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NATIONAL RESOURCES ENDOWMENT STUDY

The Federal Republic of Nigeria

Report*

Prepared for the Government of Nigeria

**Based on the work of Mr. Abdullahi Aliyu
National Expert Coordinator**

**Backstopping Officer: Antonio Sabater de Sabates
Agro-industries and Sectoral Support Branch**

*This report has not been formally edited

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PREFACE

This report summarizes the reports of the national consultants on Food and Beverages, Textiles and Wearing Apparel, Leather and Leather Products, and Wood and Wood Products. The report took into consideration the information available to the Raw Materials Research and Development Council (RMRDC) and a number of Government and Non-governmental Institutions such as Ministries of Industries and Agriculture, Central Bank of Nigeria, Forestry Research Institute of Nigeria (FRIN), Sawmill and Forestry Utilization Centre (SAFUC), Forestry Management and Evaluation Co-ordination Unit (FORMECU), Manufacturers Association of Nigeria (MAN), etc. For more details, it is pertinent to refer to the individual reports as presented by the national consultants.

In its innovative approach, the report embraced the whole spectrum of these sub-sectors, covering its history, performance, problems and support programme to improve on the sub-sectoral growth.

The overall objective of the report is to appraise the various sub-sectors with the prime purpose to define national policy for the use of the resources endowment. It is expected that the recommendations on the appropriate policies if adopted and implemented can help towards achieving a stable manufacturing production and overall industrial growth.

The draft-consolidated report contains six (6) chapters. Chapter 1 reviews the Nigerian Industrial Sector with particular emphasis on its characterization, performance and raw materials development and utilization.

Chapter 2 presents in a nutshell, an in-depth appraisal of the Food and Beverages sub-sector of the Manufacturing Industry in Nigeria, noting the present situation in respect of physical infrastructure, non-physical infrastructure, sustainable development parameters, problems and constraints, recommendations and inputs required for formulation of support programme.

The same structure of presentation is adopted in Chapter 3 to 5, while chapter 6 reviewed the government policies on industrial development in Nigeria. The macro-economic performance of the economy is discussed alongside with the review of the industrial policy. Efforts were made to identify institutional framework and support programme capable of funding the proposed Resources Endowment Study of Nigeria.

This draft consolidated report captures the findings from the reports of four national experts, namely P.O. Ogazi (Food Processing), P. Nkeonye (Textiles and Clothing), B.B. Dashe (Leather and Leather Products) and F.A. Faleru (Wood and Wood Products), with the supervision of the Nation Expert Co-ordinator, A.A. Aliyu. The immense contributions of the International Project Co-ordinator Mr. P. Bauchau helped in harmonizing the terms of reference and formulation of the support programme.

The assistance rendered by the UNIDO Country Director, Anton Sarbu, and the programme officer, A.O. Ajani facilitated the successful completion of the study.

EXECUTIVE SUMMARY

Nigeria is immensely endowed with diversified natural resources capable of sustaining manufacturing production and its teeming population. Ironically, these resources are not fully utilized for the overall economic development and growth of the country.

It is therefore obvious to appreciate why it is necessary to embark on resource endowment study to identify these resource potentials and proffer strategies and policy initiatives that will help to promote the development and utilization of these resources to the benefit of the Nigerian people.

The industrial development strategies adopted by the country in the past three decades include the import substitution and export-led industrialization strategies. The failure of the import substitution resulted in the adoption of the export-led industrialization strategy currently being implemented.

Further efforts at promoting the industrialization of the country led to the establishment of intermediate and capital goods industries to produce inputs for the manufacturing sub-sector. Such industries include the iron and steel plants, machine tools, refineries, petrochemical, sugar and paper mill plants.

The failure of these strategies resulted in slow pace of industrial development and growth, low level of capacity utilization and local sourcing of raw materials, poor investment climate, deteriorating state of machinery and equipment. Invariably, there was massive disinvestment, collapse and closure of many industries.

Efforts at addressing these problems led to a shift in government policies through the adoption of industrial master plan (IMP), guided de-regulated industrial development strategy (DIDS).

These efforts coupled with macro-economic policies initiated in 1995 and implemented to date brought some improvement in manufacturing production, exchange rate stability, reduction in inflationary rate and stable interest rate. This development made economic planning fairly easier with anticipated positive results. Equally, the real GDP that fell from 1985 to 1995 improved slightly as a result of the macro-economic policies put in place and sustained by government.

Despite the recorded improvement, capacity utilization across the sub-sectors of the manufacturing industry has been oscillating between 50 per cent and less. Several factors were identified to militate against improved capacity utilization, which include among others, over-dependence on imported raw materials, low demand for locally manufactured products associated with diminishing purchasing power of buyers and poor state of physical infrastructure.

PHYSICAL INFRASTRUCTURE

Poor state of physical infrastructure has been identified as one of the major factors affecting the industrial growth of the Nigerian economy.

The huge investment made in the provision of infrastructural facilities such as water, electricity, telecommunication, seaports, roads and railway system have not kept pace with the expanding population and economic activities.

Most industries rely on generating their own electricity, as supply from the national grid is not sustainable. Equally, industries sink water boreholes, thereby increasing investment cost. The findings from the study report showed that the capital value of private investments on facilities constitute about 10 per cent of total value of machinery and equipment in large firms and about 25 per cent in small firms. In all cases, expenditure on electricity is higher than that on boreholes.

Government is making concerted efforts towards improving the state of infrastructures in the country through the Petroleum Trust Fund Programme, and the establishment of export processing zones. Also, Government established Technology Business Incubator Centres (TBIC) through the Federal Ministry of Science and Technology as a way of promoting technology and entrepreneurship. Infrastructures were provided at these centres.

Status of other supportive physical infrastructure, such as availability of agricultural raw materials input to manufacturing, showed that the agro-allied industries were able to source up to 60 per cent of their raw materials locally. The most favoured sub-sectors of the manufacturing industry include; food and beverages, textiles and clothing, leather and leather products, and wood and wood products.

The status of plant and machinery required for processing the raw materials into industrial input revealed that significant number of the machinery are imported. With the exception of the Food and Beverages where some level of progress was recorded in terms of local fabrication of processing equipment, in all others, processing equipment are still being imported.

Furthermore, there were minimal Research and Development (R&D) activities in the manufacturing industries. Apart from the established government institutions with mandates to carry out research in relevant fields, majority of the industry do not carry out research or sponsor research in the existing institutions.

There is therefore, an urgent need to improve on the research facilities of the research institutions in the country and to encourage greater linkage between industry and research institutions. Equally needed is a national framework to improve on capacity building through human resources development.

It is pertinent to note that considerable efforts have been made in recent times to improve on certain basic facilities through policy initiatives. These include; improvement in availability of agricultural and industrial land, distribution facilities, storage facilities, transportation facilities, telecommunication system and banking facilities. Although the impact of these efforts is slow to manifest, it is believed that if the efforts are sustained over time, considerable progress is likely to be achieved in all sectors of the economy.

NON-PHYSICAL INFRASTRUCTURE

The non-physical infrastructure appraised include information system, banking and financing policies, import and export policies, labour policies, educational policies and technical maintenance services.

