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ASSISTANCE IN DEVELOPMENT PLANNING

DU/SIL/70/510

SIERRA LEONE

TECHNICAL REPORT:
Industrial planning

Prepared for the Government of Sierra Leone by the
United Nations Industrial Development Organization,
executing agency for the
United Nations Development Programme

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ASSISTANCE IN DEVELOPMENT PLANNING
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Technical report: Industrial planning

Prepared for the Government of Sierra Leone
by the United Nations Industrial Development Organization,
executing agency for the United Nations Development Programme

Based on the work of R. A. Jofre, expert
in industrial planning

United Nations Industrial Development Organization
Vienna, 1977

Explanatory notes

Reference to "dollars" ($) indicates United States dollars.

The monetary unit in Sierra Leone is the leone (Le). During the period covered by the report, the value of the leone in relation to the United States dollar was $US 1 = Le 0.93.

A slash between dates (e.g., 1970/71) indicates a crop year, financial year or academic year.

Use of a hyphen between dates (e.g., 1960-1965) indicates the full period involved, including the beginning and end years.

A full stop (.) is used to indicate decimals.

A comma (,) is used to distinguish thousands and millions.

References to "tons" are to metric tons, unless otherwise stated.

The following forms have been used in tables:

Three dots (...) indicate that data are not available

A dash (-) indicates that the amount is nil or negligible

Parentheses around a figure indicate a minus amount

The following acronyms are used in the body of the report:

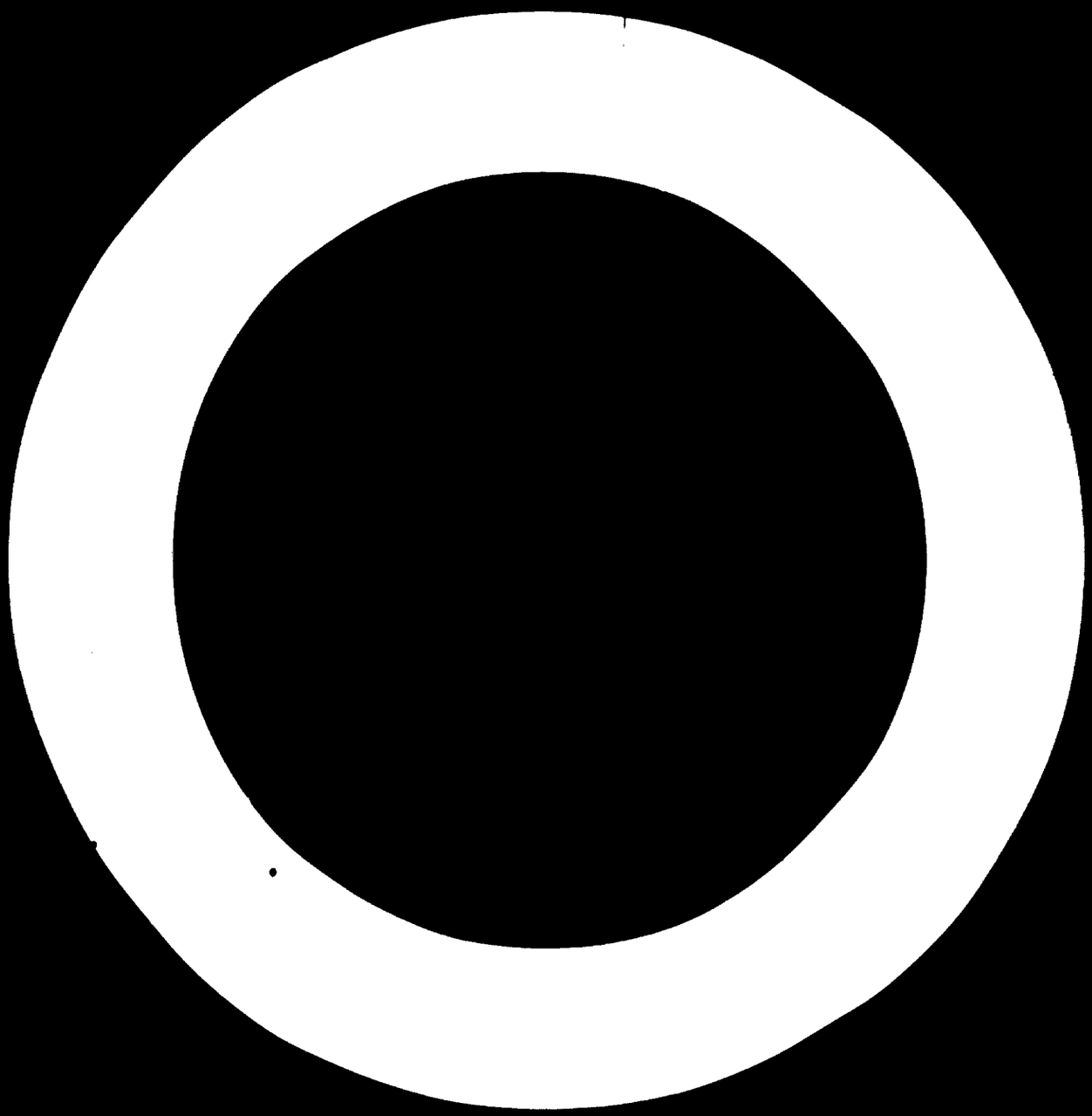
NDP	National Development Plan
SLEC	Sierra Leone Electricity Company
SLPKOM	Sierra Leone Palm Kernel Oil Mill
SLPMB	Sierra Leone Produce Marketing Board

ABSTRACT

The report contains a review and assessment of the development and current situation of, and prospects for, industry in Sierra Leone. It is based on the work of an expert of the United Nations Industrial Development Organization (UNIDO), which was appointed associated agency for the industrial planning component of the United Nations Development Programme (UNDP) project "Assistance in Development Planning" (DU/SIL/70/510) approved by UNDP in June 1970. The expert, who was in Sierra Leone from March 1973 to June 1976, acted as adviser on planning for the manufacturing sector throughout his assignment, and as adviser for the mining sector after April 1975. In 1975 the project was re-named "Assistance in Development Planning and Plan Implementation" (DU/SIL/75/011) to reflect a shift in emphasis.

During the first part of his assignment, the expert worked mainly on the preparation of the manufacturing industry chapter of the National Development Plan (NDP) and on background papers on industrial matters for submission to the National Planning Council. Subsequent tasks included the preparation of the industrial chapter of the first annual plan (1974/75) and the development budget for the manufacturing sector. A system of annual industrial surveys was established; the data provided by the surveys were used during the preparation of the annual plans and progress reports. Some difficulties were encountered at first because of a lack of information and the absence of a sectoral planning unit in the Ministry of Trade and Industry.

The report indicates some of the reasons why the modern industrial sector in Sierra Leone has found it difficult to maintain a consistent pace of development after the initial surge of activity in the 1960s. It recommends a number of measures that might help to boost the country's economy, which had begun to show signs of flagging by 1973.



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INTRODUCTION

The United Nations Development Programme (UNDP) project "Assistance in Development Planning" (DU/SIL/70/510) was originally conceived to help the Government of Sierra Leone establish institutional machinery for planning and plan implementation within the Ministry of Development and Economic Planning. The United Nations Industrial Development Organization (UNIDO) was appointed associated agency for the industrial planning component of the project. It provided an expert in industrial planning from March 1973 to June 1976 and contributed $109,000. During the assignment, many tasks were performed in connexion with:

(a) The preparation of the first five-year National Development Plan (NDP) 1974/75-1978/79 (manufacturing industry chapter);

(b) The preparation of the first annual plan 1974/75 (manufacturing industry);

(c) The preparation of the second and third annual plans 1975/76 and 1976/77 (mining and manufacturing industries);

(d) The preparation of the development estimates for the first three years of the Plan period (1974/75, 1975/76, and 1976/77);

(e) Several progress reports on the implementation of the Plan;

(f) Several preliminary feasibility studies dealing with industries included in the NDP;

(g) Special reports written at the request of the Government;

(h) Draft legislation on special matters.

During the expert's assignment a system of continuing annual industrial surveys was established; much of the information given in the report is taken from the surveys. The data obtained covers only the modern factory industry and mining sectors. Only qualitative data were obtained on small-scale industry and handicrafts. The terms of reference for the present report are as follows:

(a) To assess the present industrial situation of the manufacturing sector in Sierra Leone, including:

(i) The contribution made my the present modern factory enterprises to the national economy in terms of direct employment, gross output, value added, material inputs and services purchased, imports, and installed capacity use;

(ii) The contribution made by small-scale industry and handicrafts to the national economy;

(iii) The major problems encountered by the modern enterprises, and the effects of the action of international companies on the national economy;

(iv) The effect of the Development of Industries Act of 1960 and its administration, the effect of other government policies and measures, and the consequences of an absence of government action in certain cases and areas;

(b) To ascertain and analyze Sierra Leone's capacity for industrial development based on the accessibility of and trends in external markets, the size of the internal market, and the natural resources, skills, and capital available;

(c) To identify individual industries which would be suitable for establishment in Sierra Leone, to draw up guidelines for the selection and granting of incentives to those industries which require them in their initial stages, and to recommend the particular type of company to be formed (joint-venture, private or fully State owned);

(d) To investigate the advisability of direct government investment through their agencies (the future National Industrial Development Corporation approved in the National Development Plan, the National Development Bank, the Sierra Leone Produce Marketing Board (SLPMB), and others);

(e) To recommend incentives and measures necessary to promote those industries selected as being the most beneficial to Sierra Leone. All relevant measures such as tariffs, fiscal and monetary policies, the provision of industrial estates, reorganization of the government industrial promotion apparatus, the creation of industrial promotion bodies, export promotion activities, and so on were reviewed. An analysis was made of past attempts to implement the manufacturing programme of the NDP and the difficulties encountered.

I. BASIC INFORMATION ON SIERRA LEONE

A. Natural resources important for industrial development

Crops with industrial potential

A wide variety of crops may have industrial potential in Sierra Leone. Many of them make up the bulk of present agricultural exports (cacao, coffee, palm kernels, ginger, piassava, and cola nuts). Many others are produced in reasonable quantities for internal consumption (rice, pineapples, groundnuts, tobacco, onions, red peppers, capsicum, oranges, limes, mangoes, cassava, guava, passion fruit, custard apple, maize, sorghum, coconuts, and cotton); others may be produced if a market is provided (sugar cane, for instance).

Many of the crops could be produced in much larger quantities for industrial purposes. A brief analysis of production, yields and other relevant data follows:

Crops presently exported

Cacao. Cacao beans produced in Sierra Leone are of excellent quality. Production increased from 5,900 tons to 6,400 tons during 1965/66 to 1970/71 but is not enough for industrial use in a cocao butter mill, because the minimum size for the industry is expected to be around 20,000 tons a year. Nevertheless, the present high prices of cacao products might justify the installation of a cocao butter mill running at less than optimum capacity. It would be worth assessing the technical and economic feasibility of such a mill, provided steps are taken to increase future crops. Some increase in production is expected as a consequence of high prices, but if a feasibility study proves the economic viability of the mill, and a decision is taken to build it, an integral part of the project would have to be the development of new plantations under an outgrowers scheme. The present area under cacao is about 46,000 acres, mostly in the Eastern and Southern Provinces, but the trees on 11% of that area are over 30 years old and therefore uneconomical. The agricultural programme of the National Development Plan (NDP) considered the development of only 750 acres of cacao in the Eastern Province and, by the end of the Plan period (1978-1979), a probable increase in cacao planting in the Eastern and Northern Provinces and the Western Area. Production increases will depend on outgrowers. After analyzing possible yields, it can be concluded that the cacao crop with existing and proposed planted areas would seldom reach the 20,000 tons a year requirement for a cocao butter mill.

Coffee. Coffee production increased between 1965/66 to 1970/71 from 18,200 tons to 19,700 tons. It is expected that production will continue to increase. Few possibilities for industrialization are envisaged for this crop, because the quantity is rather small for treatment in an instant coffee factory, and the international market for instant coffee is fairly competitive.

Palm kernels. Palm kernels are currently being used for industry in the Sierra Leone Produce Marketing Board's palm-kernel oil mill. It is expected that about 36,000 tons could be milled at full capacity. The harvest of wild palm kernels can be increased substantially, as there are some 2.8 million acres of wild palms yielding an average of 140 lb/acre. A continuous sound pricing

policy will attract more farmers to the business and enable either further enlargement of the existing mill or the installation of another. Present difficulties between the management of Sierra Leone Palm Kernel Oil Mill (SLPKOM) and SLPMB are keeping input of the mill at only 25,000 tons a year.

Ginger root. Ginger produced in Sierra Leone is of very good quality. Exports fluctuate widely according to demand on the international market. Over a period of 12 years, from 1961 to 1972, quantities exported have varied from a minimum of 315 tons to a maximum of 1,539 tons. In order to secure a stable demand an essential ginger-oil plant may be a solution. Prices for essential ginger oil vary according to quality. Ginger contains about 3% essential oil, and value can fluctuate between $70 to $140 per kilogram (1975). An essential ginger-oil plant, treating 1,000 tons of ginger roots a year will produce 30,000 kilograms of oil, worth about $2 million to $4 million, for a small investment. The unit would be fairly small with a capacity of four to five tons roots a day and a correspondingly low investment.

Piassava. Piassava is used to produce brooms and brushes. Present production is exported and has varied during the last five years between 3,000 and 4,000 tons a year. It would be possible to consider local manufacture of brushes and brooms for export.

Kola nuts. Part of the present production of cola nuts is exported; the rest is consumed locally. Exports vary from 500 to 1,000 tons a year.

Crops presently produced for internal consumption

Rice. The country presently produces less rice than it consumes. A crash rice programme was initiated in 1974 by the Ministry of Agriculture to expand production of rice and improve marketing and distribution.

Pineapples. Pineapples are cultivated in Sierra Leone mainly for internal consumption. There are a few small commercial farms producing fruit of very good quality; the rest comes from family plantations. The areas most suitable for industrial pineapple production are in the Northern and Eastern Provinces where climatic conditions are very favourable. Sierra Leone has been producing about 16,000 tons a year, according to the 1970/71 agricultural survey.

Groundnuts. Groundnuts are cultivated mainly for domestic consumption. The area under cultivation was about 34,000 acres and production was estimated at 15,000 tons. The National Development Plan envisaged an increase in planted area of 5,000 acres and the improvement of a further 7,500 acres, but it is expected that all production will still be consumed locally.

Orange and other citruses. Most citruses produced in Sierra Leone are oranges. The 1970/71 agricultural survey assessed the production of oranges at 46,000 tons (with a planted area of 12,000 acres); the production of grapefruit, tangerines and limes was much smaller (600 to 800 tons). The Ministry of Agriculture has been making efforts to increase the area under citruses, especially in the Northern Province, and if a canning facility were available, it should be possible to can adequate quantities of juices.

Cassava. Cassava is grown as a staple food throughout the country. Yields are low because the cassava leaves are used as a vegetable. Total area planted under cassava was 41,000 acres in 1970/71, and production was about 82,000 tons. Assuming that higher prices will give the farmers an incentive to plant cassava and avoid defoliation for table use, cassava output can be increased greatly for industrial use.

Tomatoes. Tomatoes can be grown under good conditions in Sierra Leone, especially in the Northern Province. Present yields of family enterprises are low, but under experimental conditions at Njala University, very high yields have been obtained (up to 40 tons of tomatoes per hectare).

Sugar cane. Industrial production of sugar cane has been the object of several investigations. In 1967 the United Kingdom Ministry of Overseas Development sponsored a full agricultural study, the conclusions of which were fairly positive. The study found that: sugar cane grows in fairly good conditions; cane yield per hectare is about 82 tons (33 tons/acre); and refined sugar yield is 9% (3 tons refined sugar per acre). For the Northern Province, conditions are better: it is estimated that there are 150 crop-cutting days because the dry season lasts for almost six months (mid-November until mid-May).

Coconuts. A coconut project is in the planning stage. The National Development Plan includes in the agricultural programme the development of 20,000 acres of coconut palms over 11 years, starting in 1975/76.

Vegetables. Some vegetables are of industrial interest (onions, red peppers and capsicum). The country has a deficit of onions, but they can be grown in large quantities and of good quality in the Northern Province. The main problem is poor marketing facilities. The same applies to red peppers and capsicum, whose production is limited by the size of the internal market. Production can be built up if facilities for the industrial use of crops are available and if an appropriate price policy is established.

Industrial fibres. Urena Lobata, a jute substitute, will be of industrial interest in the future. A fibre project of the Ministry of Agriculture has been included in the National Development Plan: 1 900 acres will be planted by 1978/79, expanding thereafter by 540 acres a year. It is expected that after the Plan period it will be possible to supply a local mill.

Other fruits for canning. There are other fruits that could be canned, including mangoes, guava, passion fruit, and custard apple. Their industrial use is linked to the establishment of a canning factory for pineapple and tomatoes.

Forestry resources

Sierra Leone has slightly more than 1,100 square miles of forests. The two main forest areas are the Gola forest reserves located in the south-east of the Kenema region, covering an area of 411 square miles, and the Tama-Tonkolili forest reserves in the centre of the country, with an area of 233 square miles. These two areas contain 3 million m^3 (107 million ft^3) of timber. It is expected that in a 60-year felling cycle the two forests could produce 50,000 m^3 of logs a year. This figure might be almost doubled if the present programme of compensatory planting with fast growing species is intensified to make the less valuable wood available for the internal market. Domestic requirements are projected to be around 32,000 m^3/year by 1978/79, leaving a surplus of exploitable wood for export as manufactured products.

Several rubber plantations are being developed; a 10-year project is in its final phase with a total of 3,300 acres planted. The National Development Plan forestry programme envisages the development of 5,000 acres a year of rubber plantations. It is expected that by the end of the Plan period, a minimum of 5,000 acres would be under production with an output of 3,000 tons a year. Increasing oil prices would presumably encourage further rubber plantation development.

Animal husbandry and fishing resources

Animal husbandry and fisheries are potential resources for future industrialization, although utilization might be oriented to different markets.

