industrial policy

(1) Institutional instruments

The national effort to promote industrial activities is sustained on the one hand by the institution of credit granted to small and medium-sized undertakings by the Rwandese Development Bank (BRD) and the Guarantee Fund, and on the other by the strengthening of the services set up to study proposed schemes, in particular the National Project Study Bureau (BUNEP), the Industrial Promotion Authority of the Ministry of Industry, Mining and Crafts, the Research Fund administered by the Ministry of Planning, and the Rwandese Chamber of Commerce and Industry, which has just been restructured with a view to making it really functional and thus meeting the needs of the sector.

Realizing that rapid, balanced growth of industrial development can only be achieved in a favourable institutional context, the State of Rwanda intends in the course of the Third Plan to carry out a reform of the Guarantee Fund. This institution already exists, and the plan is to underpin its structure so as to improve its operational capacity substantially, particularly by making it self-governing. In addition, ways and means will have to be adopted for extending its power to act as guarantor for operations with the outside world.

Furthermore, a scheme for the creation of a national technological transfer centre has already been submitted to the competent authorities. The centre will offer the following services: engineering and managerial advice, quality standards control, legal advice, industrial documentation and the distribution of technical and economic information, together with any other services which may be helpful in the adaptation of imported technologies.

(2) Human resources

The establishment of a growing number of industries will, of course, require more and more abundant manpower. For this reason, apart from the vocational education centres and post-school establishments operating within the framework of the scholastic reforms, a number of ways and means of meeting these needs are envisaged: seminars to make people aware of the goals set for the decade; in-service training, and the institution of a system of apprenticeship where the trade would be learnt on the job while at the same time the apprentice would be called upon to follow courses enabling him to acquire general and specific knowledge related to the trade.

(3) The Investment Code

The Investment Code offers many advantages to investors, nationals and foreigners alike, but it has been in existence a long time. Hence the Third Plan has set itself the task of revising of the Code with a view to making it more suitable in present and future conditions.

(4) The infrastructure for the reception of industry

Developed industrial zones

These are designed to house new industries, to sort them out and to make their installation easier. Studies relating to industrial zones for the city of Kigali are under way. Other similar zones are planned for certain prefectures, so that in the course of the decade all will have the possibility of industrializing.

Industrial estates

These are intended for the reception of small businesses, which will be given a proper framework and development opportunities.

III. Outlook for the Future

As we have just seen, industrialization integrated upstream and downstream in relation to agriculture will be strongly encouraged with a view to raising the level of agricultural production and promoting a steady increase in value added through the exploitation and processing of agricultural products. To reduce the volume of exports of raw products, the programme for processing local materials will be stepped up, especially in the case of natural resources.

For the effective solution of the problems arising from the smallness of the market and the low income level, which hamper the process of exploiting certain resources at national level or restrict their economic viability, subregional co-ordination and collaboration will continue to be encouraged. For example, we plan to import certain raw materials for processing in Rwanda so as to obtain manufactures which will serve the internal and external markets.

With a view to meeting the essential needs defined in the Third Plan, special efforts will be directed towards the industries which produce goods for mass consumption. In order to allow the people to remain in their natural environment and to promote a certain measure of balanced development in the country, industry will be decentralized.

The rapid development of industrial production will require a study of all the possibilities of setting up new industries and mobilizing all the resources available for this purpose. This will mean encouraging the development of small private industries which need only modest means of production. In the development of small industries, intervention will be needed in two areas:

(a) Craft trades, which have remained static for a long time because of their small size and lack of self-financing. Here a credit organization and access policy will be devised with a view to encouraging the development of the small industries sector. The objectives to be attained over the decade 1981-1990 in the industrialization field are as follows:

Creation of 30,000 to 35,000 industrial jobs;

Investment in industrial projects already identified;

Encouragement and development of industries producing exportable goods, with particular reference to those designed to exploit the country's natural resources and those producing goods for import substitution;

Promotion of foreign and Rwandese entrepreneurs;

Building up of an industrial reception infrastructure with a view to effective decentralization;

Establishment of industries using techniques calculated to create [illegible] jobs;

Better designing of projects.