Generally, in all the four manufacturing sub-sectors studied there is lack of co-ordinated and organised information system necessary for industrial planning among the manufacturers. However, the available information on industry comes from government sources such as Federal Office of Statistics (FOS), Central Bank of Nigeria (CBN) and Raw Materials Research and Development Council (RMRDC).

The need for sub-sectoral linkage through information network was identified as a necessary step towards healthy information flow and for sectoral planning.

There is adequate banking and financing policies to cater for the financing needs of the manufacturing industry. However, the domestic financial distress experienced in the past 3 years made access to credit facilities and investible funds difficult. Government has taken measures to sanitize the banking system and improve on their performance. Considerable number of new investments were recorded in the Food, Textile and Leather sub-sector in the past three years as more industries were established.

Government in pursuance of its export-led industrialization strategy, enunciated policy measures and established institutional frameworks for their implementation and promotion of export incentives in Nigeria. Also, tariff regime was reviewed from time to time to encourage import of plant and machinery, and raw materials that are critical to the manufacturing industry.

Technical maintenance services in all the four sub-sectors deserves serious consideration as most of the industrial machineries and equipment imported lack requisite local spare parts for their maintenance. Constraints to maintenance of plants and machinery ranges from non-availability of spares to lack of skilled and dedicated technical staff.

SUSTAINABLE DEVELOPMENT PARAMETERS

The management of waste and energy in the manufacturing industry has not been quite encouraging in the past until recently, when government established institutional framework for environmental impact assessment and policies on energy management.

The agro-industry is characterized by intensive production of agro-wastes. Of the 200 industries surveyed in the country, 18 per cent undertake minimal waste management activity such as recycling or treatment before disposal. The status of waste generation according to a study showed that the largest generators of solid wastes are the steel, food processing and tanneries accounting for 92 per cent of industrial solid wastes.

The persistent energy problem in the country was identified to be associated primarily with distribution rather than generation. The poor distribution facilities resulted in frequent power outage and increasing cost of maintenance of plant and machinery in the industry.

Energy development and maintenance cost in the country is high and this call for a total review of the energy management policy with the view towards planning for more efficient means for energy utilization.

PROBLEMS AND CONSTRAINTS

While it is obvious from sub-sectoral assessment that each sub-sector has its peculiar problems and constraints, it was observed that the following common issues cut across the four sub-sectors analysed.

- Poor industrial facilities to sustain meaningful manufacturing production.
- Substantial shortfall in the supply of local raw materials and other industrial inputs.
- Poor state of road networks in the country and lack of access roads to the rural areas.
- Low density of telecommunication facilities.
- Lack of authentic and reliable information and data on manufacturing production.
- Inadequate facilities for R&D and training in addition to poor industrial research focus in the existing government research institutes.
- Incessant machine breakdown and down time as a result of lack of adequate technical maintenance services.
- Lack of adequate waste treatment facilities and cost of establishing such facilities.
- High energy cost and inadequate supply of fuel energy (petroleum products).

RECOMMENDATIONS

The recommendations made are sub-sector specific, nevertheless, attempt is made to present common recommendations on how best to improve on the existing structures.

- Government should upgrade the standard of infrastructural facilities in the country by at least investing about 2.5 per cent of the GDP on infrastructure development. Assistance should be sought from World Bank and Development Institutions.
- There is an urgent need to carry out a national study to:
 - (i) Determine the state of industrial facilities in the country.
 - (ii) Determine the state of equipment/machinery in the manufacturing sub-sector with the view to planning for equipment/machinery standardization.
 - (iii) Audit the energy requirement in order to plan for energy management and promote energy efficient technology and manufacturing.
- Government should expedite action in completing the National Core Industrial Projects, like the Iron and Steel and Petrochemical Projects.
- There is need to establish without further delay, the national industrial data bank.
- The current macro-economic stability achieved in the past three years should be maintained.
- Government should continue to support and encourage all the institutional frameworks put in place to promote and implement export/import policies.
- There is urgent need to provide for adequate training and research facilities, and funding of research in research institutes and higher institutions of learning.
- The private sector should be mobilised and induced to support R&D in higher institutions and research institutes in the country.

INPUTS FOR FORMULATION OF SUPPORT PROGRAMME AND FUNDING

The study report identified an array of project titles that could be adopted for funding, which are perceived as critical to the sectoral development and growth. These project titles are listed under each sub-sector.

The funding of the support programme was examined and the following institutions with mandate relevant to the proposed resource endowment study were identified as possible sources of funding.

- Raw Materials Research and Development Council (RMRDC).
- Family Economic Advancement Programme (FEAP).
- Federal Ministry of Industries (FMI).
- Federal Ministry of Agriculture (FMA).
- National Risk Fund.
- National Economic and Reconstruction Fund (NERFUND).

UNIDO is expected to collaborate and support the funding of the support programme through various UN-system initiatives for industrialization in Africa.

NATIONAL RESOURCES ENDOWMENT STUDY OF NIGERIA

CHAPTER 1

NIGERIA'S INDUSTRIAL SECTOR

1.1: INTRODUCTION

Nigeria is blessed with diversified natural resources such as agricultural, solid mineral and petroleum resources. The country is equally endowed with large internal market associated primarily with its large population of over hundred million people.

Despite these enormous resources and the market size necessary for industrial growth, the Nigerian economy had undergone a chequered history of development spanning into four decades.

1.1.1 Industrial Development Strategies

Dating as far back as 1962, the country had had four national development plans. The two main strategies advanced and adopted for the industrialization of the country are the import substitution and the export-led industrialization strategies.

When the import substitution failed to make considerable impact, the export-led strategy was adopted. Although this strategy promises immense economic benefits to the nation, inability to re-orient industry towards the export market is posing a serious constraint to the success of this strategy.

Within the past decade, in fact by mid 1980, about 80% of industrial raw materials and 100% of machinery and spare parts were sourced offshore.

Further efforts at industrialization led to the establishment of intermediate and capital goods industries to produce inputs for the manufacturing sub-sector. Such industries include iron and steel plants, machine tools company, refineries and petrochemicals, pulp and paper, and sugar plants. These industries are termed "National Industrial Core Projects."

These strategies did not bring to bear, the desired impact to the economy as not much was achieved in terms of general growth of the economy improved standard of living, reduced inequality with respect to income and integrated rural development.

The strategies adopted were to a significant extent constrained by a lot of factors such as:

- Problems associated with sourcing of most industrial inputs;
- High import bills for machinery, spare parts and raw materials;
- Dwindling foreign exchange earnings, mainly from crude oil;
- Lack of sustainable means of generating foreign exchange outside the export of crude oil;
- High interest rate, hyper-inflationary rates and poor exchange rate;
- Lack of maintenance culture and slow pace of indigenous technology development;
- Lack of efficient and adequate infrastructural facilities;
- Lack of financial discipline and efficient management capacity to run government owned industries and public enterprises and;
- Inconsistencies in government policies.

The consequences of the aforementioned constraints include slow pace of industrial development and growth, low level of capacity utilization, poor development of local raw materials as input to manufacturing, poor investment climate, dis-investment and deteriorating state of factory equipment and machinery. These factors, among others contributed significantly to closure and collapse of many industries in the country.