Animal husbandry. Cattle are of some significance for further industrialization in Sierra Leone. The 1970/71 agricultural survey indicates a total number of 207,000 head of cattle in the country. Ninety per cent of these are in the Northern Province, which offers savannah belts that provide the grazing land needed by livestock. Cattle owners are predominantly nomadic, and their herds are moved across the country according to the season. They also move the cattle across the border from the Republic of Guinea. Movement of cattle between Sierra Leone and Liberia has been banned since 1970. The local breed is the small N'dama, the average weight of which on slaughtering is 204 kilograms. Lack of facilities in the Northern Province for slaughtering and freezing prevents further increase in the number of cattle. Poultry could also be of interest for future industrialization provided a sufficient supply of cheap by-product feeds could be made available.

Fishing resources. Production of fish for local consumption is about 32,000 tons a year, and between 6,000 and 10,000 tons a year must be imported. Some of the shortfall may be attributed to Japanese, Cuban, Spanish, Italian, and other fishing fleets which are or have been operating off the coast of Sierra Leone. Pelagic fish resources are estimated at 300,000 tons a year. At present tuna is fished offshore and in distant waters by tuna boats operating for a local company that transhipps the catch through Freetown. An estimated 20,000 tons of tuna were caught in 1975. Sardines are another potential resource for industrialization. Several studies indicate a yearly availability of 100,000 tons of sardines without depletion of the bio-mass. Shrimps and shellfish are another intersting resource. Large fishing fleets operate in waters off the coast of Sierra Leone, but only a small part of the catche is brought to Freetown for freezing in the new shrimping facility. Squids are also of commercial value for future industrial projects.

Mineral resources

Minerals have been the main source of foreign currency earnings and fiscal revenue. Several development projects were included among those of the mining programme of the NDP.

Diamonds. The Plan envisages stabilizing the output of diamond production at 1.2 million carats a year. An additional 200,000 carats might be obtained by reducing smuggling. Almost none of the present output is fed into a diamond industry. The majority of cut and polished stones at the diamond factory are imported from London. Sierra Leone diamonds are noted for the high percentage (40-45% by volume) of high quality gems obtained. Gems account for 90 to 95% of the value of diamond purchases by the Government Diamond Office. It is assumed that the real percentage of gems should be higher because many of them are smuggled. This percentage was not obtained in the case of the Diminco Company. This Company, although 51% owned by the Government, is still managed by foreign investors, and this makes it very difficult to obtain information on how the Company is being managed. Diminco's diamond output is fixed annually in London, in accordance with the interests of the foreign investors. Prices paid by a subsidiary of the diamond trust that is a partner of the Government in Diminco were 15 to 20% lower than prices paid in London by the same company.

Since prices on the open market are still higher than prices paid in London by the trust, the incentive for smuggling is understandable. Moreover, the dealer or diamond miner selling diamonds to the six officially-registered exporters will be paid in non-convertible currency, and this is yet another incentive for smuggling. The third incentive was the export tax which was fixed at 7.5% up to 1975. In 1976, the tax was reduced to 2.5%. It is hardly likely that this reduction, given present market demand, will reduce smuggling. It will only bring additional profit to the dealers and miners for the diamonds sold in Sierra Leone.

Iron ore. The only deposit that has been worked is the Marampa mine, but operations there were discontinued in October 1975. Several reports are available on the prospects of the mine. Although it was not possible to obtain a copy of a report made in 1975 by a United Nations team at the request of the Government, it is known that reserves are roughly 86 million tons with 38% iron content, to which should be added the iron content of the tailings stored in the tailings dams. The iron ore grade varies between 28% and 38%, but on average was estimated at 33% by the United Nations team. Total reserves in the tailings dams are estimated at 19 million tons, thus yielding a possible output of around 10 million tons of iron ore of 63 per cent grade.

Another important deposit is the Tonkolili deposit in the Northern Province. Reserves are estimated at 625 million tons, including 120 million tons with a grade of 54%-56% iron. Other deposits are found near the Liberian border but, according to information supplied in the Ministry of Mines, iron content is as low as 18%.

Bauxite. Bauxite deposits are presently exploited by a subsidiary of Swiss Aluminium in the Moyamba District in the Southern Province. Average alumina content runs at 55%-56%. The deposits presently worked are small and their economic life is short. The Company has a current lease on bauxite deposits in the Port Loko area with estimated reserves of 100 million tons, with an average grade of 46% alumina, 4% silica (dry basis), and about 15% water (wet basis). The economics of the exploitation of the bauxtie were analyzed in a previous report, "An analysis of the economics of bauxite, alumina, and aluminium production: a basis for negotiations with Sierra Leone Ore and Metal Company, Alusuisse", which was presented to the Government of Sierra Leone in November 1975.

Rutile. There are reserves of 170 million tons of rutile (1.75% grade) in the Southern Province, and a plant for its treatment is being designed by the Bethlehem Steel Corporation. It is assumed that the plant will start up during the Plan period. Other minerals of interest, such as Zirconium, will be produced as by-products. The main delays being faced presently by the local branch of Bethlehem Steel, Sierra Rutile, are caused by engineering problems. These problems include the design and construction of one of the largests dredges in the world; so 1979 is quite an optimistic date for the beginning of operations. Bayer-Preussag, a consortium from the Federal Republic of Germany, is engaged in the development of rutile and ilmenite near Rotifunk in the Southern Province. There too, the engineering stages are behind schedule.

Other minerals. Other minerals known, but not exploited at present are gold, chromite, platinum, coulumbite and molybdenite.

Energy Resources

The hydroelectric potential of the country has been estimated at 1,150 MW. Because of dispersion, the low heads available, and the small market for electricity at present, little of this potential has been tapped. The only hydroclectric plant is a small unit of 2.4 MW belonging to the Guma Water Company, supplying potable water to Freetown and near-by areas.

Current plans include the implementation of the Bumbuna hydroelectric scheme at Bumbuna Falls on the Seli River in the Northern Province. The proposed hydroelectric plant would have a guaranteed capacity of 46 MW in one site. The Seli River has a total estimated potential of about 150 MW the utilization of which will require the installation of very expensive hydroelectric plants, probably on three sites. An analysis made in a previous report showed that the generation of electric energy by industry was possible at a relatively low cost, using diesel-electric generators. The estimates cost was about $0.5 per kWh, a figure which was checked with actual costs of electric energy from stand-by generators in local industries. It would be worthwhile to consider this alternative in a country with a very small power market that is growing relatively slowly as far as the industrial sector is concerned. Electrical energy generated by hydroelectric schemes in Sierra Leone would hardly be competitive with the energy sold by Zaire, Ghana or Guinea. It should be concluded that the paucity of hydroelectric resources will be a major handicap for industrial development in the future.

B. Infrastructure

Main urban centres, linking roads and average cost of transport

According to the 1963 census, only 25% of Sierra Leone's population was urban, but it is estimated that this figure must be now increased to some 32-35%. According to the 1963 census, 18 towns had more than 5,000 inhabitants. It is believed that the availability of infrastructure to certain areas or poles of development is more important than the number of inhabitants. Normally, both factors are coincident as is the case in Sierra Leone. The main towns are presently linked by two main roads: the Freetown-Bo-Kenema road, and the Freetown-Lunsar-Makeni-Kabala road. The main portion of the Makeni-Kabala road is not a first class road. It is not a result of chance that the towns of Bo, Makeni, Lunsar and Kenema developed in the past: besides the natural activities of the area, the roads help in the growth of the urban population of these areas. The case of the diamond mining towns of Sefadu and Yengema is a special one, like many other mining towns in the world. The development of Kabala depends entirely on the construction of a first class road for the establishment of potential industries in the area. After the exhaustion of the diamond deposits in Sefadu and Yengema, the road will help the continuation of economic activities, provided that new economic activities replace mining. The industrial development of Kenema and Makeni was seriously hampered by the phasing out of the railway: a railway is normally the most economic transport system for large quantities of heavy industrial products over medium distances.

Of the 5,000 miles of roads suitable for vehicles in Sierra Leone, some 600 miles are paved. The section from Freetown to Masiaka is common to the two roads and up to now has restricted the loads and maximum weight of trucks

crossing the bridges. It is expected that in the future, through reinforcement of bridges or thicker asphalt, the size of trucks used will be increased, thus lowering the present costs of transport by road. This is clear from an inspection of present freight rates for general cargo given below:

Freetown to:	Le per 7 tons truck
Kenema	80
Bo	70
Makeni	60
Lunsar	50
Koidu, Yengema or Sefadu	90

Shipping facilities

The port of Freetown can handle six to eight ships at a time in the Queen Elizabeth II Quay. Four of the berths have single storey sheds, with a total area of 14,000 square metres under shelter. Open stack areas total 42,000 square metres. Current projects for expansion of the storage facilities have been included in the National Development Plan, including new sheds for berths 5 and 6 at the Queen Elizabeth II Quay and cold storage facilities for 850 tons of frozen foods. Surveillance against pilferage should be improved if new industries are to be developed. Maintenance facilities should also be developed based on the ex-railway workshop. The port of Freetown has adequate facilities for development of new industries in the country, and, in comparison with other West African ports, handling of ships is quite efficient. Freetown should therefore prove more attractive as a transshipment port than other African ports nearby.

Electricity tariffs

A big handicap for industrial development is the present electrical energy generating situation. Frequent stoppages of current supply and a high tariff for industrial consumption are likely to continue during the present decade. Even if the Bumbuna hydroelectric station is built, or additional diesel generators are installed, tariffs will continue at a high level, because of the high price of oil products and the high overhead of Sierra Leone Electricity Company (SLEC) built in the tariff schedule. Present tariffs are as follows:

Power rate Le 0.07 per kWh, equivalent to $0.065 per kWh

Installed capacity rate = Le 4.0 per kW of demand per month

is high tension for non-domestic consumption.

A number of private industrial power facilities have been installed and are operated throughout the country as a response to the high tariffs of SLEC. Considering that in an industry the costs of generating electrical energy are limited to the fuel used, depreciation and maintenance, the cost per kWh is no more than 65% of the SLEC tariff.

It might be useful to reconsider the present pricing policy for consumption of electrical energy by industries. If the country wishes to create a competitive national industry capable of producing real import substitutes or competing on foreign markets, important items like energy should be sold at a marginal price. It is not a good industrial development policy to penalize the operations of newly-created Sierra Leone industries in order to compensate for the shortcomings of a public corporation.

Other relevant facts

The international airport at Lungi is rated "Class A" by International Civil Aviation Organization standards. Lungi has almost 100% flyable weather. The main problem is its location on the other side of the Sierra Leone river, far from Freetown. It would be possible, however, to improve the airport facilities for business needs at a very low cost. For instance, international telephone and telex, and also banking facilities, could improve the services of the airport and pave the way for further investment in industrial ventures.

Another handicap to industrial development is the lack of metal engineering workshops. The only important workshop is practically paralyzed and not utilized, because it is still under the Ministry of Transport, and directly under the ex-railway management. This leads to the absurd situation that, even though such important facilities and skilled personnel exist, industries and mining enterprises have to depend completely on their own workshops or replace machinery after a very short time.

C. Government regulations affecting industrialization

The existing industrial promotion institution

Industrial promotion has not been organized in a systematic way in Sierra Leone up to now. Government stimulation of and assistance to industrial development has consisted of the following measures:

(a) The Development of Industries Act of 1960, which provides for the granting of Development Certificates to selected industries by the Ministry of Trade and Industry;

(b) The construction of the Wellington Industrial Estate, where well-developed industrial sites are rented at concessional rates;

(c) The establishment of industries by the public sector, especially by the SLPMB;

(d) Participation by the Government in joint ventures;

(e) Establishment in 1968 of the National Development Bank to provide concessional loans to Sierra Leone entrepreneurs.

The Ministry of Mines handles matters relating to the mining industries directly.

At present, the situation is getting out of control, since many industrial matters are handled by different institutions or ministries. For instance, in some cases the Ministry of Development and Economic Planning deals with a proposal, in others it is the Office of the Vice-President, and in others the Ministry of Trade and Industry. The reason for this apparent anarchy must be analyzed. One possible conclusion is that the Ministry of Trade and Industry has insufficient staff to deal with all matters relating to the establishment of new industries: it has only two economists on its staff.

The National Development Bank is mainly concerned with small-scale enterprises, and at present it has no financial resources for development. In addition, it is not fully government-owned as the shareholders include some private enterprises.

The net result is simple: the drive towards industrialization stopped early in the 1970s, when the establishment of industries became increasingly difficult as a result of the exhaustation of the obviously necessary import substitution industries. At the same time, many of the industries established were hardly justified, as the transformation of the imported inputs was meaningless. At present there is ample room for the installation of import-substitution or export-oriented industries, but they need better technology, larger investments, and skillful management. This implies that there is a lack of industrial promotion institutions, a lack that should be made up in some way if industrial development is to be a reality and not just indicative planning figures.

The approved new industrial policy and the delays suffered in its implementation

A consistent policy has been formulated by the Government to secure effective national participation in and control over vital sectors of the economy. At the same time, the Government has indicated its readiness to encourage investments by foreign entrepreneurs, especially in the mining and manufacturing industries. As these policies tend to clash somewhat, a certain degree of compromise is required. Besides, the Government lacks at present the financial resources to develop industries by itself. For industries that might be created as joint ventures, the official policy is that 51% government participation would be the minimum. But this clashes with the lack of financial resources. The policy measures taken to increase national participation in and control of the economy include:

(a) The establishment of a number of national enterprises such as the Sierra Leone Commercial Bank and the National Insurance Company;

(b) Measures requiring a greater percentage of African employees in foreign companies, and greater responsibilities for them through appropriate training in technical and managerial fields;

(c) The reservation of certain trades for Sierra Leone nationals under the Non-Citizens Act of 1963. It is expected that the Act will result in a diversion of foreign entrepreneurs from trading to manufacturing.

In order to achieve these policy aims, the National Development Plan 1974/75-1978/79 has approved a new policy for the industrial development. The approach was as follows:

(a) A development strategy was formulated with the following objectives and priorities:

(i) To initiate and sustain a process of rapid industrial growth;

(ii) To generate financial, foreign exchange, human, and technological resources for development;

(iii) To generate substantial employment;

(iv) To establish linkage effects between sectors and industries;

(v) To make a significant contribution to foreign exchange balance through export promotion and import substitution;

(vi) To develop indigenous entrepreneurship and managerial and labour skills;

(b) A strategy for industrial development was briefly defined as a rapid expansion of the modern industrial sector with emphasis on:

(i) The establishment of industries processing agricultural and other indigenous raw materials;

(ii) Increased output through expansion and more efficient utilization in the existing industrial enterprises;

(c) An industrial programme was defined;

(d) In order to implement the industrial programme and to achieve the planned development objectives of the NDP, industrial policy measures to be taken by the Government were indicated in the NDP. In summary, they were as follows:

(i) Low interest rates and bank credits would be accorded to the agro-based industries, forest and fishing industries;

(ii) Priority in allocation of public resources would be given to the development of new industrial crops;

(iii) Export incentives would be introduced;

(iv) An appropriate degree of protection would be given to import-substitution industries;

(v) Tax concessions would be given to industries using locally manufactured capital goods;

(vi) Further tax incentives would be given to industries established in the provinces;

(vii) A new Development of Industries Act was to be enacted at the beginning of 1975.

The following conditions for the realization of the industrial programme were established:

(a) A reorganization of industrial promotion and controlling government agencies, which will require the following institutional measures:

(i) A reorganization of the Ministry of Trade and Industry, including the establishment of a sectoral planning unit (Division of Industrial Programming) and a Directorate of Small Industries and Handicrafts;

(ii) The establishment of the National Industrial Development Corporation;

(iii) The reorganization of the National Development Bank;

(iv) The establishment of industrial co-operatives;

(b) Qualitative selection of personnel for the public agencies and adequate remuneration for them;

(c) Timely preparation of technical and economic feasibility studies required for the projects of the industrial programme and other engineering work;

(d) Ample publicity for the new set of rules for foreign and local investors contained in the revised Development of Industries Act;

(e) Increased technical assistance and financial aid from multilateral and bilateral sources;

(f) Joint ventures with experienced foreign organizations in order to implement effectively some of the projects included in the Plan.

So far, none of the industrial policy measures or the institutional measures that should have given effect to the industrial programme have been implemented. The net result is that the Plan's industrial programme is almost two years behind schedule.

The delay in the establishment of the National Industrial Development Corporation is affecting and will affect the implementation of the industrial programme. The Corporation was to be the principal agency for successful implementation of the industrial programme; it was to be established within the first year of the Plan, and should have been endowed with adequate resources to perform its functions properly. It would have acted as a holding company for the public sector industrial projects and for the government share in joint projects and should have developed capabilities in:

(a) Project formulation and evaluation;

(b) Construction and management of projects;

(c) Mobilization of domestic and foreign capital for industrial development;

(d) Supervising the efficiency of the new enterprises;

(e) Training in management techniques.

Spontaneous industrial development is hardly likely in a developing country. Development is essentially the result of planned decisions. Up to the present the industry of the country has been deteriorating instead of advancing, and corrective measures should be taken promptly.

Customs structure and industrialization

Customs duties are paid by all industries without a Development Certificate granting exemption. In general, machinery duty is 36.5% of the c.i.f. value. This imposes heavy burden on new investment if the factory does not have a Development Certificate. It would be worth while to analyse alternative courses of action for the payment of customs duty on heavy investment. If it is assumed that freight charges and insurance represent 15% of the f.o.b. price, the customs duty works out at 42% of the f.o.b. value. Normally, investors obtain a suppliers credit for the purchase of large quantities of equipment. The repayment period may run up to eight or even ten years, usually with a grace period calculated as the time required for starting operations of the new installation. This grace period may be two to three years. A down payment of 15 to 20% of the f.o.b. value is normally requested by the suppliers of machinery, mainly to take care of the shipping and insurance charges, and other costs in the country of origin. As there is no delayed system of payment for duties paid on machinery, the investor will have to finance an amount equivalent to 57 to 62% of the value of the machinery.