(b) For the non-structured productive sector, the action programme envisaged aims at:

Facilitating supplies of raw materials through the efficient organization of supply;

Providing logistic support in the technical and managerial spheres;

Helping the more dynamic one-man businesses interested in becoming companies to join the modern sector;

Opening up access to credit in the case of undertakings which do not have the financial backing normally required by commercial banks. (This is the context in which the Special Guarantee Fund was set up.)

With regard to energy production, the goal is to furnish every citizen with the energy needed to meet his/her commitments and ensure a minimum of well-being, as well as to enable the secondary and tertiary sectors to speed up their development in order to absorb the increase in energy production. Since the energy sector is the motivating force for economic development and must precede it, it must be given priority so that it can promote industrialization, transport and the improvement of the well-being of the people. With the execution of the development programme, energy consumption, particularly electricity consumption, will increase at a faster rate than was foreseen. This will mean tapping other sources of energy to supplement the electricity requirements. To cope with this situation, it is proposed:

To reduce imports of hydrocarbons and replace them by other sources of energy;

To increase the production of hydro-electric energy and improve its distribution, particularly by equipping mini-power stations;

To exploit as rapidly as possible the other natural energy resources available in Rwanda, such as peat and the methane gas from Lake Kivu;

To develop the use of solar energy, biogas, geothermal power, etc.

Part Three. INVESTMENT CODE

As part of its policy for promoting industrial investment, the Rwandese Government has set up an Investment Code which offers highly attractive advantages to promoters. This very liberal code was set up by the Legislative Decree of 21 September 1977 and provides for:

1. A régime offering general guarantees under ordinary law;
2. A consensual régime (*régime d'agrément*);
3. A contractual régime (*régime conventionnel*).

The latter two régimes give entitlement to specific guarantees and tax and customs benefits while imposing obligations.

A. General safeguards granted to priority undertakings

Article 2: Priority undertakings, operating with foreign or mixed capital, are entitled to acquire all the rights they need to conduct their business in Rwanda: the right to acquire property, industrial rights, administrative concessions, authorizations and permits and their renewal, the right to participate in public markets, etc. on the same footing as Rwandese undertakings.

Undertakings may not be subjected to discriminatory measures in respect of commercial and industrial law and regulations. Undertakings and their personnel have access to the courts and administrative tribunals on the same footing as Rwandese undertakings and nationals.

Article 3: Rights of ownership, individual or collective, are guaranteed by the Constitution.

These rights may not be challenged except for reasons of public interest and in virtue of a law, and subject to fair compensation being paid to the holder of the rights impaired.

Article 6: Within the framework of the regulation of responsibilities, the State guarantees that priority undertakings, whether foreign or mixed, shall be governed by the following principles:

(a) Subject to authorization by the National Bank of Rwanda, undertakings may open accounts with Rwandese banks or abroad in foreign currency which will remain convertible;

(b) Imports of raw materials and any products needed for the functioning of the undertaking may be paid for in hard currency ceded by the National Bank of Rwanda. Exports or services rendered in Rwanda on behalf of aliens shall require payment in foreign currency to the National Bank of Rwanda.

(c) The following are transferable at the official rate published by the National Bank of Rwanda.

Servicing of invested capital in the form of dividends, in its entirety for companies with foreign capital and pro rata for mixed capital companies;

Repayment in the same currency, by means of assets held in Rwanda francs, of the principal and interest on loans contracted abroad, subject to the agreement of the National Bank of Rwanda and provided the funds have been used for investment within the country;

Technical assistance expenditure incurred abroad on behalf of the undertaking and related to its activity in Rwanda;

The proportion of the remuneration of foreign agents authorized by the exchange control regulations, and all family allowances and subscription to pension funds;

Foreign capital, in the event of transfer or termination of business activities, provided the investment was made in foreign assets converted at the official rate.

B. The consensual régime

Article 9: The consensual régime exempts the beneficiary undertaking from duties and taxes on imports of the following:

Installation and equipment materials, including spare parts, needed for the production or processing of products;

Raw materials and inputs used, wholly or partially, in the manufacture or processing of products;

Raw materials and products which, while not constituting tools and not being part of manufactured or processed products, are used in the course of direct manufacturing operations;

Raw materials and products intended for the packaging and non-reusable crating of manufactured or processed products.