In 1985, Government in attempt to move the economy forward, embarked on a policy shift in her industrialization efforts. The primary aim of this policy shift was to internalise the engine of industrial growth through local sourcing of raw materials and achievement of industrial self-reliance.

The shift in policy is clearly highlighted in the Industrial Master Plan (IMP), otherwise known as Strategic Management of Industrial Development (SMID). The objective of the new industrial policy is to achieve an accelerated pace of industrial development with the industrial sector as the prime mover of the economy. The elements of the objective include:

- Provision of greater employment opportunities;
- Increased export of manufactured goods;
- Dispersal of industries;
- Improving technological skills and capability in the country;
- Increased local content of industrial output;
- Attracting foreign investment capital and;
- Increased private sector participation in manufacturing.

Furthermore, government attached very high priority to industrial development as a veritable means of generating employment, achieving balanced and even development, technology development and adaptation, increased use of local resources and diversification of the productive base.

The government in 1994 embarked on measures such as guided De-regulated Industrial Development Strategy (DIDS) as part of its determined effort to industrialize the country. This measure was aimed at:

- Co-ordination of fiscal and monetary policies to ensure macro-economic stability;
- Stimulation of higher economic growth and development;
- Attainment of balance of payment equilibrium;
- Attainment of price stability and continued reduction in the rate of inflation;
- Attainment of financial discipline, fiscal transparency and prudent management of resources and enterprises.

For the past two years, improvements were recorded in index of manufacturing production. This development is associated with the stable economic policy initiated in 1995 and implemented till date. Also, exchange rate to foreign currencies has remained stable thereby making production planning fairly easier. Inflationary rate was brought to a single digit, which is necessary for sustainable development.

1.2 CHARACTERISATION AND PERFORMANCE OF INDUSTRY IN NIGERIA

The industrial sectors of the economy comprise of manufacturing, mining, energy and construction. The Nigerian manufacturing sub-sector has over the years grown in absolute terms, as measured by the volume of manufactured output, total employment, etc. However, this growth was fuelled by over dependence on imported inputs, including raw materials, machinery and equipment, technology and even human skills. Local value-added to manufacturing was very low.

Manufacturing production, post Structural Adjustment Program (SAP) has undergone some changes. The index of manufacturing production for instance, rose from 78.6 in 1986 (1985 = 100) to 154.3 in 1989 and further to 178.1 in 1991.

Equally, the value of manufactured exports increased from \$24.9 million to \$92.9 million in 1992. This improvement could not be sustained till 1995 due mainly to the political problems experienced by the country within this period.

Nevertheless, by 1996 manufacturing production rose marginally by 1.0 per cent as against 3.4 per cent annual rate of decline experienced between 1992 to 1995. The moderate growth rate of 1.0 per cent achieved during the year was significantly below the target of 5.9 per cent set for the sub-sector in 1996 – 1998 National Rolling Plan.

This level of progress notwithstanding, the industrial sector is still characterized by inefficiency and low productivity attributable to its inward looking nature, exclusive public sector ownership of core industrial projects, weak technological base, lack of linkages and infrastructural support. Consequent upon these, the economy is currently experiencing inadequate investments, high production costs and rising product prices that made locally produced goods uncompetitive.

The greater emphasis on private sector participation in the industrial development of the country is expected to bring about expansion of manufacturing production, promote linkages within industry and between industry and the rest of the economy. There is no doubt that linkages will help to accelerate development and utilization of local raw materials; strengthening of engineering and technological capabilities to boost intermediate and capital goods production. The rehabilitation of core industrial projects will help to produce inputs required by the down stream industries.

Furthermore, Government de-emphasized its involvement in setting up and managing enterprises by enunciating policies for the privatization and commercialization of public enterprises in Nigeria.

1.2.1 Capacity Utilization

Capacity utilization has often been used as an index to measure growth or performance of the industry. The industrial capacity utilization from survey reports showed that over the years, the level of capacity utilization has fluctuated from the highest level of 74 per cent recorded in 1970/71 to 27.2 per cent in 1995 (Table 1.1). Equally, real GDP has fallen from 1985 to 1995, even though there are indications that improvement could be recorded through the macro-economic policies put in place and sustained till date by government.

Table 1.1 **NIGERIA: ECONOMIC INDICATORS FOR SELECTED YEARS**
(PER CENT)

<u>YEAR</u> <u>GDP</u>	<u>RATE OF</u> <u>INFLATION</u>	<u>CAPACITY</u> <u>UTILIZATION</u>	<u>GROWTH IN</u> <u>REAL GDP</u>
1960	6.0	70.0	4.8
1970	13.8	74.0	5.7
1971	15.6	74.0	6.2
1975	33.9	60.0	6.0
1979	9.9	54.4	1.5
1980	20.9	70.1	-0.8
1983	23.2	47.8	6.7
1985	5.5	42.7	-3.4
1987	10.2	40.4	4.2
1992	44.5	39.0	3.6
1993	57.2	36.2	2.9
1994	57.0	29.0	1.0
1995	72.0	27.2	2.7

Source: CBN Economic and Financial Review Vol. 35, March 1997. No. 1

Generally, the performance of the manufacturing sub-sector as assessed by the level of capacity utilization of some industrial groups differed markedly between the groups. For instance, Table 1.2 shows the performance of the industrial sub-groups, classified according to their level of capacity utilization in 1992 and 1993. It is important to note that textiles, leather products, wood and cork products and basic metals proved to be strong as they operated at above 50 per cent capacity utilization. While a lot of sub-groups were operating at slightly below 50 per cent capacity, the Television, Radio and Motor Vehicles assembly had a capacity utilization of less than 20 per cent. Meat and dairy products, printing and publishing, which recorded slightly moderate figures, had an average performance in 1992 compared to 1993.

The factors that contributed to the poor performance varied from one sub-group to another. In a survey carried out in 1992 by the Raw Materials Research and Development Council, the most common reasons given by manufacturers for low capacity utilization included the following:

- Over-dependence on imported raw materials;
- Breakdown of plant and machinery, due to old age;
- Lack of spare parts, due to shortage of foreign exchange;
- High production costs;
- High tariff on utilities, especially electricity;
- High interest rate on lending,
- Competition from imported goods;
- Inadequate working capital;
- Low demand for manufactured products due to diminishing purchasing power of buyers.

Added to these problems was the political crisis of 1993/94, which led to a lot of the manufacturing firms closing down. The trend in low capacity utilization persisted up to 1997. The manufacturers were therefore, saddled with inability to dispose of their products.