A more sound and fair customs policy would be to allow the investor to defer payment of the customs duty on the machinery imported according to the repayment schedule granted to him by the supplier. If this were done, assuming a down payment against delivery of 15 to 20%, the duty paid would be only 5.5 to 7.3% of the f.o.b. price, and this would make for an increased rate of investment. As only a few types of industrial machinery are exempted from the general rate of 36.5%, it might be a greater incentive to allow the deferred payment of customs duties on machinery, rather than the granting of customs exemptions through Development Certificates. Fiscal revenue would probably be higher, because at present many investments are simply not made owing to the difficulties encountered in financing the payment of the customs duty in adddition to the machinery. Furthermore, it is interesting to consider the case of the state-owned industries. In a developing country such as Sierra Leone, it is expected that the State will have to play a major role in the development of industries, since entrepreneurial and management skills are lacking, and private capital is not very keen on the development of essential industries that, in some ways, are less profitable than those being developed in the first stages of industrialization. The State will therefore have to develop public industries at some stage of industrial development. It is expected that these industries will be in a position to compete with well-established large manufacturers in the developed countries. Sometimes the wrong policy is applied to dealings with State industries. For instance, the palm kernel oil mill of the SLPMB has to apy an export tax, although the price of palm oil has dropped substantially from a very high price in 1974 to only $350 per ton. This price, according to the management of the mill, does not permit any profit, and the mill is running at a loss, mainly because of the export tax. At the same time, the mill is running at only 70% capacity. If the export tax was eliminated, the mill could possibly be running at 100% capacity, producing more foreign exchange and a profit which could be taxed. Another seeming anomaly is that a company in the country producing paint pays more duty per gallon of paint produced than the duty paid on imported paints.

Customs duties should be correlated with industrial development. The creation of a development institution with technical staff capable of analysing the different cases and supporting the necessary changes in customs duties application is becoming more and more urgent.

Excise duties are charged on petroleum products, cigarettes, beer, and a few other products manufactured locally. A revision of the policy of charging excise duties on locally manufactured non-luxury products or final consumption goods such as paints, plastics, nails, varnishes, lacquers and thinners, matches and some essential products used in manufacturing activities would be helpful. This type of indirect tax is onerous for both the manufacturing sector and consumers, since its value is multiplied by the profit margins added in trading activities.

A very important aspect of the effect of customs duties on the industrialization process is the level of protection that needs to be granted to efficient industries. There is no suitable policy on this matter. Newly-established industries producing an output of fairly good quality for the local market are suffering because of competition from imported goods of similar quality but lower prices. It would be worth while to consider levying customs duties on imports of competing manufactured goods. Both the local manufacturer and consumers should be protected; so a quality criterion should be applied for the maintenance or elimination of the tariff protection. Here, too, a development institution would seem to be the most obvious body to handle the technical aspects of tariff protection.

Finally, it must be mentioned that the Customs and Excise Laws are absolutely unsatisfactory if export promotion is desired. At present only a few manufacturers are granted drawback rights; drawback should be extended to all goods manufactured in Sierra Leone in order to make them more competitive.

Financial regulations and institutions

It is widely accepted officially that there should be adequate financing for industrial enterprises. Despite the acceptance of this idea and the existence of several financing schemes, funds for the development of new industrial enterprises that may involve a risk are not readily available for the new independent entrepreneur. Moreover, financial institutions discriminate indirectly against the Sierra Leonean entrepreneur, because most credits are obtained by the established trade and industrial enterprises, which are mainly owned by non-Sierra Leoneans.

The commercial banking sector consists of three banks of which two are foreign and one belongs to the Government. The government bank is relatively new and has not yet been favoured with the deposits of government-owned enterprises or joint ventures. Since this implies that government funds are channelled to the two foreign banks, with a subsequent lack of control over lending, it would be worth while to consider concentrating deposits by all government institutions, industries or funds in the Sierra Leone Commercial Bank Limited.

The idea should be considered of obliging all industries or mining companies granted Development Certificates or special concessions to deposit funds in the Sierra Leone Commercial Bank Limited. The larger the amount deposited, the larger would be the lending capacity of the bank and the profits generated, provided efficient management is secured. Credit ought to encourage productive activities, but this is not happening with industry and mining. Commercial banks are channelling money into trade and other service activities, rather than productive sectors. There is no credit to finance the working capital of manufacturing or mining enterprises, or to finance potential exports.

The only financial institution created to provide financial resources to risk-bearing enterprises in the agricultural, manufacturing or other productive sectors is the National Development Bank. The reorganization of the Bank, envisaged in the NDP, has not yet taken place. The main shortcoming of the Bank, as far as industrial promotion is concerned, seems to be a lack of personnel with the necessary technical qualifications to evaluate industrial projects. Another shortcoming is the scarcity of financial resources. It is expected that there will be close co-operation between the National Development Bank and the National Industrial Development Corporation, once the latter starts operations. The National Development Bank is oriented towards the development of small and medium-size private enterprises.

It is in the area of large-scale industry where the lack of a development institution is more of a problem. Large-scale projects are awaiting the establishment of such an institution, and many would-be investors have abandoned the idea of investing in the country, owing to difficulties that arise during negotiations with officials of some ministries which do not have the required technical qualifications. At the same time, the lack of a development institution implies that practically all loans for industrial development have to be tied to specific projects, and this requires much more negotiation. A development institution would assure a higher level of confidence among lending Governments or institutions, making it possible to negotiate general loans for industrial development without very precise commitments.

A financial area which has not been tapped as a source for industrial development is a social security system. A national provident fund does not exist, although the idea has been discussed. As more and more Sierra Leoneans become urban dwellers, the need for a social security system able to take care of old or infirm workers becomes more evident. Such a system could be established, provided adequate measures are taken to insure the maintenance of the value of the accumulated funds. A national provident fund investing financial resources through a development institution may be the solution.

D. Human resources: engineering and labour force

The University of Sierra Leone is turning out, at Fourah Bay College School of Engineering, about 10 engineers a year with qualifications in civil, electrical and mechanical engineering, and the School of Economics is turning out enough economists to meet the country's needs. The level of education is only minimal, however, because engineers spend only four years at university, and economists three or four. Since part of the education is at pre-university level, it is generally necessary to improve the graduates' knowledge by further studies in foreign universities, and this is normally done using bilateral aid. The University of Sierra Leone offers no courses in industrial or chemical engineering, although in a developing country industrial engineers or chemical engineers can make a useful contribution to industrial development.

One suggestion would be to upgrade university studies by adding two years to the present curriculum for those willing to study engineering in depth, and to add other branches of engineering to those presently offered. Until this is done, a major handicap to industrial development will be the scarcity of indigenous managerial and technical skills for executive positions. Despite the small number of Sierra Leonean engineers graduating every year in Sierra Leone or abroad, the country loses many of them because the salaries paid by industry are rather low and are not comparable with salaries paid to engineers in other African or European countries. Liberia, for example, is advertising posts in the mining industry at salaries two to three times those offered in Sierra Leone. This well-known brain drain is experienced not only by the developing countries, but also by developed countries facing competition from more developed or wealthy countries. Only one solution is envisaged: to increase the demand for engineers and economists by requiring industries and other economic units to employ professionals with engineering or economic degrees. This may look like a solution which will add to the costs of the enterprises, but it is really the only way to assure that Sierra Leonean enterprises will be effciently run and that the talents of educated Sierra Leoneans will not be lost for the country.

Well-conceived, ILO-advised programmes are slowly training a body of skilled and semi-skilled workers.

II. THE SITUATION IN THE MANUFACTURING SECTOR

A. Past industrial development and the present situation

Modern factory industry: definition and extent

Industry and manufacturing in Sierra Leone are of recent origin and largely a post-independence phenomenon. Compared with the rest of the economy, the manufacturing sector was contributing 10.7% of the gross domestic product in 1973/74, including handicrafts. Excluding handicrafts and small-scale industries, the modern manufacturing sector was contributing 5.7% of the GDP in 1973/74. These figures are subject to variation, as some discrepancy still exist on national accounts figures owing to the lack of exact information. The modern factory industry consists mostly of foreign-owned and managed medium-sized and large establishments employing about 3,600 persons or only 0.35% of the country's labour force.

For the purpose of classification, a distinction was required between modern factory industry and small-scale industry consisting mainly of handicraft workshops. Three indicators were used in classifying the two groups of industries: capital (or book value of the industry), annual output and employment. An enterprise was "medium-scale" or "large-scale" industry if it met at least two of the following minimum criteria:

Capital: Le 50,000 (in 1973/74 Leones)

Annual output: Le 100,000 (in 1973/74 Leones)

Employment: 11 people

On the basis of the above criteria roughly 50 establishment can be classified as modern factory industries. A list of such establishments is given in annex II.

The capital and reserves of these 50 establishments was roughly Le 20 million, but original investment and reinvestment were much higher. Total annual sales were roughly Le 42 million in 1973. The figure increased from 1973 to 1976, owing to world inflation, the increase in oil prices and other factors.

Small-scale industry and handicrafts

Small-scale industry and handicrafts covers manufacturing activities not defined as factory industry. A study entitled, "A Progress Report on Research on Rural Small Scale Industry in Sierra Leone" was prepared in 1974 by the Department of Agricultural Economics of Njala University College and the Department of Economics of Michigan State University. According to the study, small-scale industry and handicrafts number 42,000 establishments employing a total of 68,000 persons. The latter figure is roughly 50% higher than previous estimates made by the Central Statistics Office. No figures were obtained at the time for gross output and value added by the sub-sector, but a sample survey was conducted, and results were expected in the latter half of 1976.

The majority of the establishments have less than 10 persons employed or engaged in manufacturing activities. In rural communities, it is estimated that employment per establishment is lower than in towns exceeding 2,000 inhabitants. Table 1 shows the distribution of employment and establishments in towns exceeding 2,000 inhabitants by type of activity.

Table 1. Distribution of small-scale establishments and employment by type of activity in localities exceeding 2,000 inhabitants

Type of activity	Establishments	Employment	Employment/ establishment
Food			
Baking	172	609	3.5
Textiles and apparel			
Spinning and weaving	103	154	1.5
Gara dyeing	173	766	4.4
Tailoring	2,711	6,700	2.5
Shoe-making and repair	142	220	1.5
Wood			
Carving	35	117	3.3
Carpentry	553	2,030	3.7
Metal			
Goldsmithing	73	176	2.4
Blacksmithing	128	326	2.5
Welding and fitting	37	163	4.4
Repair services			
Radio	56	131	2.3
Vehicle	166	1,387	8.4
Watch	109	154	1.5
Others	490	1,755	3.6
Total	4,948	14,688	3.0

A very few other small-scale industries have more than nine workers but still do not meet the other criteria to be classified as other than small-scale. The following table shows the number of establishments with more than nine workers classified as small-scale industries.

Number of establishments employing more than nine workers in towns exceeding 2,000 inhabitants, by type of activity

Enterprises	Total number
Vehicle work	33
Tailoring	26
Blacksmiths	1
Carpentry	22
Welding and metal fitting	1
Saw milling, wood carving and boat-making	2
Brick-making	3
Dyeing	18
Total	106

Basic characteristics, trends and factors influencing industrial development from 1960 to 1976

The majority of the existing modern factory industries were established between 1961 and 1970. Import substitution was the basic policy of the Government in the 1960s. It, and a desire to promote the inflow of foreign capital and encourage local capital investments, prompted the Government of Sierra Leone to enact the Development of Industries Act of 1960. The Act came into force in 1961. The results obtained are far from being satisfactory. Characteristics of the industrialization process in the past were as follows:

(a) Many industries were established where the value added is very small in relation to the cost of imported raw materials and services. The result was that the savings in foreign exchange were marginal or even negative, and the final selling price very high in relation to imported goods. A typical example is the Sierra Leone Match Factory Limited where the chemicals, match-sticks, match-boxes, printed paper for the match-boxes, and even the corrugated cardboard boxes for packing are imported. All that the factory does is form the head of the match, assemble the match-boxes, put the matches in the boxes, wrap ten match-boxes to a package and pack the match packages in cardboard boxes. Not only is almost zero value added in the whole operation; the quality of the product was and is so bad that it can hardly compete with imported products. Other examples are: the cutting and wrapping of toilet rolls, the assembly of umbrellas, and the crushing and coarse grinding of salt. Under the system of Development Certificates, these industries produced losses in fiscal revenue through fiscal concessions, higher prices and lower quality goods, and often a meaningless saving in foreign exchange or even negative savings (the raw materials cost more than the finished products); and the disadvantages were seldom outweighed by the effect on employment;

(b) Systematic failure to use domestic raw materials. Only a few of the almost 50 modern factory industries use available local raw materials. They include the palm kernel oil mill and the palm oil mills of the SLPMB

(which are essential for the establishment of palm oil plantations), the rice mills of the Rice Corporation, and the Forest Industries. After the wheat mill was built, bakeries and feed mills were fully justified. Since uncut diamonds are Sierra Leone's main export, the diamond factory (whose output is negligible) has been using not Sierra Leone diamonds but imported diamonds from London for the past nine years;

(c) Failure to establish effective import-substitution industries for products with an internal market large enough to assure economies of scale. Examples include: cotton textiles of all types, shirts, socks, leather shoes, household plastics, sugar, clay bricks, cooking oil, margarine, wooden doors, wooden mouldings, and wooden windows. Exceptions include: wheat flour, biscuits, confectionery, furniture (installed before 1960), beer, soft-drinks, and paints. One of the most obvious failures is the lack of industries capable of producing capital goods, despite the existence of such an excellent base as the ex-railway workshop;

(d) Establishment of some very technical industries requiring large complementary investments in parallel plants and constituting huge complexes for large-scale production with a great variety of processes. There is no internal market for the output of such industry, and it is unprofitable to design a plant for small-scale production. A typical example of this type of industry is the petroleum refinery, whose internal market permits operation at only 35% capacity and cannot absorb all the products produced. Moreover, owing to the lack of trained Sierra Leoneans, it is almost impossible to control the processing efficiency of the refinery which is run to optimize results for the oil companies without due consideration of the economy of the country;

(e) Concentration of practically all modern industries in Freetown. The only industries located in the provinces are Forest Industries in Kenema, J. Mattar in Bo, and the palm oil mills of the SLPMB near the plantations;

(f) There are almost no Sierra Leonean entrepreneurs involved in industrialization. Only the Government has been able to invest in and develop industries directly or through joint ventures. This has had particularly harmful effects on the economy, since local capital has been concentrated in non-productive investments, mainly real estate and high-price houses;

(g) Existing industries hardly contribute at all to the employment and training of skilled professional Sierra Leoneans, despite the Government's official africanization policy. The country will not find it easy to replace trained graduates who do not find employment and migrate abroad, especially in engineering and agriculture.

Besides government policies that affect the development of industry, other factors external to the manufacturing sector have slowed industrialization. These factors include the following:

(a) Smuggling of diamonds causes heavy losses in potential capital, with is either deposited abroad in foreign banks or invested in other countries. Since the large sums involved are held illicitly, the only way to recover them would be to institute some kind of special laundering arrangement. Under such an arrangement, illegal resources derived from smuggling would be acceptable for investment in industrial ventures without any questions being asked about their origin, on payment of a low fixed percentage tax;

(b) The absence during the 1960s of a policy of africanization of trade activities produced a heavy concentration of foreign capital in such activities as trade, insurance, and services in general, instead of in the more complex process of industrialization;

(c) The drive towards the illicit digging of diamonds has resulted in a deterioration of agricultural activities, in both mining and adjacent areas. Diminco has calculated that about 125,000 diggers are engaged in this kind of activity. The net result is an increase in food imports, which cannot be ignored. The consequences are simple: more financial resources are tied up in food imports, and less are available for industrialization. It is worth noting that imports of food, and animal and vegetable oils and fats, which averaged Le 13.1 million a year in the period 1961-1970, increased to Le 31.3 million in 1973 - a rise which can hardly be attributed to price increases.

A quantitative evaluation of industry: gross output, value added, employment and inputs

The basic indicators for the modern factory industry are given in annex I. A summary of the most important ones is as follows:

(a) Gross output. In 1973/74 the gross output of the modern sub-sector amounted to Le 53.1 million, increasing to Le 67.3 million in the next fiscal year (in current market prices). In constant prices the increase was only 9.2%. In this total, the share of the so-called "traditional" industries, or those that are normally first established and do not neoessarily produce dynamic effeots on the economy, was 59.4% and 59.3% for eaoh the two fisoal years respeotively (in current prices);

(b) Value added. In 1973/74 the value added by the modern sub-sector was Le 19.7 million, increasing to Le 22.1 million in the next fiscal year in current market prices. In constant prices, the increase in value added was 20.9%. This figure is explained by the start-up of the palm kernel oil mill of the SLPMB. Not taking into consideration the food industries, the rest of the Sierra Leone modern industry shows no change in its value added (in constant prices). In these totals, the share of the "traditional" industries was 81.8% and 78.8% in 1973/74 and 1974/75 respectively in current prices; and this is in line with those of other countries at a similar stage of development. It was estimated during the preparation of the NDP that value added by the modern sub-sector would be Le 25.35 million for 1973/74. Actual figures obtained in 1975 show that the 1973 estimates were too high (value added for 1973/74 was Le 19.75 million). It is interesting to re-calculate the percentage contribution of the modern sub-sector and the manufacturing and handicrafts sector to the GDP in 1973/74:

Manufacturing and handicraft total - 9.44%
Modern - 4.75%
Small and handicrafts - 4.69%

(c) Employment. Total employment by the modern sub-sector was estimated at 3,500 to 3,800 persons for 1973/74. As small-scale industry employs approximately 68,000 persons, employment by the modern sub-sector represents

5.3% of total employment by the manufacturing sector. After adjustment of the percentages for the variation found in the small-scale and handicrafts sub-sector, employment by the manufacturing and handicrafts sector would be 6.5% of the total working population, against a previous estimate of only 4.3% (for 1974). Employment by the modern sub-sector as a percentage of total working population is only 0.36%;

(d) Ratio of imported inputs to total inputs. In 1973/74 the ratio was 82%, dropping the following year to 76%.

Some conclusions can be drawn from the analysis of the figures given in annex V and from the knowledge of the specific industries that are analyzed in detail in chapter IV:

(a) Very few attempts have been made to develop the industrial use of indigenous raw materials. The only exceptions of interest are the processing of palm kernels into oil and cake and the manufacturing of furniture from local wood;

(b) The import substitution process is based on substitution of final products, but the value of imported raw materials is still almost as high as that of the substituted final product. Despite this, import-substitution industries producing food, beverages and cigarettes were logical options from the point of view of the country's economic interests. Certain others were not such logical options: the petroleum refinery for instance, is too small and is operating at only a fraction of its capacity, and the alcchol distillery does no more than blend imported raw materials;

(c) Almost no attempt has been made to develop a capital goods industry;

(d) There are a number of prestige industries set up by international firms to relieve national pressures to industrialize the use of indigenous raw materials.