<u>Article 10</u>: The consensual régime grants the beneficiary undertaking exemption or reduction of payment of export duties on treated, manufactured or industrialized products.

<u>Article 11</u>: The consensual régime exempts the priority undertaking from the payment of taxes on profits for the first five years, the first year being the one in which the first sale or delivery takes place.

<u>Article 12</u>: After the expiry of the first five years of exemption from payment of taxes on profits, the undertaking shall enjoy a period during which there is progressive taxation over two years, determined as follows:

For the first year the undertaking shall pay one third of the taxes;

For the second year the undertaking shall pay two thirds of the taxes;

The undertaking shall pay the full taxes during the third year following the period of total exemption.

<u>Article 13</u>: The consensual régime exempts priority undertakings from land or mining charges for the first five years.

C. <u>The contractual régime</u>

<u>Article 15</u>: The contractual régime stabilizes the tax arrangements for undertakings of vital importance to the National Plan, involving a considerable volume of investments and requiring a long installation period before they can be sure of a normal return on the capital invested.

The duration of the contractual régime may not exceed 15 years, the first year being that in which the first sale or delivery took place. This period may be prolonged by five years in the case of schemes whose execution takes an exceptionally long time.

The financial and fiscal terms of the contract may be reviewed every five years.

<u>Article 18</u>: The articles of association determine the guarantees and the various commitments assumed by the State and by the beneficiary undertaking. These guarantees and benefits may be:

(a) <u>Given by the State</u>

The advantages laid down in the consensual régime;

Deduction of the basic tax on profits - 20 to 50 per cent of a fraction of the margin of profit actually reinvested during the particular period within the territory of the Republic, either directly or through other companies of which the beneficiary undertaking is a shareholder, for the execution of approved programmes;

Priority in the release of foreign currency for the purchase of capital goods, raw materials or any products, goods or packaging needed for the functioning of the undertaking;

Limits on imports of competitive goods;

Preferential tariffs in respect of export duties and charges or indirect taxes;

Priority placement of government and armed forces orders;

Guarantee of support through the establishment of a local infrastructure (roads, bridges, electricity grids, telephone networks, water mains);

Arrangements for the use of water, electricity, gas and other resources;

Facilities for moving products up to the point of embarkation and utilization of the existing or prospective installations at the place of embarkation;

Arrangements to suppress or extend the contractual régime or the reasons for annulment or withdrawal, and a system of sanctions governing the obligations undertaken by both parties.

(b) Given by the beneficiary undertaking

The general conditions governing operation;

The minimum equipment and production programme;

The employment of Rwandese manpower;

Vocational training of Rwandese executives and workers;

The use, subject to equal terms in respect of price and quality, of products manufactured in Rwanda;

Reinvestment of part of the profits in Rwanda, the percentage to be fixed statutorily in the contract;

Special obligations concerning the proportion of production to be sold on the domestic market;

Obligations concerning the disposal and treatment of waste water and measures to combat pollution.

Article 19: The contractual régime may be extended to branches of the beneficiary undertakings provided they are engaged exclusively in the same activities as the latter and provided their headquarters are situated in Rwanda.

D. Procedure for granting of status

The file concerning the granting of consensual or contractual status must include among other documentation:

The statutes, composition of the governing board and the credentials of the signatories of the application;

A technical note specifying the activities intended, the origin and nature of the raw materials, the processing operations to be carried out, patents and licences, transport arrangements, number of jobs to be created and number to be given to Rwandese nationals;

A note on investment plans, specifying sources of financing, the capital of the company, the credit at its disposal, the total amount of investments, a schedule of materials to be imported, their origin and their estimated value;

A forecast calculation of the economic viability of the scheme, detailing expenditure and running costs based on production planning.

In taking its decision, the Government bases its views on the following factors:

The special appropriateness of the undertaking in the context of the Economic and Social Development Plan;

The volume of investment envisaged;

The manpower level;

The guarantees given in regard to management, financing and technology;

The financial implications.

The granting of privileged status is decided by Presidential Decree in the event of the system involved being the consensual régime or by law in the case of the contractual régime.