On a positive note, there are indications that efforts at local sourcing of raw materials has remained fairly stable as more than 50 per cent raw materials utilized by the manufacturing sub-sector is sourced locally (Table 1.3)

Although a low level of capacity utilization had been experienced over the years, efforts at local sourcing of raw materials across manufacturing sub-sector are increasing. It seems logical to reiterate that the low level of capacity utilization does not correlate with the substantial improvement at local sourcing of raw materials (Table 1.4)

TABLE 1.2: Capacity Utilization of Manufacturing Sub-Groups (1992 – 1993)

AVERAGE & ABOVE (50-100 per cent)	SLIGHTLY AVERAGE (40 – 50 per cent)	BELOW AVERAGE (20 – 40 per cent)	VERY LOW (below 20 per cent)
Textiles (61)	Meat & Dairy Products (48)	Bakery Products (30.0)	T.V & Radio (15.2) & Communication
Leather Products (56)	Structural Metal (47)	Grain Milling (20.0)	Motor Vehicles Assembly (2.5)
Wood & Cork Products (65)	Paper Manufacture & Allied Products (47)	Fabricated Metal Products (39.8)	
Basic Metals (50)		Knitting, Carpets And Rugs (38.2)	
Chemicals & Petroleum Products (73.2)	Cement (42.1)		
	Pharmaceutical (42)	Soft Drinks (35.4)	
Basic Industrial Chemical (58.3)	* Printing & Publishing (40.0)	Cocoa Confectionery (35.5)	
	Footwear (40.0)		
Food Processing (58.5)	Sugar & Confectionery (40.0)		
	Tyres & Tubes (46.6)		
	Glass & Glass Products (45.9)		
	Paints (44.5)		
	Soaps & Perfumes (41.6)		

SOURCE: Central Bank of Nigeria (CBN) ANNUAL REPORT

** 1993 Figures.*

Table 1.3 Percentage Local Sourcing of Raw Materials by Manufacturing Sub-Sectors, 1990 – 1995

S/No	Sub-sector	1990	1991	1992	1993	1994	1995	1987 – 1995 Sub-sectoral Average
1.	Food, Beverage and Tobacco	65.81	57.46	67.07	63.61	39.60	62.96	60.58
2.	Wood & Wood Products Inc.	-	90.00	81.25	79.00	57.24	90.00	82.96
3.	Non-metallic Mineral Products	76.00	80.07	72.71	65.56	51.90	72.74	72.06
4.	Textile Wearing Apparel & Leather	73.50	62.30	67.01	67.96	57.20	67.24	62.65
5.	Chemicals & Pharmaceutical	44.95	47.10	40.52	46.52	44.10	43.73	43.94
6.	Domestic & Ind. Plastic & Rubber	35.02	43.50	43.82	30.23	46.10	52.60	37.91
7.	Basic Metal, Iron & Steel, & Fab. Metal	25.59	31.88	43.03	43.27	35.00	55.74	37.30
8.	Motor Vehicle & Misc. Assembly	23.88	37.50	37.42	41.10	30.80	43.35	37.16
	Yearly Average	49.25	56.23	56.60	54.66	45.23	51.78	

Source: Manufacturers Association of Nigeria (MAN), Quarterly Reports

TABLE 1.4: Comparative Analysis of Capacity Utilization and Local Sourcing of Raw Materials in Manufacturing Sub-Sector (1987 – 1995)

Sub-Group	Sectoral Average Capacity Utilization	Sectoral Average Local Sourcing
Food, Beverage and Tobacco	35.00	60.58
Wood and Wood Products	40.34	82.96
Non-Metallic Mineral Products	38.60	72.06
Textile, Wearing Apparel and Leather	42.69	62.65
Chemical & Pharmaceuticals	31.97	43.94
Domestic & Industrial Plastic and Rubber	41.39	37.91
Basic Metal, Iron & Steel	27.06	37.30
Motor Vehicle & Assembly	26.44	37.16

SOURCE: *Manufacturers Association of Nigeria (MAN) Quarterly Report.*

1.2.2: Industrial Facilities

It is well known that the successful implementation of any industrial policy is hinged on the provision of adequate and functional physical infrastructures. Poor infrastructural facilities have earlier been identified as one of the major factors hindering the industrial growth of the Nigerian economy.

Infact, a huge investment had been made towards the provision of infrastructural facilities such as water, electricity, telecommunication, airports, roads, and railway system. However, these investments have not kept pace with the expanding population and economic activities. What is on ground at present is far from supporting meaningful and sustainable industrial activities. Most industries rely on generating their own electricity because supply from the national grid is not sustainable. Equally, industries sink water bore-holes thereby increasing investment cost.

The capital value of private investments on facilities constitutes about 10 per cent of total value of machinery and equipment of large firms and 25 per cent for small firms. In all cases, the expenditure on electricity was higher than that on bore-holes, almost four times.

Current efforts on road rehabilitation, energy distribution and other infrastructures through the Petroleum Trust Fund Programme of the Government will help in improving industrial facilities.

Equally contributory to the development of sustainable industrial infrastructure, is the establishment of export processing zones in the country as adequate facilities are to be provided. It is hoped that entrepreneurs will take advantage of this recent development and invest in the economy. Also, the existing industrial facilities provided through the establishment of Technology Business Incubator Centres (TBIC); is complementary to other efforts earlier mentioned. Presently, there are about four such centres located at Lagos, Kano and Aba. The centres are expected to nurture the start-up and growth of new businesses engaged in value-added manufacturing.

CHAPTER 2

FOOD, BEVERAGES AND TOBACCO

2.1 INTRODUCTION

The Food, Beverages and Tobacco (FBT) is one of the ten sub-groups of the manufacturing sub-sector of the economy. This sub-group is perceived as one of the largest Nigerian's manufacturing sub-sectors that is dependent significantly on agro-based raw materials.

The agro raw materials cover about 52 key primary raw materials and derivatives of secondary and tertiary forms.

The major manufacturing activities within the FBT include cereal and grain processing, vegetable oil and oil seeds, sugar, coffee, tobacco, roots and tubers, fruits and vegetables, livestock and allied products, poultry products, beverages, fish and fish products, and confectioneries.

The industrial performance of the food, beverage and tobacco, though similar to other agro-related industries, showed that considerable impact had been made to the national economy. When compared with other sub-groups of the manufacturing sub-sector, capacity utilization has been fairly constant at an average of 35.0 per cent over the past ten years. Infact, the sub-group performed fairly well in terms of local sourcing of raw materials within the period under review. This performance is associated with the ability to source some of the manufacturing inputs locally, more especially, agro-related raw materials.

2.2 PHYSICAL INFRASTRUCTURE

The physical infrastructure requirement include among others, industrial facilities earlier discussed. Generally, poor infrastructural facilities have affected manufacturing production in the FBT sub-sector.

Agricultural inputs used as raw materials significantly affect the level of production activities in Food, Beverage and Tobacco sub-sector.

The brewery and beverage industry significantly substituted sorghum/maize for barley in larger beer and malt drink production. Progress was made in producing locally, milk analogue from soyabeans, corn syrup and caramel, non-wheat composite flour, starch as thickener and cereal conversion plant for syrup. There are potentials for substitution of imported inputs in this sub-sector. The details of raw materials requirement and the extent of local sourcing are given in the main report.

The processing of agro-raw materials as input to food production had for long been done with imported machinery. However, due to the inability to source foreign exchange to import these equipment and machinery, a lot of efforts were made to produce some basic equipment locally for the processing of agro-raw materials. Most of the equipment being produced are either small scale or medium scale as the expertise for large-scale equipment manufacture is lacking.