The pace of the drive to industrialize slackened as easy opportunities for import substitution were exhausted. The remaining import substitution possibilities require skills, knowledge, and capital - and also an organized effort. The same can be said of export-oriented industries. For the time being, it can be concluded that the industrial sector will stagnate unless considerable changes are made in the government sector responsible for industrial development. This can be seen clearly from the fact that since 1973 only three new plants have been started and only one completed: the palm kernel oil mill (overhauled), the LPG plant of the petroleum refinery, and the salt factory from sea water. Another industry started recently - the new printing press of the Government Printing Department is really a Government service.

Comparison of market sizes

Table 2 permits a comparison of market sizes in West Africa, based on the GNP at market prices. The source for GNP and population in 1970 is from international studies. A projection for 1980 has been made using past rates of growth of population and per capita GNP. Minimum per capita GNP growth

is assumed to be zero, and the accepted rate of population growth for Sierra Leone is the figure used in the NDP (2.6% a year).

Table 2. GNP estimates in 1980 for West African countries

Countries	Population mid-1970 (million)	GNP at market prices, 1970 ($US million)	Growth rate 1960-1970 Population (%)	Growth rate 1960-1970 Per capita GNP (%)	Estimated GNP at market prices, 1980 ($US million)
Nigeria	55.07	6,740	2.9	0.1	9,060
Ghana	8.64	2,640	2.6	(0.0)	3,412
Upper Volta	5.30	340	2.1	(0.0)	413
Mali	5.00	320	2.1	4.4	606
Ivory Coast	4.94	1,520	3.0	4.5	3,172
Niger	4.00	380	2.9	(0.0)	506
Guinea	3.98	460	2.6	2.7	776
Senegal	3.87	870	2.1	0.0	1,071
Dahomey	2.70	240	2.9	0.1	323
Sierra Leone	2.55	490	(2.6)	4.7	1,003
Togo	1.95	270	2.9	1.2	405
Liberia	1.52	370	3.0	0.9	544
Mauritania	1.17	170	1.9	4.5	319
Gambia	0.36	40	2.0	1.1	54
Guinea Bissau	0.56	140	0.7	4.9	242
Total	101.61	14,990	-		21,911

It will be seen from table 2 that the estimated total GNP for West Africa in 1980 is $21,991 million, and for Sierra Leone $1,003 million (4.6% of the West African market). It is also estimated that in 1980 the Mano River Union market will be $1,547 million (7.0% of the West African market). These figures do not take into account the multiplying effect of the West African Economic Community (WAEC) since no such effect is likely to be felt before 1980. But assuming that the Community will become operative after 1980, the only change for small countries like Sierra Leone and Liberia would be to have an aggressive industrialization policy in order to deal with the greater potential of large countries or more-developed countries. It is assumed that

in the details of the agreements regulating the operations of the WAEC, steps will be taken to give less-developed countries or small countries comparative advantages over larger or more developed countries (like Nigeria, Ghana, or Ivory Coast, for instance). If not, Sierra Leone's less-developed manufacturing industry would soon be less competitive than the manufacturing industries of more-developed countries.

The role of the State: participation in industries

In theory, the State has played a considerable role in the development of Sierra Leonean industry. In practice, the lack of an organized effort has diminished and distorted State participation. For instance, in the industrial manufacturing sector, full participation is restricted at present to the Palm Kernel Oil Mill and Forest Industries. Only the Palm Kernel Oil Mill is the result of an organized effort by the Sierra Leone republican institutions (the SLPMB). Forest Industries was inherited from the colonial power in much better condition than it is at present: the machinery was almost brand new. Another case of State entrepreneurship should be mentioned: Metal Assembly Factory Limited, which was a centre for repairing barges during the Second World War, is now a collection of scrap, in clear contrast to the ex-railway workshop, which is a good facility by any standards. Although the ex-railway workshop is an asset for State participation in industrial development, almost no interest has been shown in it, and much money has been poured into Metal Assembly. This is a clear example of bad management for lack of the right institutions for administering the country's assets. The SLPMB investments should also be mentioned. There is no doubt that the size and location of the Pioneer Palm Oil Mills were the result of a political decision. However, the four Stahl-Union palm oil mills that were under construction in 1963 were by no means too small: each mill was half the size of the two new Daru and Gambia-Mattru mills. Leaving aside the political struggle at the end of the 1960's, there is no reason why the two remaining Stahl-Union mills should not be installed. Physical inspection shows that with a little investment, the Masanki and the Gambia Palm Oil Mills could be made operative in a short time, provided that investment is also made in palm oil plantations. This is another example of poor administration of State assets through lack of a development institution.

State participation in joint-ventures is very limited. The criteria chosen, although correct according to United Nations resolutions, are not backed by the money needed for the part of the investment in which the State will participate. It is therefore necessary to revise the criteria under which agreements are made. It is much more convenient to get money from bilateral or multilateral sources in order to invest in industrial projects than to secure slowly-increasing participation through capitalization of taxes or dividends coming from an initial share capital granted by the foreign investors.

Since industrialization began, the role of the State, owing to lack of organization, has been of questionable value for the industrial development of the country. It is time, as the NDP states, to replace the present anarchy by an orderly industrial development effort, guided by the new government institutions, that are carefully defined in the National Development Plan for 1974/75 to 1978/79. Without such a policy the rate of growth of the economy will be slower than at present. It must be remembered that the diamond mining industry will fail without further investment; that the iron ore mining

industry has come to a halt, and that a very high investment is required to mine the deposits of Tokolili and to continue mining the last reserves of Marampa. The easily-mined bauxite of Mokanji is almost exhausted, and in order to develop the Port Loko reserves it will be necessary to invest large amounts of capital. Finally, the rutile deposits to be processed by Bethlehem Steel (Sierra Rutile) and Bayer Preussag will be exploited fully only by the beginning of the 1980s. The only factor capable of moving the economy of Sierra Leone at least as quickly as in the past (4 to 5% a year) is the manufacturing industry. Traditionally, agriculture is not expected to grow faster than 3 to 4% a year. The manufacturing industry in many developing countries, however, has proved that it can be made to grow by more than 15% a year, and this compensates for the slow movement of the mining and agricultural sectors.

Regional distribution of industrial activities

Apart from small-scale industry and handicrafts which are more or less evenly distributed, almost all the modern factory industries are concentrated in the capital. The exceptions are Forest Industries, which depends on. Kenema timber, the J. Matter factory in Bo, and two or three modern, medium-size bakeries in Bo and Kenema, which, of course, have their markets in the two towns. The palm oil mills scattered around the countryside are also exceptions, but their location depends on agricultural considerations. In short, all industrial skills are concentrated in one town that acts as a huge single development centre. Unless stopped, this centre will continue to grow to the detriment of other areas. The connexions that will be established between the industries of Freetown as they develop will discourage the industrial entrepreneurs from moving to the interior. Decentralization of industries is a process that should be planned before it is too late.

B. The industrial investment programme

Main issues of the investment programme of the NDP

The industrial development programme was to be translated into an investment programme for the establishment of the physical units which will create new wealth for the economy. The main issues of the investment programme of the NDP 1974/75-1978/79 are as follows:

(a) Public sector investment

(i) Forest Industries Limited intends to establish a new furniture assembly factory. A feasibility study was to be prepared by UNIDO;

(ii) The Government Printing Department is to be modernized, and it was envisaged that the new facilities would be used on a full commercial basis. The Daily Mail would also come under technical assistance requested from UNIDO;

(iii) National Workshop. The ex-railway workshop was to be rehabilitated as a metal engineering workshop. This project was basic to planned industrial development and is essential to the mining programme;

(b) Joint-ventures

(i) Cane sugar mill. The creation of an agricultural estate for the production of sugar cane in conjunction with the installation of a sugar mill for the production of 40,000 long tons of refined sugar per annum was envisaged;

(ii) Fruit cannery. A combined cannery for pineapples, tomatoes and other fruits was considered. The project included agricultural estates for the fruit production;

(iii) Veneer plant and saw-mill. The installation of an integrated mill for the processing of tropical hard wood was considered. The capacity was estimated at around 35,000 cubic meters of wood a year, including 2,000 cubic meters of veneer;

(iv) Textile mill. The NDP included the establishment of a textile mill for the processing of around 6,000 tons raw cotton a year;

(v) Alcohol fermentation plant. This plant was to process molasses from the planned sugar factory;

(vi) Cassava pellets factory. Intended to create a new activity or cash among the farmers;

(vii) At the end of the Plan period, a large scale fish cannery, using the abundant fish resources now being caught by foreign fleets, was to be built;

(c) Private sector investment

It was expected that the following projects would be funded from private investment:

(i) Perfumery, cosmetics and pharmaceuticals;

(ii) Clay bricks;

(iii) Diamond cutting (a second, large factory).

Situation and prospects

The general situation and prospects of the investment programme look bleak. Three major factors are slowing the rate of investment:

(a) The inefficiency of the public sector in undertaking industrial ventures;

(b) The reluctance of foreign enterprises to enter into industrial ventures in the country, for reasons that can be analysed only by the Government;

(c) The reluctance (or lack of interest) of private local investors to take on industrial ventures. Some of the reasons for this reluctance may be: bureaucracy; fear among the Lebanese and Indian communities of greater insistence on the policy of africanization (with few exceptions, members of these two communities are no longer investing in Sierra Leone); increased diamond smuggling, which increases the country's losses of hard currency;

lack of investment laws, owing to lack of action on a new Development of Industries Act; and the failure of the programme for administrative reform, including the establishment of public service policies designed to maintain an efficient and well motivated public working force and a numerically and qualitatively adequate and well renumerated public service.

With relation to each of the issues of the investment programme, the situation is as follows:

(a) Public sector

Forest Industries Limited. No action has been taken apart from allocations in the development estimates for 1974/75 and 1975/76. What is needed is a technical assistance mission which would design or redesign the facilities and processes.

Government Printing Department and Daily Mail. The new facilities are in the process of construction. They must be exploited on a fully commercial basis. Technical assistance is required if they are to be used properly.

National Workshop. Despite the fact that a Hungarian mission prepared a preliminary technical report in 1974 on the possible rehabilitation of the ex-railway workshop, no agreement has been reached with Hungary. No action has been taken by the Ministry of Trade and Industry to transfer the ex-railway workshop, at present under the Ministry of Transport and Communications, to the Ministry of Trade and Industry and to transform it into an autonomous commercial enterprise.

(b) Joint-ventures

Cane sugar mill. A complete agricultural study was made by the People's Republic of China. The results of the study are not available, but it is known that they are positive. The production capacity proposed by the Chinese was only 6,000 tons of sugar a year, which is rather low compared with Sierra Leone's consumption figures (25 to 28 thousand long tons of white refined sugar) which are expected to increase sharply in the future.

Fruit cannery. The first step in a project is the preparation of a techno-economic feasibility study. So far, however, only a preliminary study has been prepared.

Veneer plant and sawmill. A proposal was made by the Socialist Republic of Romania for a total investment of roughly $20 million, but no action has been taken yet, although the proposal includes a promising techno-economic feasibility study;

Textile mill. UNIDO has made a very preliminary study but will do a full feasibility study for a large-scale mill.

Alcohol fermenting plant. For obvious reasons, the study of this plant will come after the sugar mill.

Cassava pellets. No action has been taken. Agricultural studies and a pilot-scale project are needed to encourage farmers to produce sun dried cassave chips;

Fish cannery. No study is available and no action has yet been taken. A A technical and economic feasibility study will be needed.

(c) Private sector investment

Perfumery, cosmetics and pharmaceuticals. The establishment of the factory has been delayed by the company. Reasons for this delay are those general reasons of the private sector for not investing in Sierra Leone.

Clay bricks. This factory was listed among those to be developed by the private sector, but the Government became interested in its development. Unfortunately, no technical and economic feasibility study was made available by the Belgium company supplying the equipment, the factory seems to be too large for the internal market, and there are no possibilities of economically exporting clay bricks. Although it was assumed that the factory would be wood-fired, there is no useful forest left in the Songo area where the factory will be established. It would therefore be advisable to review the project thoroughly and have at least a technical and economic feasibility study made.

Diamond cutting and polishing. No action has been taken. In view of the alarming decrease in the output of Sierra Leone diamonds, efforts should be made to encourage local entrepreneurs to begin processing the diamonds that are currently exported as raw materials (or smuggled).

III. THE SITUATION IN THE MINING SECTOR

Mining in Sierra Leone is a typical enclave sector in the economy. Despite apparent changes in the diamond sub-sector in the last two decades, it too continues to be an enclave industry. This situation is reflected in the fact that the mining companies are local subsidaries of foreign companies whose operations are primarily organized to suit the demands and interests of the parent companies. They are efficiently managed with expatriates in key management positions, and their operations are all large-scale ones that require large amounts of capital. The interests of the country are sometimes disregarded to the extent that the criterion is maximum profit, with little regard for the optimum life of the mineral reserves. Export and sales prices are fixed between the subsidiary and the parent company accordingly. Nationals of the country hold jobs without access to key information. Taxes are kept to a minimum by arranging for minimum profit in the country, and maximum profit by the parent or an intermediate company.

IV. INDUSTRIAL SECTOR SURVEY

This chapter covers only the modern factory industry subsector and includes a detailed review of existing industries and possible future industrial developments in Sierra Leone. Industries have been treated by branches according to the International Standard Industrial Classification (ISIC). The data collected are neither complete nor fully comparable partly because of the lack of official industrial statistics for the period analysed.

A. Food, beverages and tobacco industries

Food industry

In developing countries food industries normally account for a large percentage of the value added by the manufacturing sector. Sierra Leone is not an exception: the estimated contribution of the food industries to the value added by the modern factory industry subsector for the fiscal year 1973/74 was 20.6%. The real figure is probably much larger, because of the large number of rice mills, bakeries, small palm oil mills and cottage palm oil and other operations classified as small industry, which is not covered here.

An idea of the importance of this group of industries can be given in terms of its contribution to the GDP. It was estimated that the branch contributed 30.6% of the industrial gross product of the modern industrial subsector which, in turn, contributed 4.75% of the GDP. The contribution of the food industries to the GDP would be about 1% for 1973/74.

Although there is considerable potential for the industrial use of locally-produced agricultural raw materials, few industries have exploited it in the past. The exceptions are palm kernels, palm oil and rice, which involve semi-manufacturing conservation or extraction processes. The rest of the branch uses mainly imported raw materials or derivatives of imported raw materials.

(a) Rice Mills

The modern rice-milling industry is represented by only three rice mills, each of 3.5 tons/hour capacity, belonging to the Rice Corporation. More than 210 small rice mills dehusk and polish most of the rice produced in the country. The capacity of the Corporation's mills has been reduced by obsolescence and age. Total physical production of the Rice Corporation during the fiscal year from July 1972 to June 1973 was only 1,735 tons of white polished rice, or about 65% of an estimated input of 2,670 tons of husked rice for the period. This figure compares badly with the country's total output of 298,000 tons of milled rice in 1972/73, equivalent to 481,000 tons of husked rice. In other words, the Rice Corporation was milling only 0.56% of the total rice production of the country. The situation had not improved greatly up to 1975.

Although original capital investment was relatively heavy, at about Le 792,000 ($954,000), the book value of fixed assets for 1972/73 was only Le 344,480 ($415,000). The Rice Corporation has concentrated mainly on trading, including imports of rice and the regulation of agricultural prices. During 1974 a minimum guarantee price of Le 5 per bushel (60 lbs) of husked rice came into effect. This gave farmers an incentive to plant rice and, together with other measures that form the "crash rice programme", will

enable the country to produce enough rice for its own needs by 1976/77. The additional rice to be milled, about 100,000 tons by the end of the Plan period, can and should be milled in the small mills all over the country. Additional capacity was provided by the Rice Corporation, which purchased 11 rubber rice rollers of 0.7 tons/hour capacity in 1974. The Rice Corporation has no plans at present for any substantial increase of its present milling capacity of 18 tons/hour (approximately 70,000 tons a year) of husked rice. The reason for this is the present structure of production and demand, whereby most of the local production is consumed locally, and little surplus is left for transfer outside the production area.

Another problem faced by the Rice Corporation is the high percentage of broken grains obtained in the milling operation. These broken grains are sold together with the milled unbroken rice, but the quality is not satisfactory. In the future the possibility should therefore be considered of replacing the old medium-size rice mills of the Rice Corporation with one large mill. This would permit the introduction of modern technology, including the parboiling process for improving the percentage of unbroken grains. The parboiling process also has the advantage that the oil contained in the bran is stabilized to some degree, and the bran can have a comparatively higher oil content for animal food purposes. Against this must be set the low stability of the oil, which makes rice bran not very suitable as an animal food.

The problem of the high percentage of broken grains has been solved in the country by lowering the quality of the product. Indeed, the present percentage of broken grains is the only economic solution.

Details of the Rice Corporation are as follows:

(i) Yields

Milled rice	62% of hulled rice
Brokens	6% of hulled rice (screenings)
Bran	10% of hulled rice

Hulls and cleaning losses acount for 22% of husked rice.

(ii) Milled rice. It is assumed that output will be the same as in the past, despite the greater supply available to the Rice Corporation because of the better prices paid to the farmers. A production of 25,000 bags of milled rice was assemed, with 2,420 bags of brokens and 5,760 bags of bran.

(iii) Gross output value 1974

		Le
Milled rice	25,000 x 30 =	750,000
Brokens	2,420 x 4 =	9,680
Bran	5,760 x1.2 =	6,920
Total		766,600

(iv) Material inputs

	Le
Husked rice 107,527 bushels x 5.0 =	537,635
Other material and services =	60,000
Total	597,635

(v) Value added

Because of low selling prices value added was negative up to 1973. Estimated value added for 1974 with the new price system was Le 169,000, or Le 1.6 per bushel of husked rice. If this figure is used as a basis, the value added by the small rice-milling industry, which processes about 480,000 tons (17,640,000 bushels), would be approximately Le 28 million. This figure is very large compared with GDP values for 1973/74 and subsequent financial years.

Rice prices were much higher in 1974 than in 1973. The prices for 100 lb rice from different origins were as follows:

	Price (Le)	
Origin	1973	1974
Pakistan (bags)	9.225	13.75
China (bags)	9.15	13.7
USA (bags)	15.0	13.75
USA (Carolina cartons)	22.0	22.0
USA (Carolina packed)	23.7	23.7
Egypt (bags)	9.0	9.0
Local (bags)	7.14	18.75

As can be seen from the table, the price of local rice was set at that of rice imported in bags. In the near future the relative profitability of the small mills and modern mills should be analyzed. A production-demand analysis would help to save on imports and improve the efficiency of the whole branch.