The constraints to the fabrication of process equipment include; lack of capital, workshop/factory facilities, infrastructure/essential services, high cost of imported inputs such as flat sheets, prime movers, etc.

There are about 15 research institutes with mandates relevant to the food industries. The food sub-sector is one of the sub-sectors with visible research activities both at industrial and institutional levels.

Most of the agro-related research activities are targeted at specific mandates, which include among others: -

- Genetic improvement of crops and livestock, fisheries and forestry products;
- Improvement of production techniques in terms of husbandry and harvesting equipment;
- Improvement of processing technologies for the transformation of primary agricultural raw materials into industrial input.

The major constraints to R&D in Nigerian Research Institutes include:

- Lack of adequate funding, which is less than 0.02 per cent of the GDP;
- Gross inadequacy of facilities for research and training.

The identified gaps in research and training in the sub-sector include areas such as:

- Equipment design and fabrication with respect to secondary food processing, equipment manufacture, process and product development;
- Manpower for training intermediate/artisans technicians in equipment fabrication.

There is the need for capacity building through human resources development.

2.2.1 OTHER PHYSICAL INFRASTRUCTURE

Agricultural Land

Nigeria has about 92.4 million hectares of land of which 75 per cent hectares are viable for agriculture. Of this, only 34.0 million hectares are under cultivation, the rest are unutilised. Land tenure systems have always made land unavailable both for agriculture and industry.

The climatic conditions of Nigeria favours the growth of considerable number of crops such as cocoa, cotton, groundnut, palm oil, rubber, timber, millet, sorghum, cowpeas, soyabeans, maize, yam, cassava and rice. Equally favoured, is animal husbandry, for which there are about 13.9 million cattle, 22.1 million sheep and 34.5 million pigs.

One of the major constraints to availability of land for agricultural production is increasing soil degradation and erosion. This development results in reduction in yield of the soil per unit land area.

Distribution facilities

The major agricultural activities in the country are carried out in the rural areas, while the processing facilities are in the urban centres. There is lack of efficient distribution facilities to move agro-raw materials from the rural areas to the urban centres. For instance, transportation facilities, telecommunication system, etc, are concentrated in the urban centres. Access road to rural communities producing agricultural crops is not there, consequently, most perishable agro-produce such as fruits and vegetables are destroyed before they get to the urban centres.

An attempt to address this problem through the establishment of a Directorate for Rural Roads and Infrastructure (DFRRI) was abandoned not too long after it was established. There is need to integrate urban development with rural development, more especially in promoting the establishment of resource based cottage/small scale enterprises.

Storage Facilities

From various survey reports, it has been established that the country lacks adequate storage facilities. The few strategic grain reserves in the northern part of the country are not enough to sustain grain storage to meet both domestic and industrial needs. Lack of adequate storage facilities brings price distortions in the marketing of agricultural produce, as they are cheaper during season and expensive off-season.

The problem posed by inadequate storage facilities made government to give special attention to it in its agricultural policy. The prime focus is to enhance inter-seasonal and inter-yearly food price stability and ensure higher food security for the nation through efficient food storage programmes.

Generally, there is lack of appropriate technologies for storing agricultural produce in the country as indigenous technologies are confined to storage of food crops mainly.

The absence of adequate storage facilities has also denied small scale enterprises from having access to agro raw materials at reasonable prices as Trans-National Enterprises often buy the commodities during season and store them in warehouses to be utilized at off-season.

Transportation Facilities

Over the years and within the National Development Plan, Government made efforts to develop its transportation facilities, which include roads, seaports and airports. While the road network is increasing, it is not enough to meet with developmental needs of the country. Most of the roads are in a deplorable condition.

A World Bank report estimated that 30 per cent of the 32,100km Federal roads, 40 per cent of the 30,500km State roads and 75 per cent of the 130,600km of the Local Government roads are in poor conditions. Current efforts through the use of Petroleum Trust Fund to rehabilitate these roads are expected to address this problem. Greater emphasis is needed in the area of rural road development.

Most of the seaports require rehabilitation to make them capable of handling the increasing volume of commercial activities. With the current drive towards the promotion of exports from non-oil sector, mainly agro based produce, there is need to improve on the current state of the sea ports and airports facilities.

Telecommunication system

Considerable efforts have been made to develop the telecommunication system in Nigeria in the past three decades. By the end of the fourth National Development Plan (1980 – 1985), the number of telephone lines had increased from 241,000 to 270,000. Further efforts by the Nigerian Telecommunication Limited (NITEL) brought the lines to 370,000.

However, the increase in the number of telephone lines could not correlate with the rapid growth of the population put at 3.0 per cent per annum.

In fact, the telecommunication facilities are still below the recommended 1:100 Tele-density by the International Telecommunication Union (ITU). The present Tele-density in Nigeria is 0.7 per cent, that is, a telephone line to 700 people instead of 100 as recommended.

Recognising this shortfall in telecommunication facilities, government embarked on the deregulation of the industry in order to make it more competitive. So far, the network facilities have improved tremendously to include:

- (i) 195 local telephone exchanges of 55 digital and 140 analogue systems.
- (ii) Trunk connectivity of 57, 402.
- (iii) Trunk transit exchanges, 48 primary centres, 11 digital, and 37 analogue (inclusive of digital secondary centres).
- (iv) Installed capacity of 624,018.
- (v) Telex capacity of 15,000 lines and connected capacity of 6,843 lines.
- (vi) 143 Inmarsat Terminals and 19 domestic satellite earth stations.

The Government is further promoting private sector participation in the development of the telecommunication industry in Nigeria.

Banking Facilities

The banking facilities are considerable and consists of about 115 Commercial and Merchant Banks, 970 Community banks, 280 Primary Mortgage Finance Companies, 300 Finance Companies, 4 Development banks and 1 Stock Exchange (with six regional trading houses). A second Stock Exchange Centre is planned for the federal capital, Abuja.

The partial collapse of the Banking Industry by mid 1990's affected banking activities in the country as a lot of the banks and finance houses closed down. Government however, initiated stringent measures to sanitize the banking industry. This include among others, the enunciation of a decree in 1994 to ensure the recovery of debts owed to failed banks by individuals and corporate bodies.

2.3 NON-PHYSICAL INFRASTRUCTURE

2.3.1 Information System

Information is a veritable means of monitoring performance of industry, promoting, investment and development of local resources.

The Food, Beverage and Tobacco sub-sector like other sub-sectors of Manufacturers Association of Nigeria (MAN) lacks well-organised and co-ordinated system of collection, processing, storage and dissemination of industrial information and data.

Consequently, there is an identified need to document the various aspect of manufacturing activity within the sub-sector so as to enhance industrial planning. The information presently stored by various government institutions like Central Bank of Nigeria (CBN), Federal Office of Statistics (FOS), etc; should be made available to the public timely, as it will encourage proper use of data and information. The need for sub-sectoral linkages through information network has been identified, as it is necessary for healthy information flow and for sectoral planning.

The characterization of the FBT sub-sector shows that there are many small/medium scale manufacturing units without requisite capital base to invest on information system development. Invariably, only the large profit-making manufacturing outfits can actually embark on information network development.

It is worthy to mention that a well-established information system will contribute to the structuring and development of an industrial data bank. The industrial data bank, shall contain information on raw materials, products, factory and technology profiles. The information could be updated yearly based on information from factory profiles and other sources. This effort will help to facilitate the establishment and efficient functioning of the proposed National Data Bank.

2.3.2 Banking and Financing Policies

The banking and financing policies cut across all sub-groups of the manufacturing sub-sector. Over the past 16 years, a lot of policy measures and initiatives were undertaken to revamp the economy by restructuring the banking sector. At the onset, policy measures initiated were aimed at reducing domestic financial distress, curtail inflation, and external debts. While these efforts could not yield the much expected removal of the internal economic distortions, steps were taken to enhance the efficient use of financial resources, through institutional reforms in specific sectors, especially trade, finance and industry.

In 1995 – 96, the government embarked on a guided deregulation with the emergence of Autonomous Foreign Exchange Market (AFEM), Open Market Operation (OMO) and the introduction of Value-Added Tax (VAT).

The initiatives yielded specific results as inflation rates declined from 72.8 per cent in 1995 to 29.3 per cent in 1996. Other policy initiatives and measures include:

- Reserves requirements such as cash reserve, and liquidity ratio;
- Stabilization securities;
- Discount window operations;
- Moral situation;
- Interest rate policy;
- Promotion and development of money market;

- Sectoral allocation of credit;
- Grace periods on loans to agriculture;
- Prudential guidelines for licensed banks;
- Capital funds adequacy;
- Increase in minimum paid up capital requirement of banks;
- Bank holding equity in companies.

So far, the efforts of government through the implementation of appropriate policy frameworks initiated over the years have brought sanity to the banking sector.

2.3.3 Import and Export Policies

Nigeria's trade policy as it relates to external trade is an extension of her foreign policy. Nigeria adopts a non-discriminatory posture while trading with other countries of the world.

Government has realised that the continuous dependence on crude oil export is one of the major constraints to the growth of the economy. Consequently, measures were taken to come up with policies that will help to diversify the economy by encouraging investment in the export of non-oil resources.

In this light, export incentives were given as stimulus for the development of non-oil export. In order to ensure that all policy measures and initiatives are effectively implemented, various institutional frameworks were established such as the Nigerian Export Promotion Council (NEPC), Nigerian Export Import Bank (NEXIM), Nigerian Export Processing Zone Authority (NEPZA).

Some of the operational export incentives in Nigeria are as listed below:

- Export expansion grant fund.
- Duty draw back scheme.
- Duty suspension scheme.
- Manufacture-in-bond.
- Pioneer status.
- Capital asset depreciation allowance.
- Rediscounting and refinancing facility.
- Foreign input facility.
- Price guarantee contracts.
- Export liberalisation measures.
- Export processing Zone, etc.

Government, while making efforts to promote export has taken measures towards a flexible import policies. Tariff was reviewed to encourage importation of plants and machinery and raw materials that are critical to manufacturing which the country do not have comparative advantage in producing.

Furthermore, some raw materials and manufactured products have been placed on prohibition list in the 1997 budget announcement. The items relevant to the sub-sector include:

- Vegetable oils excluding linseed and castor oils used as industrial raw materials (HS code 1515.1100, 1515.1900 and 1515.3000).
- Sorghum (HS code 1007.0000).
- Millet (HS code 1008.2000).
- Wheat flour (HS code 1101.0000).
- Maize (HS code 1005.1000 to 1005.9000).

Also, in prohibition list in 1997 are items such as Rice, Yams, Maize, Cassava and Beans. By the announcement of 1998 budget, rice was removed from the prohibition list, however, a higher tariff was placed on its importation.

2.3.4 Labour Policies

Nigeria has a rapidly growing population with increasing unemployed labour force. While a significant number of the labour force can be meaningfully employed in agriculture, the manufacturing and other sectors can equally absorb the rest.

However, the industrial sector has not been able to absorb the considerable number of the employable populace. This trend has led to rural-urban drift as a lot of employable Nigerians migrate to the urban centres in search of job opportunities.

The problem with labour and industrial development of the country is not fundamental to policy issue, rather its implementation. Efforts at implementing the existing policy initiatives in 1996 resulted in the creation of more than 150,000 jobs in the mining sub-sector.

There is no doubt that with the immense resources endowment of the country, the unemployment problem could be solved if investments in the establishment of micro and small-scale enterprises are encouraged.

The various initiatives such as the establishment of the National Directorate of Employment (NDE) and recently, the Family Economic Advancement Programme (FEAP), will go a long way towards realising the objectives of creating job for a considerable number of Nigerians by the year 2000.

2.3.5 Education and Corresponding Policies

Education has always been given priority in government programmes, as it is believed that it is the bedrock for capacity building for national development.

In order to foster adequate training of high level manpower in agriculture, food science and technology, virtually all the 36 universities in the country run academic programmes and graduate students in agriculture, food science and technology.

Apart from this basic training, in service training and refresher courses are organised for workers in the fields of agriculture and food processing. There is adequate staff development programme aimed at:

- Preparing staff for position of greater responsibility and;
- Keeping technical and professional staff abreast of latest development in their respective fields.

Efforts are equally made to support R&D in the area of agriculture and food processing, even though that the financial allocation to such exercise is usually poor.

The major constraint to successful achievement of educational policies in Nigeria is associated with the deplorable and degenerating state of facilities at all levels of education in the country. Suffice to say that most secondary and university/polytechnics lack well equipped laboratories necessary for development of science and technology.

2.3.6 Technical Maintenance Services

Technical maintenance services in the food, beverage and tobacco sub-sectors have been affected by a lot of factors. Most of the industrial machineries and equipment imported into the country for manufacturing purposes lack the requisite local spare parts for their maintenance.

The FBT sub-sector, nevertheless, enjoy some advantage compared to other sub-sectors as some of the machinery/equipment required for agro-raw materials processing can be sourced locally. It is appreciative why the maintenance of these equipment is possible as most of the parts could be sourced locally.

Constraints to the maintenance of plants and machinery ranges from:

- non-availability of maintenance spares locally to
- lack of skilled and dedicated technical staff.

Maintenance culture in the sub-sector could be achieved if efforts are made at promoting the existence of engineering firms with capacity to undertake:

- Design and production of engineering drawings;
- Preparation of patterns for castings;
- Preparation and manufacture of punch and dyes.

It is very important to improve on the availability of standard parts such as:

- Electric motors.
- Hydraulic press.
- Petrol/diesel engines.
- Bearing and clutches.

Equally required are firms rendering specialised services like steel casing, heat treatment and tools manufacture. The development of local expertise in the area of equipment maintenance, need priority attention. For a sustainable sub-sector, necessary maintenance programmes must be initiated and implemented.

2.4 SUSTAINABLE DEVELOPMENT PARAMETERS

The sustainable development parameters in the FBT sub-sector, likewise other sub-sectors, are considered under the waste and energy management situation in the country.

Waste Management Situation and Policies

The agro-industry is characterized by intensive production of waste. The management of these wastes is of great concern in this sector of the economy.