(b) Wheat milling and bakery products

Flour mill. There is one flour mill (Seaboard West Africa Ltd) in Sierra Leone with a processing capacity of about 150 tons of wheat a day. It was built in the Freetown harbour and has facilities for bulk handling of wheat. The equipment is relatively new, because the factory was opened in September 1967 and subsequently enlarged in 1972-1973.

Imports of wheat since the opening of the flour mill have been increasing year by year. Table 3 shows the imports of wheat, the imports of flour and the equivalent flour milled by the flour mill from 1968 to 1973 (assumed yield is 75%).

Table 3. Wheat and flour imports and production
(long tons)

Year	Imported wheat	Equivalent milled flour	Imported flour	Total flour
1968	9,339	7,004	4,227	11,231
1969	22,248	16,686	688	17,374
1970	29,690	22,267	1,505	23,772
1971	25,994	19,458	2,254	21,712
1972	28,144	21,108	2,016	23,124
1973	39,692	29,769	1,836	31,605
1974	41,196	30,896	3,664	34,560

Purchase prices for wheat are higher than international market prices. This may be because the flour mill is tied to one supplier in only one market. Since the flour mill is a joint venture in which the Government holds 40% of the shares, there is clearly a need to seek lower prices from several possible suppliers in future. An effort should be made to obtain lower prices by contracting in advance for the estimated requirements of the flour mill. This policy, if adopted, may require larger storage capacity, because shipments might be larger than at present (in the range of 10,000 tons if charter ships are used to buy wheat in Argentina or Australia, for instance).

The extraordinary increase in consumption from 1968 to 1975 might be due to several factors: (i) the availability of bread has slowly changed local customs from consumption of other starch products; (ii) the urbanization process has concentrated in Freetown, Makeni, Kenema, Bo and the mining towns large quantities of people for whom it is easy to prepare a meal with bread and canned products, especially at lunch hours; (iii) the shortage of rice lead to an abnormal demand for bread, reflected in abnormal wheat imports specially during 1973 and 1974; (iv) there has been large inflow of migrant Guineans who are more used to bread consumption than Sierra Leoneans. Figures for imports of wheat were not available for 1975, but wheat milling by the flour mill was 29,950 tons, estimated from flour and bran production. Discounting the abnormal years of 1973 and 1974, the rate of growth of flour demand is estimated very roughly at 5.1% a year between 1969 and 1975.

The Seaboard flour mill has been granted a Development Certificate and therefore pays no taxes, duties or excise. Excise tax is paid by the consumer of the flour. The Development Certificate also granted accelerated depreciation over five years. Since Seaboard West Africa buys from its parent company in the United States, additional profits have been made by the Seaboard Group. Incentives appear to have been too generous in the light of the advantages for the country and the Government. A revision of incentives granted is required and may take place under the new Development of Industries Act Amendment. A clear mechanism to control purchases of wheat at prices higher than international prices should be instituted, and a system to avoid tax evasion through over-invoicing should be built into the internal revenue system.

Value added in the 12 months from 1 June 1973 to 31 May 1974 may be estimated as follows:

Total sales value	Le 4,403,175
Imported inputs	Le 3,921,246
Local services	Le 354,188
Wages and salaries	Le 76,926
Value added	Le 127,741
Operational surplus	Le 50,815

There is no control over the price at which bran is exported. The whole situation indicates that wheat may have been bought at an inflated price and bran sold cheaply, thus producing a limited operational surplus and minimizing any possible overnment profit by its participation in the joint venture. It might be more profitable for the Government to increase its participation in the enterprise and become more involved in management decisions.

Bread industry. There is no single large bread factory in Sierra Leone. A few medium-sized modern bakeries produce bread of acceptable quality for the high-income Sierra Leoneans and expatriates. The rest of the bread-baking industry is very small and not included in the modern sub-sector. In 1973 there were seven medium-size bakeries in Freetown, registered in the Directory of Business and Industry published by the Central Statistics Office (1970 Edition) or simply known to exist. On the basis of information provided by three bakeries and the flour mill, an analysis of the bread-baking activities was made. The demand for flour for bread and bread production is as follows (bread production was estimated as 1.83 times flour used):

Demand for flour

Year	Total domestic flour production (long tons)	Production of bread (long tons)
1968	11,231	20,553
1969	17,374	31,794
1970	23,772	43,503
1971	21,712	39,733
1972	23,124	42,317
1973	31,605	57,837

If the present annual rate of growth continues (5.1% from 1969 to 1975), by 1985 it will be 1.4 times the 1973 figure. This is a very crude estimate, since the series of figures available is too short to justify a statistical analysis. It may be possible to install a larger bakery, to make economies of scale and provide a better-quality bread.

Quality and standardization are important aspects to be considered by the Ministry of Trade and Industry. At present, bread is sold by units, without due consideration of weight and baking standards. Large variations

in weight for the bread manufactured by several bakeries can be observed. Quality also varies: the bread is sometimes under-baked, the water content is sometimes too high and the quality of the flour is sometimes lowered by mixing with low-grade flours.

Not all bread is baked by the modern medium-size bakeries. There are 1,500 small and cottage bakeries, and they produce most of the bread consumed. The following estimate of the share of the market for the modern bakeries was made, based on figures for 1973 given by the New Italian Bakery:

Flour consumption per month	45,000 lb
Working days	312 a year
Total flour consumed per year	241 long tons
Share of the market 241/31,605 =	0.76%

Another modern medium-size bakery (Kamal Jahami) uses 60,000 lb of flour per month. Its share of the market would be about 1.0%. Taking an average for the group of 12 bakeries of 0.75% each, the total share of the market would be about 9.0% for the group of modern factory bakeries.

Value added was estimated in a similar way:

Sales for 1973 (New Italian)	Le 160,000
Flour at Le 224 per long ton	Le 54,000
Other materials and services	Le 30,900
Value added	Le 75,100

Original investment in this type of bakery in 1973 was Le 50,000 to Le 100,000, before depreciation. Each bakery employs about 20 workers and members of the owner's family act as executives.

According to the above figures, total value added by the group of 12 bakeries should be about Le 75,000 x 12 = Le 900,000 for 1973.

For the rest of the cottage bakeries, twice the value of flour would be a good "guesstimate" for the value of sales. On that basis, the rest of the bakeries in the country would have a gross output value for 1973 as follows:

Total flour (0.91 x 31,605)	28,760 tons
Total value of flour (28,760 x 224)	Le 6.44 million
Other materials (20% value of flour)	Le 1.29 million
Gross value of sales (2 x value of flour)	Le 12.9 million
Value added	Le 5.17 million

The figure of twice the value of flour for the gross value of sales is based on the experience of the Sierra Leonean nationals who have bakeries.

Biscuits and confectionery. There is one modern biscuit factory in Sierra Leone, which also manufactures confectionery. It began operations in 1969 and was subsequently enlarged. Total investment was Le 955,993 in 1973.

Total production figures are as follows:

National Confectionery Company,
production of biscuits and confectionery

Year	Biscuits (lb)	Confectionery (lb)
1969	-	1,225,000
1970	278,000	2,528,000
1971	1,541,500	2,232,400
1972	1,651,500	2,417,800
1973	1,498,100	2,461,900
1974	2,461,200	2,178,800
1975	2,377,200	3,110,200

The factory is in a position to replace all imports of biscuits. It is modern and well-managed. If some incentives were given, it would be possible to expand exports to other African countries. The main obstacle to export is the excise taxes paid on the imported flour. An appropriate drawback should be established so as to allow competition in foreign markets. Quality is fairly acceptable by international standards. Export potential is considerable because the factory is working only one shift; it would be very easy to increase output by working additional hours or shifts.

Gross value of slaes during 1973 was, according to management information, Le 1,487,500. The figure for 1974 was higher (Le 2,021,000) because of price increases.

Value added by the industry was estimated as follows:

Total sales value in 1973	Le	1,487,467
Imported raw materials	Le	742,388
Locally purchased materials and services	Le	29,974
Value added	Le	715,105

There are 140 employees, including five professionals and 25 skilled workers (mechanics and machine operators).

Related prospective industries. The flour mill is producing high quality flour from durum wheat. The possibility has been discussed of constructing a pasta products factory, mainly for the West-African market. The local market is insufficient at present (about 25 tons a year) but there is no pasta factory in West Africa. A market, technical and economic study would be required in any case.

(c) Cassava products

It was mentioned before that cassava is grown in Sierra Leone as a staple food. Farmers are used to its cultivation and it would be possible to grow cassava in large quantities for industrial use. The development of

cassava for export as cassava pellets could follow the pattern of the cassava industry in Thailand, where the farmers grow cassava and also produce sun-dried cassava chips. The chips are taken to the factories or collection centres where they are pelletized. The existence of a sure buyer is a condition for the growing of the crop, and the expert is of the opinion that the factory must be established before cassava chips are produced in large quantities. The growing of cassava and production of chips should therefore be encouraged by the management of the proposed factory by remunerative prices, supply of technical assistance, cash advances on established crops, and introduction and multiplication of better varieties of cassava.

(d) Ginger oil

Ginger roots of very good quality are exported in large quantities. They could be used for the production of ginger oil if an essential oils extraction plant is set up. Such a plant would, in theory at least, be able to produce other essential oils. This possibility should be analyzed in connexion with a feasibility study for the production of canned concentrated lime, orange and grapefruit juices.

(e) Fruit canning

The processing of fruits in an integrated fruit canning complex is a key project for the industrial development of the country as set out in the National Development Plan. Feasibility studies and other data show that the project could be particularly advantageous for the economy of the country. It is planned to install the canning factory and the plantations in the Northern Province, north of Makeni. Estimated investment is around $25.2 million, and it is estimated the $18.2 million of this will be required from external sources. The project will be developed over several years as a joint venture with an experienced foreign operator. The fruits to be canned are mainly pineapples and tomatoes, both of which are produced locally of excellent quality. It is envisaged that the development of the cannery will be based chiefly on its own plantation production. A maximum of about 12% will be allocated to pineapple outgrowers, but the cannery could rely on outgrowers to a much greater extent for its supplies of tomatoes. Total capacity at full production has been assessed at 44,000 tons of fresh pineapples, equivalent to about 26,500 tons of canned pineapple products, and 50,000 tons of fresh tomatoes, equivalent to about 10,000 tons of tomatoe paste of 30% solid content. It is envisaged that the prospective partners will share their market. In any case, the European and American markets can provide an outlet for the future production of the cannery. For the year 1970, the European imports of canned pineapple products were estimated at 230,000 tons. The world market imports were 380,000 tons in 1970. From 1963 to 1970 the world market imports of canned pineapple products were increasing at a rate of 5.5%. Principal exporters included the Ivory Coast, Malyasia, Philippines, South Africa, and the United States, but exports from the United States have definitely been diminishing. This is because the current supply from Hawaii has been decreasing in recent years, mainly owing to discontinuation of operations as increasing labour costs, increasing price of land and alternative tourism and real estate business turn plantations into less profitable enterprises. Furthermore, American operators have moved to the Philippines, South Africa and other countries. If the past trend in world market trade continues, total transactions of the order of 615,000 tons of canned pineapple products for 1980 and 1,000,000 tons for 1985 could be expected. These figures indicate that there will be ample room for a Sierra Leone pineapple export canning industry.

Imports of tomato paste into Sierra Leone amounted to 2,140 metric tons in 1973, and consumption has been increasing at the high rate of 4 to 5% a year. It is expected that demand will reach between 2,800 and 3,000 tons in 1979. The Liberian market for tomato paste is estimated to be roughly half that of Sierra Leone. The Mano River Union Joint Secretariat has accorded Sierra Leone the right to build a tomato paste factory. This increases the local market to between 4,200 and 4,500 tons for 1979. Other West African countries are also importers of tomato paste; so it will be possible to divert to them the small surplus produced.

It is estimated that, at full capacity, the factory will work 150 days canning pineapples and 140 days producing tomato paste. There will therefore be time for canning other products such as passion fruit juice, guava, papaya, mango, orange juice and lime juice. It is envisaged that the factory will promote the development of fruits and vegetables suitable for canning, by supplying technical assistance to farmers participating in outgrowers schemes.

The total development programme of the plantations and the factory will be completed over a period of seven to eight years. It is expected that nurseries will be started at the end of the first year of the project and industrial production in the fourth to fifth year. The programme calls for a maximum development of plantations owned by the joint-venture of 1,300 hectares of pineapples from the third to sixth year and 660 hectares of tomatoes between the fourth and seventh years. The factory would be built in the second and fourth years. It is expected that the two main crops will be harvested in successive periods covering 290 days of operation during the year. In order to control harvesting, plantings would be planned, as would pineapple floration. The long dry season provides suitable conditions for growing tomatoes. A permanent network for irrigation will be laid out using water pumped from the Mabole River near Makeni.

The factory would consist of two main production areas, for canning pineapple products and concentrating tomato paste, and service units. Total investment is estimated at $18.9 million concentrated mainly in the second to fourth years.

It has been recommended that joint ventures should be given incentives so as to make it competitive in the world market and to offer comparative advantages to prospective investors over other African countries. These incentives include:

(i) Exemption from corporate taxes for a period of 10 years;

(ii) Exemption during the same period from taxes and duties on imported machinery or materials required for the manufacturing process or agricultural activities;

(iii) Exemption from any tax or similar charge on exported production;

(iv) Repatriation of profits during the 10-year period after production starts at the factory.

This enterprise could be promoted by the future National Industrial Development Corporation, and it is recommended that the Government own shares in it. It is expected that the cannery will produce a total annual value at full production of $24.6 million, of which $21.6 million will be exports.

Estimated total annual employment will reach, directly or indirectly (outgrowers), a total of 2,000 at maximum capacity, of which 140 will be permanently employed at the factory. At 80% capacity, 500 workers would be employed temporarily. In the plantations about 1,000 workers will be employed permanently and 300 in outgrowers scheme.

(f) Sugar

Several agricultural studies have been made in Sierra Leone relating to sugar cane growing. The conclusions of all of them were positive. A complete report was prepared by the United Kingdom Ministry of Overseas Development. In 1967, Bookers Agricultural and Technical Services Ltd and Sir Alexander Gibbs and Partners prepared a detailed agronomic analysis and analysed the required investment and size of the factory. (The report is available, but prices should be adjusted to 1976 levels.) The plantation site chosen was near Torma Bum in the Southern Province, although it might be objected that the long rainy season there allows only some 110 days of cane cutting a year. Between 1973 and 1975, a team of agricultural experts from the People's Republic of China continued the experiments started by a training mission in the Northern Province, near Port Loko, where a cutting period of 140 to 150 days a year can be expected.

The internal market in Sierra Leone has grown rapidly during the last 10 to 12 years. In 1963, 12,200 short tons of white refined sugar were imported. This figure increased to 26,880 tons in 1973, and peaked at 28,500 tons in 1970. Since 1965, imports have been running at 21,200 tons a year, following the sudden jump from 14,200 long tons in 1964. The average rate of growth of consumption from 1965 to 1973 was estimated to be 3% a year disregarding income or price elasticity effects. On this basis, import demand can be estimated at 33,000 long tons for 1980 and at 38,000 long tons for 1985. A corrected World Bank forecast was used to estimate the unit prices of expected imports (in current United States dollars), shown in the following table.

Expected sugar import demand in Sierra Leone, 1978 to 1985

Year	Quantity (long tons)	Price ($US/long tons)	Total value of import demand (current $US)
1978	31,200	403	12,574,000
1979	32,100	437	14,027,000
1980	33,100	475	15,723,000
1981	34,100	505	17,221,000
1982	35,100	535	18,779,000
1983	36,100	585	21,119,000
1984	37,200	615	22,878,000
1985	38,300	627	24,014,000

The figures show the desirability of completing a sugar project, consisting of a plantation, sugar mill and refinery, as soon as possible. The mill

should be able to process 100 tons of cane an hour; sugar output will depend on the length of the cutting season and the sugar yield of the cane. Yields of 9 to 10% white refined sugar are expected (9.1% in the United Kngdom study and 10.0% in the Chinese study.) As the Chinese study envisages the production of only 6,000 metric tons a year, a second large mill would be needed if the large imports of sugar forecast for 1973 onwards are to be avoided. As the price of sugar is expected to rise (in current dollars), it would be appropriate to consider not only the production of sugar for the internal market, but also the promotion of investment in export capacity. The National Industrial Development Corporation would be of great help in the future.

Total investment for the production of sugar in a 100 tons/hour (cane) mill has been estimated at $22 million, including the plantation and the factory. Development of the plantation could start during the dry season of 1977/78 with 190 hectares of cane, and by 1980/81 the factory would process cane from 3,200 hectares of the plantation and 535 hectares of outgrowers' land.

The factory would produce molasses as well as sugar. For 1980/81, molasses production would be about 11,200 long tons. Molasses could be the basis for fermentation industries and for cattle feed manufacture.

The plantation is expected to employ 925 permanent workers and a varying number of casual workers (about 300); the factory is expected to employ 436 permanent workers and 24 executive and clerical employees. The number of outgrowers is expected to be large - between 2,000 and 3,400.

It might be interesting to analyse the possibility of locating the integrated sugar complex near the proposed integrated fruit canning complex, because of the savings in investment and management that might be made.

(g) Slaughterhouse and related industries

Sierra Leone's potential for cattle production has already been pointed out. The area defined as suitable for cattle grazing is the Northern Province, particularly the savannah prairies. As the cattle farmers' main problem is how to sell their products, it might be a good idea to establish an industrial enterprise based on cattle, which would pay the farmers satisfactory prices and help them to improve the cattle breeds. The first step should be the establishment of a slaughterhouse and coolroom facilities. The herds of cattle will also have to be supplied with dry feeds during the dry season. The organization of farmers into co-operatives could solve the problems posed by nomadic farming. There is an ample supply of grass during the rainy season, and silage, using adequate amounts of molasses to secure a lactic fermentation, can be stored for long periods during the dry season. The introduction of industrial crops like sorghum or maize, which can also be stored, could provide a sufficient supply of concentrates for cattle feeding. The by-products of such agro-industries as the integrated fruit canning factory, the sugar complex, and even the slaughterhouse could, together with existing by-products (wheat bran and rice bran), constitute the raw material basis for a cattle feed mixing plant.