A survey of about 200 industries in Nigeria showed that only 18 per cent undertake basic waste management activity such as recycling or treatment before disposal. This development invariably leads to increase in industrial pollution mainly in terms of solid wastes generation.

The status of waste generation according to a study using Winvent Industrial Waste Prediction Model, revealed that the largest generators of solid wastes in Nigeria are the steel, food processing and tanning industries, accounting for 92 per cent of the industrial solid waste.

The trend in food processing in Nigeria over the past years revealed the establishment of industries without adequate environmental planning, environment conscious design, environment-oriented management consultation and adoption of appropriate technologies

for agro-industrial residue recycling. Consequently, there was increasing tendency to discharge these waste, mainly solid waste to the environment.

In addressing the problem of industrial waste and general environmental problem, an institutional framework was put in place to implement government environmental policies. The Federal Environmental Protection Agency (FEPA) was established in 1988 to carry out among other functions, to implement the various environmental regulations, legislations and acts aimed at ensuring clean and unpolluted environment in Nigeria.

There are constraints identified towards the implementation of the environmental policy on waste management in Nigeria. These include among others:

- Lack of effective co-ordination among the various agencies associated with waste management both at National and State levels;
- Poor monitoring and enforcement associated with insufficient funding;
- Inability of industries to embark on waste management projects due to lack of adequate capital;
- Frequent shift in government policies as it affects industry, etc.

There is need to address these problems by first carrying out an environmental impact assessment study in the food, beverage and tobacco sub-sector. The findings from such a study, will help to plan for better waste management technique.

Energy Management Situation and Policies

The persistent energy problem in the country is fundamentally linked to its distribution rather than generation. The poor distribution facilities resulted in frequent power outage and increasing cost of maintenance of plant and machinery in the industry.

The greatest problem affecting energy management, apart from the generation and distribution, is the excessive wastage currently being experienced in all energy supplies. Nigeria has about 5 giga watts of installed energy capacity that serves a power market of less than 2 giga-watts. This is a pointer to the fact that there is no efficient energy management system.

Poor energy planning results in costly investment in excess energy generation capacity to the detriment of investment in distribution facilities and maintenance. Energy development and maintenance cost in the country is high.

This situation calls for a total review of the energy management policy with the view to planning for more efficient means for energy utilization. In essence, there is urgent need to adopt energy efficient technologies in manufacturing.

Furthermore, it has been identified that inappropriate pricing system contributed in no small measure, towards energy mis-management. Under pricing of electricity and other

energy products like petroleum products, will definitely encourage uncontrolled higher consumption.

In the food sector, it has been established that there is inadequate energy management programmes aimed at enhancing energy savings.

There is no doubt that sustainable pattern of energy supply and utilization would make it possible for an increase in productivity, improvement in production and services necessary for self-reliance. This requires proper planning and the initiation of appropriate policy framework and strategies.

Planning should address the issue of establishment of energy efficient manufacturing industries and energy auditing. Auditing of energy is an important aspect of energy management programme for industries as it will lead to complete appraisal of such inputs as temperature and pressure distribution, efficiency of fuel burning, volume and mass flows, moisture content, composition of furnace atmosphere, etc.

The long-term strategy recommended for adoption is aimed at rural energy development and utilization. In this regard, there is the need to exploit renewable sources of energy and embark on such as, solar, wind and small-scale hydro-electricity projects. This, will no doubt provide sustainable electricity supply and make impact on agriculture and rural food processing enterprises.

2.5 PROBLEMS AND CONSTRAINTS

While some of the problems and constraints have been identified and discussed in the main report, attempt is made to list the major problems and constraints to the industrial growth of the food sub-sector.

- Poor industrial facilities to sustain meaningful manufacturing production.
- Substantial shortfall in the supply of local raw materials.
- Lack of requisite human capacity as well as material resources required for R&D activities in the sub-sector, more especially, in the area of process development and plant/machinery design.
- Inadequate utilization of agricultural land and resources.
- Poor storage facilities for agricultural produce.
- Poor state of road networks in Nigeria and lack of access roads to the rural areas.
- Low density of telecommunication facilities.
- Lack of authentic and reliable information and data on manufacturing production in the country.
- Inadequate facilities for R&D and training and poor research focus in the existing institutions.
- Incessant machine breakdown and down time as a result of lack of adequate technical maintenance services.
- Lack of adequate facilities for waste management in the sub-sector and the increasing cost of establishing waste treatment facilities.
- High tariff on energy and its incessant supply to the manufacturing industry.

2.6 RECOMMENDATIONS

1. There is the need for a national study to:
 - determine the state manufacturing capacity and competitiveness in Nigerian industries;
 - determine the state of equipment/machinery in the sub-sector with the view to planning for equipment/machinery standardization as it will facilitate the development of machine spare parts industry in the country;
 - audit the energy requirements in order to plan for energy management and promote energy efficient technology and manufacturing;
 - adequately classify the land in the country by the Land Survey Department. This is to ensure adequate and sustainable partitioning of land use in the country and to prevent as much as possible, deforestation and more importantly, formulate sound and effective land use policies;
 - evaluate the nature, magnitude and characteristic of the nation's agricultural and agro-industry residues and their impact on the environment.
2. Government should hasten efforts in completing the strategic core projects such as Iron and Steel and Petrochemical projects.
3. The National Agency for Science and Engineering Infrastructure (NASeni) should be made to function by providing the necessary fund for it to develop the nation's capacity for engineering design and equipment development.
4. The establishment of a national industrial data bank is long overdue and Government should, as a matter of urgency, ensure that the bank commence full-scale operation without further delay.
5. The Federal Government through the Federal Ministry of Communications should ensure the privatisation of NITEL.
6. To sustain the gains of export/import policies, government should continue to support and encourage all the agencies to carry out their functions effectively. There is a need to implement without further delay, the raw materials import deletion programme as initiated by RMRDC.
7. To obviate the problems relating to manpower development in the food and beverages sub-sector of the national economy, the following issues must be adequately and sustainably addressed:
 - provision of adequate training facilities and funding of research at both the secondary and tertiary levels.

- adequate mobilisation and inducement of private research and development institutions to take the lead in R&D activities involving the development of raw materials and end products in the sub-sector.
8. The tarred road network in the country should be increased and adequately maintained. This is one of the major functions of the Federal, State and Local Governments, Ministry of Works and Housing. Also the Petroleum Trust Fund (PTF) should continue to assist in this area.
 9. Provision of an adequate information network to disseminate information on progress made so far on R&D from research institutions and institutions of higher learning.