At least one slaughterhouse has been submitted to the African Development Bank for financing. Action by the future National Industrial Development Corporation is essential to deal with the industrial aspects of the slaughterhouse and related industries. The slaughtering of cattle in a central slaughterhouse would provide a supply of hides either for export or as material for tanneries or combined tanneries and shoe factories.

The slaughterhouse project is important from the industrial and agricultural point of view, but is even more important from a health point of view. It would be an important factor for the supply of meat protein to up-country areas and coastal areas where the supply of fish is not suitable. The savannah is fairly extensive in the Northern Province; so grass is not scarce during the rainy season and part of the dry season, but the conservation of these grass resources for use during the dry period raises problems. If adequate organization was provided by the Ministry of Agriculture and the National Industrial Development Corporation, the number of cattle could be increased substantially and quality improved to provide export potential for the country. It is estimated that there are 210,000 head of N'dama cattle at present. One quarter of the males and one eighth of the females shoudl be slaughtered. After allowance is made for losses and migration, an estimate of 50,000 head should be available in the Northern savannah area for slaughtering every year. Although the live weight of the N'dama is only about 200 kilos, the quantity of skins, blood, bones, and other products is of economic interest. If it is assumed that 5% of the weight of the live animal can be recovered as salted hides, 500 tons of salted hides, worth $750,000 could be produced every year.

If the hides were used in a tannery, it would be possible to produce leather for shoe soles or uppers. It would seem more reasonable, however, to produce only leather for uppers and to use rubber soles. From the estimated 50.000 kg green salted hides, yielding 20 ft^2 per hide, total annual leather production could be about 1,000,000 ft^2. As not all the hides will be used in the tanning process, there could also be some by-products. Because of the small quantity of skin residues (160 tons), the best use would be as raw material for the manufacture of carpenters glue.

(h) Animal feeds

There is only one feed mill in Sierra Leone. The enterprise produces mainly mashed feed for the poultry industry and a small amount of pig feed. In 1973, output was 3,500 tons, representing a total sales value of Le 514,000; local purchases were Le 43,000. The ratio of imported raw materials to total raw materials was fairly high (92%). In 1974 and 1975, the prices of maize, wheat and other agricultrual products rose. Fixed prices for eggs and poultry (broilers) caused many farmers to close down their poultry activities, and there was a large decline in demand for mashed feed for poultry. The result was a shortage of eggs and broilers in Sierra Leone. Subsequent price rises induced the farmers to increase production of poultry and eggs, and for 1977 it was estimated that the poultry industry will recover. The drop in demand is indicated by the low figure of 2,323 tons produced by the feed mill in 1974, and the still lower production during 1975 of 2,015 tons, compared with 3,500 tons in 1973. At present, eggs and poultry are priced almost beyond the reach of the average Sierra Leonean: a dozen eggs cost Le 1.60 ($1.50), and a broiler (one kilo) is priced at approximately $3.50. The poultry industry is recovering but the output of the feed mill and the output of eggs and broilers are not. The basic problem of the feed mill is the use of very expensive imported and local raw materials (imported and local maize is used in excessive amounts) and the use of concentrated mixes that are mixed with mashed corn and wheat bran. During the period July to December 1975, 1,062 metric tons of feed were produced worth Le 239,721.

Imported and local inputs were as follows:

Imported	Quantity	Value (Le)
Concentrates	233 tons	82,291
Maize	203 tons	48,000
Paper bags	21,000	8,400
Total		138,691
Local		
Maize	591 tons	87,360
Wheat bran	456 tons	28,749
Total		116,109

The ratio of imported material inputs to total material inputs by value was 54.4: 100 in 1975 (July to December) - less than the average for 1973 but still fairly high. The industry could well use assistance to develop a programme for greater use of local raw materials. The use of 50% maize can only lead to very high priced foods, although part of the corn is produced locally at Le 7.5 a cwt, compared with imported corn at Le 12.0 per cwt. Rice polishings, broken rice, wheat meadlings and salt are available locally. Other raw materials that should be available locally include, corn or sorghum, alfalfa or other grass meal, meat meal, bone meal, palm kernel, cake meal, and cane molasses. Only a few ingredients, such as antibiotics, vitamins, mineral concentrates, fish meal, feather meal, corn gluten meal, and limestone would not be available locally. Limestone phosphate and dicalcium phosphate can be replaced by bone meal, and fish meal can be replaced by meat meal. It is estimated that roughly 80% by weight of food ingredients might be available locally. Some imported ingredients that are not available locally include highly priced materials such as mineral concentrates and feather meal. High-protein concentrates could be prepared from brewery waste.

The feed mill can play an important role in the development of the poulty industry and pig farms. The present high prices of poultry products are the result of attempts to breed poultry without taking into consideration feed prices. A poultry development policy should give priority to the production of low price feeds and the use of locally available raw materials.

(i) Edible oils industry

The edible oils industry is based on the African palm. There are several old industrial facilities in operation, one was recently finished, and one more is under construction.

Palm oil. The African palm is widely distributed in Sierra Leone. The wild palm population was estimated during the year 1965/66 (Agricultural Statistical Survey) at around 139 million trees of which 103 million were of bearing age. It is estimated that one third of the tree population is exploited fully, one third is tapped for palm wine, and one third is not harvested for mainly economic reasons. Most of the trees are scattered; less than one million are found in concentrations.

Because of the processing methods, palm oil produced by traditional methods from wild palms has a high acid content. It is used for direct consumption and cannot be considered as an industrial product. The traditional red oil is highly acceptable in many African countries, but cannot be exported to countries outside Africa as it has more than 7% free fatty acids. From the industrial point of view, it is of little interest because of its high cost. As far as the small-scale industries are concerned, the production of oil from wild palms could be greatly improved by the introduction of hand presses.

Palm oil plantations have been developed in Sierra Leone with varying success. Only when well-studied plantation schemes such as the Gambia-Mattru and the Daru plantations are started will it be possible to say that a modern palm oil industry is being developed in Sierra Leone. As for the nine pioneer mills set up by the SLPMB in the early 1960s only five were working in 1972/73, and far below maximum capacity. Moreover, the mills are obsolete: the percentage of the oil content of the fruits being extracted is only 65%, and the total production less than 1,000 tons in 1973.

The operation of the new Gambia-Mattru and Daru plantations and mills will be different. The output of the 10,000 acre Gambia-Mattru plantations will be 10,500 tons of crude oil and 2,300 tons of palm kernels, and the outgrowers scheme will yield another 4,000 tons of palm oil and 900 tons of palm kernels. The Daru plantation will have a total area of 8,000 acres, plus the outgrowers plantations. The Daru mill will produce an estimated total of 12,000 tons of crude palm oil and 2,000 tons of palm kernels.

It has been estimated that the rural areas will continue to be supplied with traditional red oil from wild palms, but urban areas will be supplied increasingly in the future with oil from the modern plantations. It is assumed that consumption will increase at the same rate as the urban population (roughly 4.0% a year). Imports (consumption) of non-traditional oils and fats were as follows from 1963 to 1973-1974 (in long tons):

	1963	1963	1973	1974
Vegetable oils	1,911	2,834	3,153	1,887
Margarine	488	775	1,313	905
Butter	206	207	132	103
Total	2,605	3,816	4,598	2,895

From 1963 to 1968, imports of oils and fats increased faster than from 1968 to 1973 (1974 shows an unusual decrease). The large increase in demand in the early years can be attributed with reasonable certainty to the urbanization process, as more and more people demanded oil and fats in the growing towns of Freetown, Bo, Kenema, and Makeni and red oil was harder to obtain than in the rural areas. The decrease in imports during 1974 may be attributed to renewed activity of collectors of palm kernels because of higher world prices that year.

The demand for fats and oils should also include the fats used in soaps. A few statistics are presented below in order to assess the potential demand for fats (in long tons):

	1963	1968	1973
Common washing soap	2,998	6,238	6,410
Toilet soap	237	580	590

Estimated production of common washing soap was 1,000 tons in 1973: demand was 7,400 tons. The demand for toilet soap followed the same trend as the demand for oils and fats - and for the same reason. If the oil or fat content of soap is assumed to be 72%, the total potential market for fats and oils would be as follows (in long tons):

	1978	1983	1988
Vegetable oils	3,800	4,600	5,600
Margarine	1,600	2,000	2,400
Fats in soaps	6,800	8,100	9,600
Total fats and oils	12,200	14,700	17,600
Soaps	9,500	11,300	13,400

Only 55% of the crude palm oil produced by the Gambia-Mattru and Daru plantations will be processed into refined oil. Further losses of 5% through neutralization will reduce the percentage to 50. The remaining 45% and the 5% neutralized oil can be processed into soap. Refined oil can also be processed into margarine, but the palm oil content of margarine cannot exceed 50%, the balance being other fats, skimmed milk and water. According to the figures given, about 13,000 to 15,000 tons of refined oil will be available for use as cooking oil or in margarine, and the same quantity for use in soap. It is clear that there will be no shortage of palm oil for industrial use, provided substitution of traditional red oil for refined cooking oil does not continue at a higher rate than expected.

Palm kernel oil. Palm kernels are an important agricultural export commodity for Sierra Leone. Under the policy to promote the export of processes or semi-processed raw materials, the SLPMB established a palm-kernel oil mill which began operations in 1968. The mill was closed in 1969, mainly because of equipment, management and marketing difficulties. In 1973 it was reconditioned, and operations re-started under SLPMB management, but management was later turned over to a foreign firm on a "management contract" basis. The investment to recondition the mill, including expansion, was Le 1.1 million, but total investment was even higher. After expansion, the maximum annual capacity of the mill will be 40,000 tons of palm kernels. There will be 10 expellers, and this raises the important problem whether to continue increasing the the number of small units or to go for larger ones. As the potential of the palm kernel crop in Sierra Leone has been tapped only to a minor extent, this question should be analysed seriously. The high prices of 1974 have not continued. As has happened before, prices fell as soon as demand was satisfied by additional processing units and larger crops.

The question of a price policy on farmers' crops has become an urgent matter. There is a definite relation between the price paid to farmers and the size of the crop collected by them. Table 4 shows prices paid to farmers per ton of palm kernels and the quantity exported from 1950 to 1973.

Table 4. Producer prices (minimum guaranteed) and quantities of palm kernels exported

Year	Guaranteed price		Quantities exported (tons)
	Current Le/ ton	Percentage of f.o.b. price	
1950	45.45	71	71,000
1951	60.80	50	75,100
1952	63.25	53	76,380
1953	63.25	51	68,900
1954	57.80	52	68,080
1955	57.30	66	57,640
1956	57.80	78	57,650
1957	57.30	68	52,970
1958	57.30	64	54,610
1959	63.20	55	57,630
1960	63.20	59	54,350
1961	63.20	75	57,760
1962	54.20	67	61,000
1963	60.00	64	52,800
1964	59.62	64	52,160
1965	63.62	55	49,270
1966	63.62	68	54,650
1967			19,159
1968	65.00	49	64,260
1969	67.20	61	49,300
1970	67.20	57	59,200
1971	67.20	58	51,000
1972	67.20		47,000
1973	93.20	47	44,000

Despite higher prices paid to the farmers in 1974/75 (up to Le 146 per long ton), which permitted an estimated increase in the collection of palm kernels to 70,000 long tons in 1975, the Palm Kernel Oil Mill is milling only about 26,500 tons per annum because of SLPMB's policy of not supplying enough palm kernels to the mill. This policy is based on the fact that the management of the PKOM is still unable (mainly owing to the obsolescence of the machinery), despite the reconstruction of the mill, to show substantial profits and is therefore unable to pay its commitments to SLPMB.

Beverages industries

(a) Soft drinks

There are two soft drinks industries in Sierra Leone: Sierra Leone Enterprises Limited, producing under Pepsi-Cola licences; and Freetown Cold Storage Limited, producing under Coca-Cola licences. The only data available relates to 1973/74. The market was estimated at 750,000 boxes of 24 bottles or 6 million litres a year - a low per capita consumption of 2 litres a year. The market share of Cold Storage is estimated to be twice that of its competitor. From the production and consumption figures, imports of glass-bottles for soft drinks should not be high, but imports of bottles during 1974 for the two industries accounted for Le 279,000 (bottles and labels). The origin of the problem is the very low deposit paid for the bottle (Le 0.06 per unit) compared with a real cost of $0.10 to $0.12 per unit. One way to curb bottle imports might be to increase the bottle deposit. (At present bottles are used for a variety of purposes, or simply little care is taken.)

(b) Beer

The output of the only Sierra Leone brewery in 1973/74 was 1,187,200 cartons of 24 bottles each or roughly 9.5 million litres. All production is bottled in 1/3 litre bottles. Production represents roughly 90% of total domestic consumption. Brands are produced under licence from Heineken and Guiness, and there is one local brand (Star). The brewery underwent an expansion programme in 1974 and 1975 which is now finished. Despite the low per capita consumption, sales are growing fast at approximately 8 to 10% a year.

All raw materials are imported, and there is very little chance of using locally-produced materials with the exception of cartons, crown corks and bottles. Because of the low consumption of bottles and poor quality of locally-produced cartons, there is some reluctance among the management of the brewery to change.

Despite the rapid growth of demand, consumption per capita is quite low - about 3.5 litres a year. This may be because much of the population is Muslim or Muslim influenced and avoids alcohol, or simply because the low per capita income does not permit luxuries. The price of beer is rather high ($0.30 to $0.36 per bottle) for a low income population.

(g) Alcohol

Wellington Distilleries Ltd blends distilled products with imported concentrates of whisky, rum, gin and the like. The present distillery was created with the idea of utilizing locally-produced raw alcohol. The Government acquired majority shares and control of the management. As a result of poor management the enterprise almost went bankrupt. In 1974, the distillery was "refloated" under the management of the foreign partner. The main problems of the administration are the lack of financial resources, and competition from better-quality imported liquors. One approach might be to bottle fully-blended liquors under licence and good quality wines. This might enable a government company to capture the substantial internal market, now supplied by many importers. The introduction of a semi-monopoly for locally-bottled fully-blended liquors and wines might give Wellington a larger share of the market and higher profits. Total consumption of liquors during 1974 was 135,000 litres, with a value of Le 390,000. Local quality is acceptable, and under the present tight balance of trade and payments, a temporary (or even permanent) restriction of imports of high-priced imported liquors may be necessary.

The proposed sugar mill might justify a plant for the production of alcohol and liquors from molasses. As the local consumption of alcoholic beverages is low, the plant would be built with the foreign market in mind.

Tobacco

A subsidiary of British American Tobacco, Aureol Tobacco Company, has 80% of the market. Imports consist mainly of cigars and high-priced digarettes. Total annual production is about 55 million packs. Consumption is 65 million packs a year. Local brands are of good enough quality to make an import ban acceptable. Not all raw materials are imported. The production of tobacco in Sierra Leone is being developed with the assistance of British American Tobacco. Local tobacco input represents some 11 to 12% of total leaf tobacco used in the manufacture of cigarettes. Tobacco crops are increasingly interesting for the farmers, and a large amount of substitution of imported tobacco as well as some exports of leaf tobacco can be expected in the future. The Government, through excise taxes, is getting a large proportion of the value added by the manufacturing industry. Careful study of the tax regulations is necessary to assess the possibility of exporting locally-manufactured cigars and cigarettes.

B. Textiles, garments and apparel

Textile industry

The textile industry is represented by one small knitting mill which is suffering from poor management and poor quality of the goods produced. The mill was established under the Development of Industries Act as an import-substitution industry. Machinery was old when the factory was established in 1965. It is estimated that the average age of the machinery is 12 to 20 years. The poor quality of the goods produced has undoubtedly been the main reason for the poor performance of this industry.

Production of the Sierra Leone Knitting Mill

	Output (dozens)	Sales value (Le)
1969	76,896	227,530
1970	48,597	183,755
1971	48,597	173,444
1972	28,400	103,339
1973	33,424 up to 31 Aug.	143,438
1974	23,000	145,000

The company imports all raw materials required for the production of knitted garments. The management made complaints about competition from imported goods at very low prices, but considering the poor quality of the goods produced, the reaction of the customers in favour of imported goods is perhaps understandable. The quality of the knitted cloth is good enough for a market requiring low priced goods. It is in the sewing operations where quality is not attained.

There are considerable imports of finished textile goods, and they are increasing at a rate of 3 to 4% per annum. Some of the imports are smuggled to neighbouring countries with deficits in their balance of payments, thus making more urgent the need for production in Sierra Leone of textile goods, and especially the production of cotton by the farmers. Cotton is being produced, but only for the manufacture of very crude cloth called "country cloth". The cotton grown is of poor quality. Similar tropical conditions are encountered in the Ivory Coast, where cotton is widely cultivated and a modern industry has developed that was producing the equivalent of $90 million a year in 1974. Capacity was to be doubled by 1976 by the addition of two large mills of 10 and 6 thousand tons annual capacity (raw cotton) and the start-up of another large garment factory (jeans and overalls).

A UNIDO textile consultant prepared a study at the end of 1975 for an African-print textile mill in Sierra Leone, which would supply the markets of Liberia and Sierra Leone. The second part of the study includes some of the economics of spinning and weaving. Another expert team working for UNIDO prepared a report, "Requirements for pre-investment studies of union industries in Liberia and Sierra Leone". The chapter on textile union industries is rather good in the second report, but neither report includes a feasibility study. Some of the assumptions of the first report are debateable: it does not, for example, accept the possibility of granting a total monopoly to the Sierra Leone industry (total monopoly even in relation to imports of non-produced goods). Total free competition was used as a criterion except for the application of certain low customs barriers, although a new industry with too little capacity might be in a difficult position to compete with low-priced textile goods from Asia. The criteria proposed by the author of the present report are a total ban on imports of the types of goods produced by the mill, and the establishment of a complete monopoly in the import and export trade of textiles in order to ensure a large volume of sales for the factory. At the same time, since quality is important if Sierra Leone is to compete in the West African and other markets, a gradual enforcement of quality control and a gradual lowering of customs duties on imported goods up to a level compatible with those of the rest of the West African countries was envisaged. The establishment of draw-back percentages equivalent to 100% of all duties and taxes paid during the production of the exported goods was also proposed.

Sierra Leone's textile imports during 1973 were as follows:

	Value (Le)
Yarn	276,000
Cotton goods	13,129,000
Man-made fibres goods	4,224,000
Silk goods	Negligible
Wool goods	Negligible
Total	17,629,000

It is clear that the Sierra Leone market could set up a large integrated mill, especially considering the addition of the Liberian market which should be estimated at 50% of the Sierra Leone market. The preparation of a full-scale feasibility study by a team of consultants working within very specific terms of reference is essential.

Garments

The only garment factory in Sierra Leone may have to close unless operations improve. The reasons include poorer quality than imported goods, preference of the high-income sector for imported goods, and very low customs duties as protection for new industry. To this should be added poor management, since professional managers are very scarce in Sierra Leone. It was envisaged that the Development Corporation would take care of the training of managers without university degrees, but little effort has been made in this direction.

The garment factory is fairly well equipped and modern. The weak point in its management is in the selection of designs, bad finishings etc. The management problem could be solved by the recruitment of specialized foremen with the knowledge necessary to keep the factory workers well trained. Designs should be up to fashion, and other factors such as inventory and production control should be improved. In summary, it is thought that a combination of industrial engineering, quality control, on-the-job training and good design should keep the factory competing with imported goods.

During 1974, production of Sierra Industrial Vestments Limited (SIVCO) was as follows:

	Quantity	Value (Le)
Jackets	25,586	166,300
Men's trousers	44,801	246,400
Men's shorts	8,779	35,100
Miscellaneous ladies' skirts and dresses		15,300
Total		463,100

Imports of clothing in the same year were as follows:

	Quantity	Value (Le)
Raincoats and raincapes of textile fabrics	32,749	570,490
Men's and boys' outergarments containing 45% or more man-made fabrics	253,620	678,555
Other men's and boys' outergarments not knitted	85,977	132,284
Blouses, not knitted or crocheted	42,645	48,986
Female and infant outergarments	26,300	42,443
Shirts, not knitted or crocheted	104,706	211,483
Undervests and singlets not knitted or crocheted	965,991	278,513
Undergarments, not knitted or crocheted	541,588	140,499
Handkerchiefs	547,082	45,130

Total imports in 1974 amounted to Le 2,198,000. All the above-indicated garments could possibly be produced at the SIVCO factory.

Shoes

The only factory that may be classed as a shoe factory in Sierra Leone is producing plastic sandals by injection moulding, a process which corresponds better to that of a plastic industry than to shoe manufacturing. Some 650,000 pairs were produced in 1973/74, the only year for which the factory made data available. The factory is working with Bata International. The principal importer of shoes is Bata. Imports in 1974 were as follows:

	Quantity	Value (Le)
Footwear with soles or uppers of plastic	846,467	500,990
Footwear wholly or rubber or of canvas and rubber	1,420,044	597,330
Other footwear	1,251,116	2,198,000
Total	3,517,627	3,296,320

It can be seen that there is enough of a market in the country for the installation of a footwear factory, producing the above types.

Suitcases

Sierra Leone Suitcase Works produces approximately 60,000 to 80,000 units per year, and is working at 50 to 60% capacity. All materials are imported. The share of the market for cheap suitcases is as follows:

	Unit	Value (Le)
Production in 1974	13,200	145,200
Imports in 1974:		
Suitcases/attache cases of vulcanized fibre/paper board	3,231	61,725
Other travel goods and similar articles		458,692

The low-priced suitcases produced are similar to those of paper board or vulcanized fibre, and the factory has a good share of the internal market.

C. Wood and paper industries

Wood

The only medium to large wood industry is Forest Industries, a government-owned company. A report was made on the industry by a UNIDO staff member during the preparation of a project proposal for technical assistance to Forest Industries. The UNIDO project would provide technical assistance in the design, production and accounting methods of Forest Industries through the employment of several long-term expert consultants. The Forest Industries Manager is highly interested in the project, and the Central Planning Unit recommended and supported the idea. No action had been taken up to the time of this report.

A project proposal for the investment of $20 million was made by the Government of the Socialist Republic of Romania, but no decision had been taken up to the time of this report. The possibility for the utilization of the limited forest resources of Sierra Leone for the production of high-priced veneer, and high-priced tropical timber, and the need to protect these limited resources was brought out in the section on natural resources. Although the Central Planning Unit pointed out to the Ministry of Agriculture and Natural Resources the inconvenience of granting logging concessions, one large logging operation was established in the Gola Forest. There is little possibility of controlling the number of logs exported, because all shipments are made from the south of the country. It would be unfortunate for Sierra Leone to have its forest resources exhausted as has happened in the Philippines. The forest area is only 1,200 sq miles or so, and if the logging operation continues to extract logs the woods will soon be depleted beyond the hope of natural restoration of the forests. It was estimated that not more than 40,000-50,000 cubic meters should be extracted each year.

Another operation of Forest Industries is a furniture factory that produces most of the wooden furniture of the country. At present, the factory has major problems due to poor organization of industrial operations, old machinery, old designs and the lack of some essential facilities for treatment of the wood.

The installation of an assembly plant in Freetown in order to reduce transport cost by despatching knock-down, semi-finished furniture to the principal market of the country was suggested in the annual plans.

Despite the supply of timber, the country has no factory for the production of wood mouldings. It was indicated that the woodwork section of the former railway workshop could be transformed into such a factory. The workshop was well equipped for the production of wooden railway cars, and the machinery is in a good condition, although old. The woodwork section could be transferred to Forest Industries as a basis for the installation of the furniture assembly factory in Freetown. The ex-railway workshop also has an upholstery workshop, and, more importantly a nucleus of well trained carpenters and upholsterers.

The production of Forest Industries during the fiscal year of 1974/75 was Le 510,000 in furniture and Le 710,000 in timber (237,687 cu ft), which has been the usual level during recent years. Forest Industries has been renewing its logging and timber investment, and during 1974/75 investment was Le 247,000. It is expected that investment during 1975/76 will be of the same order (Le 231,000).

Paper

Sierra Leone has an assembly factory for toilet rolls and cardboard boxes. It was made possible by the Development of Industries Act. The factory cuts wide rolls of toilet paper into toilet rolls that are then hand wrapped and boxed in cardboard boxes assembled by the same factory.

Printing presses

There is one large printing establishment, which is owned by the Government and produces printing of rather good quality. During 1975, the construction of an expensive new installation worth about Le 5 million was initiated on a turn-key contract with the Italian firm Radionica. Ways must

be thought of quickly to keep these new modern presses running as near to capacity as possible. It was announced in the annual plans that a request would be made for technical assistance from UNIDO and a reputable publishing house to start the printing of books for export to other African countries. The existing official newspaper, The Daily Mail, was also supplied with equipment also being installed by Radionica. Total investment is roughly Le 2 million.

D. Chemical and petroleum industries

Petroleum refinery

The only petroleum refinery in Sierra Leone is a small installation with a total capacity of about 500,000 long tons a year. The refinery belongs partly to five oil companies and partly to the Government, which has the right to apply profits or taxes to the purchase of up to 50% of the shares. The real revenue for the Government comes from excise taxes charged on the products. But the Government has little control over the management of the enterprise, which is fully controlled by the expatriates working for the oil companies. A measure of this lack of decision-making power is the fact that the imports of oil, exports of fuel oil, and the running conditions of the refinery are dictated by the interest of the oil companies, rather than in the interest of all the partners, including the Government. The following figures are the imports of crude oil and the output of the refinery from 1972 to 1975 (in long tons):

Imports	1972	1973	1974	1975
Crude oil	300,000	259,000	222,412	196,467
Production				
Premium motor spirit	27,816	30,001	30,490	34,490
Regular motor spirit	8,055	10,628	12,251	8,303
Kerosine	34,680	32,770	37,252	32,862
Industrial diesel oil	14,306	13,978	12,231	10,336
Lead free naphtha	11,026	71	-	-
Fuel oil	155,740	124,134	79,202	52,011
Gas oil	52,050	50,397	49,563	52,667
Total production	303,673	261,979	220,989	191,169

The reduction of imports of crude oil from 300,000 tons in 1972 to only 196,000 tons in 1975 indicates that the refinery is being used at only 39% capacity. Total consumption of petroleum products in Sierra Leone was reduced to 155,778 long tons, or only 31% of the present capacity of the refinery, discounting exports of bunker fuel oil. It may well be asked whether it would not be more economical to stop the operations of the refinery and import the required products directly from producing countries. It was suggested to the Government that the services of a engineer specializing in petroleum economics should be obtained to assess the form of operation of the refinery, and to ensure that the management is protecting the interests of the Government as well as those of the five oil companies.

Salt manufacturing

Two enterprises in the country manufacture salt. One is an industry adding very little value to the final product by coarse grinding of imported salt, mainly from Senegal. The other salt factory is an industry on process trials, manufacturing salt from sea water. It belongs to Sierra Leoneans with industrial experience. It is located near the sea about 36 miles off the road from Freetown to the Provinces. The expertise of UNIDO consultants might be recommended in order to help the manager. How much this technical assistance is needed is illustrated by the fact that one consultant hired by the Company proposed the logical use of black plastic, which is perfectly correct, but he extended the use of the plastic to the last pond, where the salt is scraped with bulldozers or mechanical shovels, which destroys the plastic. It was indicated to the manager that tar ponds should be used in the last stages of concentration and crystallization, and black plastic in the initial ones. It is known that some redesigning of the plant will be required. Total imports of salt to Sierra Leone are in the region of 13,400 tons for 1974, and those for Liberia 4,300 tons. The slightly unbalanced consumption in Sierra Leone is explained by smuggling to neighbouring countries. The total market for both countries can be estimated at 24,000-25,000 tons for 1980.

Industrial gases

There is one factory in Sierra Leone for the production of oxygen, carbon dioxide, and acetylene. The factory is efficiently managed and very few recommendations should be made. Gross sales are not of a high value (Le 360,000 to Le 400,000) but the factory is an essential industry in Sierra Leone. Moreover, as the factory has the capacity to produce up to 30 million cubic feet of nitrogen (reduced to standard conditions), and this large amount is currently wasted back to the air (only about 12,000 cubic feet is used as gaseous nitrogen), it would be possible with little investment to liquify the nitrogen for refrigeration purposes. This complementary project idea has been discussed with the manager of the factory, but it will have to be linked to an important project requiring cold conditions for transport (the slaughterhouse, or fish distribution, for example).

Soap manufacturing

There are two soap factories in Sierra Leone: the Washex factory, producing a low grade soap without mechanical presses or any modern facility, and the modern Chanrai factory, which is presently in the final stages of the installation of the machinery. The Chanrai factory is rather well managed by Indians, and the investment is quite large (over $1 million), including one modern soap plant (Mazoni automatic). Production was started using manual methods before the automatic plant was installed in 1974 and 1975. A production of 3,600 to 4,000 tons of soap was expected for the fiscal year 1975/76. One of the main problems of the factories is the high price of palm kernel oil produced by the PKOM, and the lack of modern slaughtering houses. Total capacity of the Chanrai factory will be 6,000 tons of laundry bar soap and 800 tons of toilet soap, but a policy for the pricing of oils for use by local industry should be defined, because all products used in the manufacturing process are imported at present. Total annual demand for soap in Sierra Leone was estimated at 11,000 tons in 1974. It is interesting that of this demand 8,600 tons of washing soap and 640 tons of toilet soap were imported during the year.

Paint manufacturing

The paint industry in Sierre Leone is represented by a mixing plant. All inputs are imported, except for the one-gallon cans manufactured locally and some petroleum products. The quality of the paint is fairly good, as the management has an ICI licence. The output of the paint factory has fallen off because of imports. The quality of the paint is comparable to that of imported products; so this factory is an illustration of the application of a wrong policy for the protection of local industries. The company pays custom duty for its inputs, and this brings the price out of line with imported final products subject to import duties. The local paint is subject to excise tax on the factory price, which is higher than the f.o.b. price of the imported paints. There is thus no way for the local factory to compete. The large construction companies are importing paint. For 1974, imports were as follows:

Item	Weight (cwt)	Value (Le)
Prepared pigments, opacifiers, enamels, glazers	1,225	33,913
Prepared paints, including prepared enamel paints	5,419	209,776
Other prepared pigments in oils, varnishes, distempers	9,372	223,534
Total	16,516	467,223

Gross sales of the factory in 1974 were about Le 600,000. It is recommended that the present tax policy should be reviewed because industries that should get incentrives are not getting them.

Cartridges

Sierra Leone Explosives Ltd is engaged in the assembly of shotgun cartridges. None of the components are obtained locally. Total investment was Le 230,000 in 1974; annual production is 2 million rounds, and there are 12 employees.

Alumina production

A very promising new industry is the mining and manufacturing of alumina from the bauxite deposits located at Port Loko. Swiss Aluminium has the rights to exploit the bauxite in the territory of its lease. More than 100 million tons of bauxite were prospected by Alusuisse, but because of the company's poor financial position it is very unlikely that any agreement will be reached before 1979, based on the production of alumina to supply one of the new Arab smelters that will be built in the 1980s. The situation has been well analysed in previous reports. Total investment for the production of approximately 600,000 tons of alumina per year would be in the region of $400 million.

E. Non-metallic products industries

There is a project proposal for a clay bricks factory, but unfortunately it has been made without a feasibility study. The company is budgeting about $7 million for the factory, plus $2 million in interest and financial charges. The proposed output is 80,000 tons per annum, but the capacity is probably too big for the country's current needs and exporting to any distant market would be uneconomical. There is an existing cement factory that was built to use imported clinker.

F. Fabricated metal products

National Metal Workshop

In Freetown there is a large railway workshop, which has lost its primary function since the phasing out of the railway. The facility is suitable for the production of spare parts and equipment for the mining and manufacturing industries. It has been proposed to produce simple agricultural tools and machinery. It would be necessary to re-design the workshop for the new purposes. Possible products are: welded steel parts, water pipes, sewerage pipes, welded tanks for liquids, parts for bridges and buildings etc. It would be necessary to add some equipment and replace machinery that is almost scrap. In general, the workshop is in good condition. The manufacture of bulky equipment without great technology would help to solve the country's serious balance-of-payments problem.

Considerable waste occurs because there is little re-use of trucks and motor cars, owing to the lack of facilities to rebuild engines.

Vehicle imports in 1974 were as follows:

Vehicles	Quantity (units)	Value (Le)
Passenger cars	2,179	4,598,587
Landrovers (types)	701	1,830,320
Used motor cars	191	191,270
Minibuses and buses	117	908,223
Lorries and trucks	466	2,918,232
Tractors	43	330,171
Total	3,697	10,777,303

An equivalent quantity is scrapped every year, without considering that some units last longer than the average. Another important activity for the workshop could be the repair of ships arriving in Freetown harbour.

A report was prepared by a mission from Hungary, but since a long time has passed without any agreement being concluded, it might be more convenient to request the involvement in the project of one large foreign company working in a developing country with similar conditions to those in Sierra Leone. For instance, inquiries may be made among the Indian or Pakistani multipurpose metal workshops for technical assistance and participation in the project. Alternatively enterprises in Argentina, Brazil or Mexico might be approached. Technical assistance from UNIDO might be included as a project in the Country Programme.

Last but not least, the personnel still working at the workshop are an asset that should not be lost.

Window and door manufacture

There are several factories manufacturing steel doors and windows, but the only one making a fairly good quality product is J. Matter from Bo.

Another factory is Metal Assembly, but this factory is a poor example of government involvement in a factory with machinery that should have been scrapped long ago. There is practically no machinery of value in Metal Assembly. In spite of this, a large effort has been made by the Ministry of Trade and Industry to rehabilitate the factory.

Miscellaneous metal manufactures

There are several other private enterprises manufacturing metal goods; most of them were established under the incentives granted by the Development of Industries Act of 1960. They include: Metal Ware Manufacturing, producing buckets, trunks, and paint cans; Metal Beds and Springs; Metal Manufacturing; and Sierra Leone Manufacturing, producing nails.

G. Manufacture of jewelry

There is a diamond cutting and polishing factory in Sierra Leone, but its output is less than 1,000 polished carats a month. About 100 persons work at the factory.

There are highly developed techniques available for the training of workers. It is recommended that the workforce of the factory should be utilized as a basic training staff, and that an ILO mission be secured to develop a large government factory.

V. CONSTRAINTS ON INDUSTRIAL GROWTH

The manufacturing industry chapter of the National Development Plan contains a full discussion of some of the constraints on industrial growth. After almost two years of the Plan period, it should be recognized that the constraints indicated in the NDP are probably not the most important ones. There are two types of constraint - internal and external.

Internal constraints

(a) One reason for the failure of the Industrial Programme has been the obstructive attitude of some civil servants in strategic positions. For instance, there is a strong resistance to any change in the Development of Industries Act of 1960, and this is reflected in the fact that review of the Act, indicated in the NDP and in the annual plans, has not even begun. A similar attitude has been taken in relation to the National Industrial Development Corporation, which was approved by the Cabinet and the Parliament and incorporated in the NDP and the annual plans. Fear that the present positions of some civil servants might be jeopardised by the creation of units like the NIDC or the Division of Industrial Programming may underlie this attitude;

(b) Almost no investment has been made by the private sector since 1973. Exceptions are projects like the Chanrai soap factory and smaller industries like the cartridge factory. The reasons for the lack of interest by the private internal sector may be very deep. For instance, the exchange control system may be stimulating diamond smuggling and impeding the return of the proceeds from the safe of smuggled diamonds, and there may be fear among foreign communities that strong measures might be taken against them by the Government.

External constraints

A number of the factors that are inhibiting industrial investment in Sierra Leone by foreign and local investors may be classified as external. They include:

(a) The high price of diamonds. The escalating prices of diamonds are encouraging smuggling, the proceeds of which are often not available for investment in the country;

(b) High oil prices and rising world prices for manufactured goods, which, particularly machinery, which deter would-be investors from investing;

(c) Decisions taken outside the country by international companies. It is believed that the result of such decisions is less resources for government investment;

(d) The achievements of the liberation movements in Africa, which make investment in more conservative areas like Latin America or Europe appear more desirable;

(e) The apparent lack of interest of the countries of the socialist commonwealth in investment in Sierra Leone;

(f) The apparent lack of interest of companies in developed western countries.

VI. RECOMMENDATIONS

Financial resources

1. In order to regain resources that at present are lost through diamond smuggling, the opening of external accounts for all dealers and miners selling to the registered exporters should be authorized. Use of external accounts for the importation of goods should be regulated.

2. Dealers and miners and other Sierra Leonean investors should be authorized to create a sales organization for diamond trading and exporting.

3. The creation of the National Industrial Development Corporation should be accelerated so as to provide a channel for foreign financial assistance.

4. The re-organisation of the National Development Bank should be accelerated as a way to channel financial assistance from the NIDC to the private sector.

Decentralization

5. Special incentives (e.g. rebates) should be granted to entrepreneurs who establish industries outside the Western Area.

6. Industrial estates should be established in Makeni, Bo and Kenema.

7. The go-ahead should be given for the industrial programme of the NDP, which envisages the establishment of industries in Makeni and other towns in the Provinces.

Industrial Programming

8. The Division of Industrial Programming should be established, as stipulated in the NDP and the annual plans.

9. The re-organization of the Ministry of Trade and Industry should be started, as indicated in the NDP.

10. A new Development of Industries Act should be studied and passed, taking into account the rights and duties of would-be investors.

Institutional changes

11. The National Industrial Development Corporation should be created.

12. The Ministry of Trade and Industry should be re-organized, as indicated in the NDP, with a Division of Industrial Programming and a Directorate of Small Industries and Handicrafts.

13. The ex-railway workshop should be made into a commercial enterprise.

Legal aspects

14. The draft legislation on the National Development Corporation should be studied and the Act passed as soon as possible.

15. The new Development of Industries Act should be studied and passed as soon as possible.

Industrial incentives

16. Appropriate draw-back regulations should be studied and applied to accelerate exports.

17. Appropriate regulations on export incentives should be studied and applied.

18. Appropriate levels of tax and customs rebates for entrepreneurs establishing industries outside the Western Area should be studied.

Measures to curb diamond smuggling

19. Limits should be placed on the travel of all persons registered as diamond dealers in the lease areas.

20. All foreigners or non-residents should be expelled from the areas of DIMINCO and ADMS.

21. The Mines Revolving Fund should be converted into a specialized agency for the development of ADMS.

The Mining Industry

22. DIMINCO should be persuaded to re-start prospecting in the leased areas.

23. Because of the possibility of Selection Trust abandoning the country, other companies specialized in mining and trading in diamonds should be contacted.

24. The negotiations on the re-opening of Marampa and the exploitation of Tonkoliko should be extended to more mining companies.

25. The aluminium companies should be requested to take action on the processing of bauxite from the Port Loko deposits to alumina in connexion with the use of the new Arab smelters in the 1980s.

26. The Soviet Union should be considered as an alternative supplier of equipment, knowhow, and markets.

Managerial and engineering training

27. Consideration should be given to opening the School of Industrial Engineering at Fourah Bay College and the provision of longer programmes.

28. The NIDC should be used to start the development of an Institute of Management to be run by entrepreneurs and management experts.

Social Security and financial resources for development

29. The creation of a national provident fund should be studied.

The industrial and mining programmes of the NDP

30. The programmes should be reformulated in the light of the new factors involved.

Control over international companies

31. UNIDO technical assistance should be requested for the study of the new Development of Industries Act, which should incorporate clauses to avoid the repetition of some of the present practices of international companies.

Annex I

MODERN FACTORY INDUSTRIES - ECONOMIC INDICATORS

The industrial survey for 1976 was not finished when this report was written; so it was not possible to add figures for 1975/76. The figures given are final for 1973/74; 1974/75 figures are final up to March 1975, and estimates were made for the three month period between April and June 1975.

Gross output

The table below shows gross output by industry.

Industry	1973/74		1974/75			
	Value (Le thousand)	Percentage	At current prices		At constant 1973/74 prices	
			Value (Le thousand)	Percentage	Value (Le thousand)	Percentage
Food	10,906.0	20.6	18,062.2	26.8	18,393.2	31.7
Beverages	8,947.2	16.8	9,571.5	14.2	8,941.8	15.4
Cigarette	8,621.0	16.2	9,051.0	13.4	8,523.6	14.7
Garment and textile	818.7	1.5	841.1	1.2	757.9	1.3
Wood and paper	2,300.6	4.3	2,477.6	3.7	2,213.9	3.8
Chemical and petroleum	18,146.4	34.2	23,658.2	35.1	15,829.7	27.3
Metal products	1,469.4	2.8	1,472.6	2.2	1,253.7	2.2
Jewelry	928.0	1.7	1,103.0	1.6	1,108.0	1.9
Other	1,000.0	1.9	1,100.0	1.8	1,000.0	1.7
Total	53,137.3	100.0	67,342.2	100.0	58,026.8	100.0

The food, beverages, cigarette, garment and textile, furniture, and printing industries may be considered "traditional" industries in Sierra Leone (those that were created first in the process of industrialization). The share of these industries in the above estimates is as follows:

	1973/74 (per cent)	1974/75	
		At current prices (per cent)	At constant 1973/74 prices (per cent)
Traditional	59.4	59.3	66.9
Non-traditional	40.6	40.7	33.1

Value added

The value added was computed as the difference between the gross output at market prices and the materials and services used at import prices or market prices. The table below shows value added by each industry.

Industry	1973/74		1974/75			
			At current prices		At constant 1973/74 prices	
	Value (Le thousand)	Percentage	Value (Le thousand)	Percentage	Value (Le thousand)	Percentage
Food	2,906.5	14.7	4,385.0	19.8	7,020.0	29.4
Beverages	4,775.8	24.3	4,377.8	19.8	4,719.3	19.8
Cigarette	6,691.0	33.9	6,825.0	30.9	6,613.5	27.7
Garment and textile	344.4	1.7	336.6	1.5	322.5	1.3
Wood and paper	1,422.0	7.2	1,501.6	6.8	1,495.7	6.3
Chemical and petroleum	2,810.4	14.2	3,688.1	16.7	2,932.7	12.3
Metal products	436.8	2.2	579.4	2.6	384.0	1.6
Jewelery	160.0	0.8	193.0	0.9	193.0	0.8
Other	200.0	1.0	220.0	1.0	200.0	0.8
Total	19,746.9	100.0	22,106.5	100.0	23,830.7	100.0

The share of "traditional industries" in the total is as follows (percentage):

	1973/74 (per cent)	1974/1975	
		At current prices (per cent)	At constant 1973/74 prices (per cent)
Traditional	81.8	78.8	84.5
Non-traditional	18.2	21.2	15.5

Employment

The table below shows estimated employment by industry:

Industry	Employment (1973/74)
Food	856
Beverages	535
Tobacco	327

Industry	Employment (1973/74)
Garment and textile	130
Wood and paper	976
Chemical and petroleum	387
Metal products	217 (plus 250 in ex-railway workshop)
Jewelery	85
Total	3,513 (plus 250 in ex-railway workshop)

Imported and local inputs

The table below gives the values of raw materials and services in current market prices (thousand Leones):

	1973/74		1974/75	
	Value (Le thousand)	Percentage of total	Value (Le thousand)	Percentage of total
Imported materials and services	27,270.5	81.67	34,287.7	75.80
Total materials and services	33,390.1		45,235.7	

The diminuition in the percentage from 1973/74 to 1974/75 is explained by the initiation of operations of the Palm Kernel Oil Mill using local palm kernels.

Annex II

LIST OF MANUFACTURING ESTABLISHMENTS CLASSIFIED AS MODERN FACTORY INDUSTRIES (1973)
(Information provided by manufacturers)

Name of establishment and industrial branch	Approximate capital reserves (C) or investment (I) (Le thousand)	Approximate annual output (Le thousand)	Number of employees
Food industries			
Seaboard West Africa (wheat mill)	245 (C) 1,257 (I)	4,400	75
Feed Mill Products Ltd	113	564	28
SLPMB Palm Kernel Oil Mill (July 1973 to March 1974)	1,135 (C)	1,987	
National Confectionary Ltd	956 (I)	1,485	140
Fish Industries S.L. Ltd (Sales are valued as "service". This is a trans-shipment unit for frozen fish (20,000 tons per annum))	152 (C) 771 (I)	51	105
Beverage industries			
Sierra Leone Enterprise Ltd (soft drinks)	189 (C) 227 (I)	370	70
Freetown Cold Storage Ltd (soft drinks plant only)	301 (C) 1,531 (I)	748	130
Sierra Leone Brewery Ltd	1,963	6,218	337
Wellington Distilleries Ltd	350	145	40
Tobacco Industries Ltd	3,578 (C) 2,138 (I)	8,988	327
Textile industries			
Sierra Leone Knitting Mill	200	143	70

Name of establishment and industrial branch	Approximate capital reserves (C) or investment (I) (Le thousand)	Approximate annual output (Le thousand)	Number of employees
Leather and apparel industries			
Plastic Manufacturing Ltd (plastic shoes)	120 (C) 257 (I)	333	30
Sierra Ind. investments Company Ltd	211	358	80
Sierra Leone Suitcase Works Works Ltd	...	173	58
Wood and paper industries			
Forest Industries Ltd (timber and furniture)	1,207 (C) 828 (I)	913	878
United Paper Company Ltd (toilet rolls and corrugated boxes)	73	165	15
Government Printing Department	1,319	1,028	...
Chemical and petroleum industries			
Chanrai Industries Ltd (soap and plastic bags)	200	280	50
Washex Soap Company	124	245	40
Salt Manufacturing Company Ltd	100	410	54
Sierra Paint Ltd	50	660	40
Sierra Leone Oxygen Factory Ltd	120 (C) 332 (I)	378	46
Sierra Leone Petroleum Refining Company Ltd	3,095 (C) 5,519 (I)	9,686	116

Name of establishment and industrial branch	Approximate capital reserves (C) or investment (I) (Le thousand)	Approximate annual output (Le thousand)	Number of employees
Sierra Leone Match Industrial Ltd	177	212	56
Oriental Candle Factory	20	220	30
Metal processing industries			
Metalware Manufacturing Company (buckets and metal trunks)	100	235	104
Metal Beds and Springs Ltd	80	290	45
Sierra Leone Manufacturing Company Ltd (wire nails)	218	273	27
Modern Metal Furniture Company Ltd	10 (C) 60 (I)	150 (est)	64
J. Mattar and Company Ltd (metal windows and doors)	187	398	...
Metal Assembly Company Ltd (metal doors and windows)			
Various industries			
Sierra Leone Cement Works Ltd (grinding and blending of clinker to produce cement)	1,000 (I) (est)		
Sierra Leone Diamonds Ltd (cutting and polishing of diamonds)	382 (book value)	1,004	95

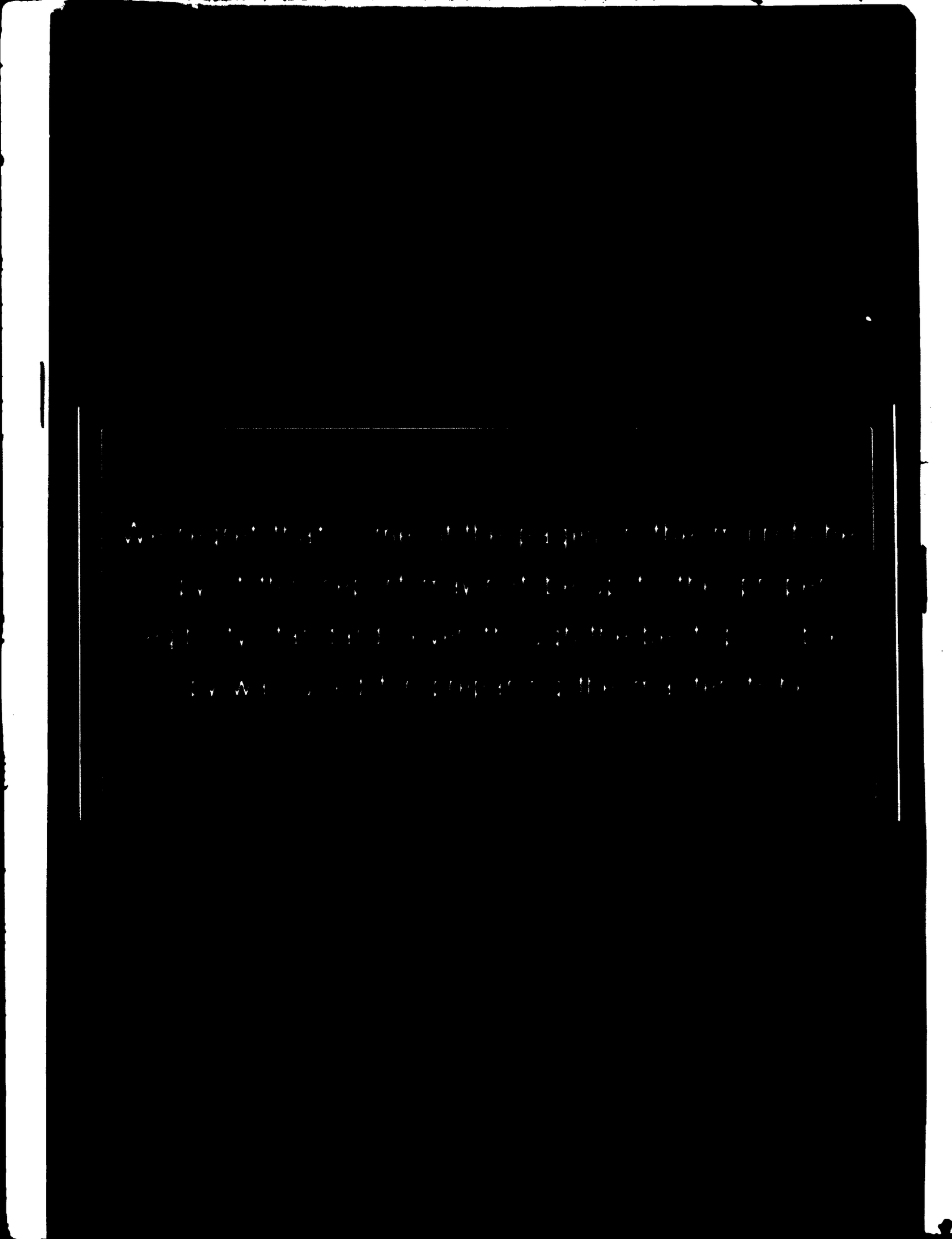
To the above indicated industries should be added the following:

Rice Corporation
(2 rice mills)

SLPMB (5 small palm oil mills)

Name of establishment and industrial branch	Approximate capital reserves (C) or investment (I) (Le thousand)	Approximate annual output (Le thousand)	Number of employees
Sierra Leone Cartridge Company Ltd (installed in 1975)			
Marble Tile Construction Company Ltd			
Terrazo Freetown Ltd			
Salt Factory Ltd (started production in 1975)			
J. Mattar and Company Ltd			
Ex-Railway Workshop (belongs to the Government)			

Bakeries in Freetown, Bo and Kenema with investments (in 1973) over Le 50,000, sales of over Le 100,000 and more than 20 employees.



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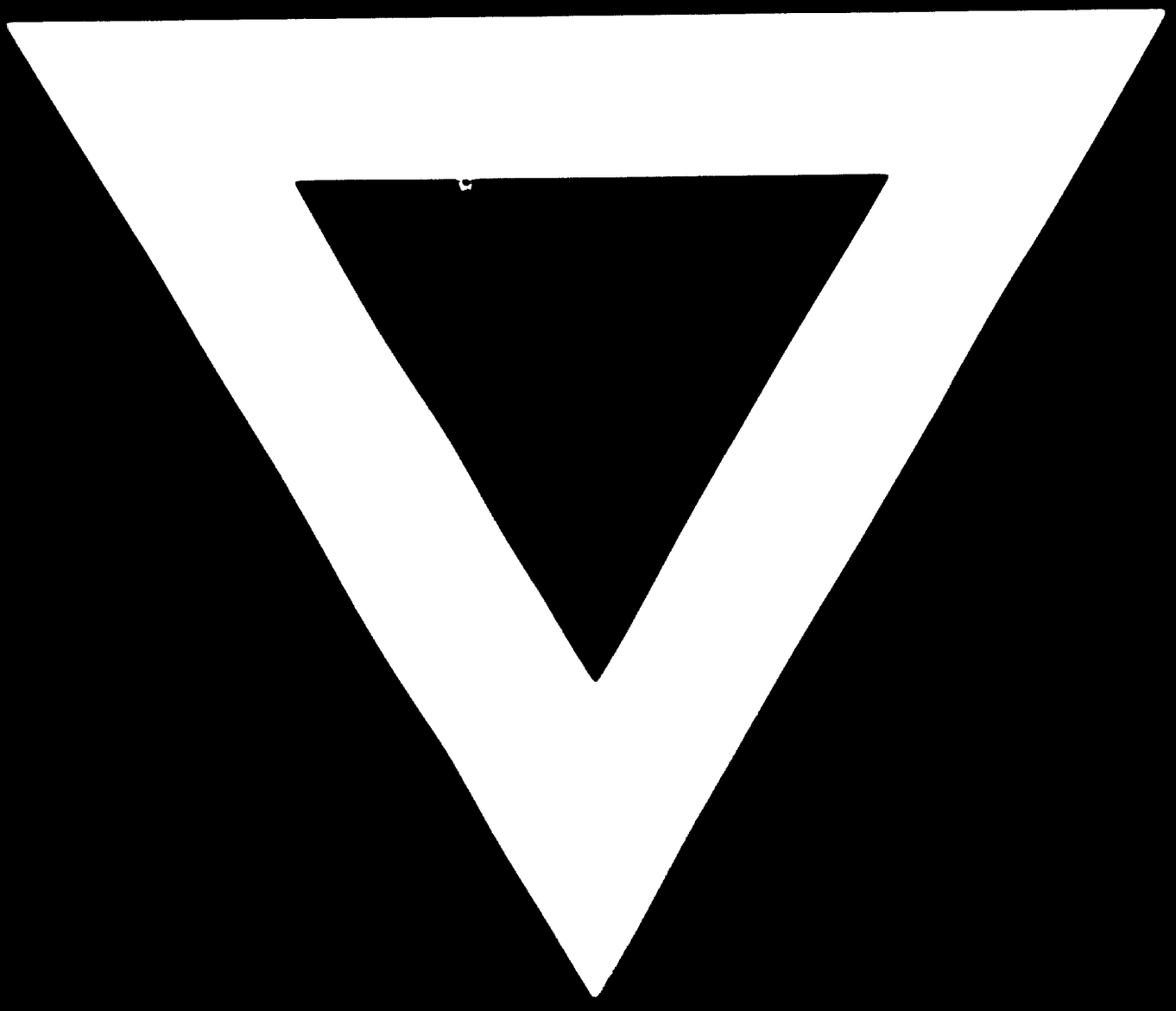

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