SPECIFIC RECOMMENDATIONS:

1. The Nigerian Stored Products Research Institute should, as a matter of urgency, develop optimal low cost technologies for storage of agricultural produce in the country. The technology to be developed should be accessible to subsistence farmers.
2. The preservation of tomatoes for instance or processing of cassava and other root tubers into more industrially useful product like starch, alcohol and even glucose syrup should be a priority.
3. It is apparent that over utilisation of chemical fertilizer in the southern zone, is injurious to the soil. Consequently, it is imperative for organizations such as the Raw Materials Research and Development Council, Ministry of Agriculture and other mandated research institutes to develop and promote utilisation of alternatives to chemical fertilizers in the country, such as the organo-mineral fertilizer which can be produced from organic wastes that abound in the country.
4. Government and the organised private sector should work in close concert to consider as a matter of priority, the need for self-reliance in industrial technology through:
 - (a) There is need for establishment of more pilot plant projects as demonstration and training centres through RMRDC;
 - (b) The funding and development of cottage industries leading to the encouragement of local fabricators of equipment/machinery through the Family Economic Advancement Programme (FEAP) should be encouraged and sustained.
 - (c) Government should establish more Technology Business Incubator Centres (TBIC), where Federal and State Governments could provide all infrastructural facilities like space, electricity, water, telecommunication at reduced and

subsidised rate for young businesses, utilising local raw materials and local manpower.

- (d) Efforts should be geared towards research and development of crucial input to manufacturing production, like establishing the technology for enzyme production e.g. alpha and beta amylases and papain.
5. Both industry and governments are to make greater efforts to reduce the quantities of agro-industrial wastes generated so as to increase the efficiency of food production and supply. The options to adopt are:
- (a) Measures should be taken to reduce the generation of agro-industrial wastes through;
- stricter pollution control regulations,
 - waste discharge taxation,
 - subsidies to enhance utilisation.
- (b) A comprehensive assessment of traditional local village level indigenous technologies should be made to identify possible industrial application.
- (c) Pilot and demonstration projects like the organo-mineral fertilizer project of RMRDC should be established at small community bases. Recycling facilities aiming at total utilisation of resources (fuel, fertilizer, feed and other uses) should be set up e.g. use of wastes for generation of biogas; the production of cellulose from maize cobs or rice husk for industrial and pharmaceutical use. Also, further research and demonstration should be supported by Government, International organisations and Agro-industries.

INPUTS FOR FORMULATION OF SUPPORT PROGRAMME

The following projects were identified as critical to the sub-sector in addressing some of the identified problems. These projects will therefore serve as input for formulation of support programme to the sub-sector. The highlights of the project requirements are contained in the main report.

- Extraction of cellulose from agricultural waste.
- Starch derivative production.
- Integrated palm oil/palm kernel oil production.
- Banana and plantain flour production.
- Production of organo-mineral fertilizer.
- Production of amylase enzyme.
- Production of papain.
- Production of protein sweetner.
- Production of cereal baby food (soyamusa).
- Cashew fruit/nut processing.
- Sorghum malting plant.

CHAPTER 3

TEXTILES AND WEARING APPAREL

3.1 INTRODUCTION

The textile and apparel industry has been identified as one of the major sub-sectors of the manufacturing industry with potentials for an export-led economic growth of Nigeria. The sub-sector is quite strategic to the overall industrialisation programmes of the country, as it is mainly agro-based in terms of its basic raw materials input, which is cotton fibre. Especially the clothing industry is labour intensive and therefore provides immense employment opportunities for both skilled and unskilled labour. With a population of above 100 million, Nigeria has one of the largest textile fabric and garment market in sub-saharan Africa.

The textile industry is linked forward to clothing, furnishing, cordage, bagging, petrochemicals, and backward to agriculture. The potentials of the sub-sector to the growth of the national economy are yet to be fully utilized mainly in the area of export trade.

The sub-sector has recently experienced a significant level of expansion from the few mills established in the past. Current efforts resulted in increased investment and backward integration into spinning, as more spinning mills are being established.

The characterization of the sub-sector shows that foreigners, mainly Asians, dominate the ownership pattern of the textile mills. The few public textile mills are now fully privatised due mainly to their inability to sustain manufacturing activity and the continuous loss of profit over the years. The dispersal of the industry in Nigeria, shows that 90 per cent are located in big cities like Lagos, Kaduna, and Kano; while Onitsha, Aba and Port-Harcourt covers the remaining 10 per cent. However, about 85 per cent of the apparel industry are located in the Urban and sub-Urban centres.

The performance of the sub-sector traverses the following areas of activities such as ginning, spinning, weaving, knitting, dyeing, printing, finishing and garment production.

The industrial capacity utilization for the textile manufacturing industry is put at an average of 41.5 per cent in 1996, while percentage local sourcing is 66.4 in the same year.

Primarily, the following pertinent issues have been identified to affect improved performance of capacity utilisation in the sub-sector:

- High cost of production associated with high input cost such as utilities (electricity and water), energy (fuel), and transport.
- Inadequate working capital.
- Low local demand for textile products due to diminishing purchasing power of buyers.
- Low production capacity associated with frequent breakdown of plants, machinery as well as frequent electric power cuts.
- High cost of maintenance, purchase and replacement of plants and machinery, procurement of spare parts and raw materials.

The index of manufacturing production (1985 = 100) in cotton textiles declined from 106.4 recorded in 1993 to 89.6 in 1995, but by 1996, it rose to 102.1. The improvement in 1996 is associated with the stable macro-economic policy initiated in 1995 and implemented in 1996.

Like other manufacturing sub-sectors, there is gradual decline in the standard of industrial facilities in the textile sub-sector. This decline has been identified as a contributory factor to poor performance of the sub-sector in terms of manufacturing production and capacity utilization.

The apparel industry contributes greatly to value-added textile manufacturing in the country and has been associated with considerable savings to the economy in terms of foreign exchange.

The importation of textile piece goods was restricted over time with the primary aim of stimulating local development and growth of the textile industry. With the current thrust in promoting trade liberalization, government in 1997, lifted the restrictions on the importation of textile goods into the country. The primary objective, apart from the liberalization of textile trade, is to ensure the competitiveness of locally manufactured textiles and to encourage export of textile piece goods.

3.2 PHYSICAL INFRASTRUCTURE

The state of physical infrastructure in the textile industry is significantly the same compared with other manufacturing sub-sectors; nevertheless, the sub-sector is still expanding despite this development. There is no doubt that successful textile manufacturing requires provision of necessary infrastructure such as transportation, storage facilities, electricity, water supply, and access road and telecommunication facilities.

One major factor identified that has affected the growth of the sub-sector is low production capacity. The sub-sector lack adequate capacity to meet the increasing demand for finer cotton yarn, polyester and cotton-polyester blends. Equally affected, are seed cotton and lint ginneries, and apparel production.

Close to 60 per cent of the total capacity of the existing textile mills in the country is dedicated to cotton spinning only. Also, the capacity of the cotton ginneries in the country is falling due mainly to two factors:

- Poor quality of seed cotton and its irregular supply to the ginneries and;
- Ageing ginning plants and machinery.

The high cost of maintenance of these machinery, some of which lack spare parts has led to delay in routine maintenance. Consequently, these plants experience complete breakdown and shut down of production.

The status of machinery and components in textile production showed that 100 per cent of the existing machinery were imported from Europe and Asia. Invariably, it is extremely difficult to standardise the machinery and consequently, the development of local capability for production of spare parts and components became difficult.

From a recent study by the Raw Materials Research and Development Council, in 1996, the number of spindles in the sub-sector increased from 675,920 recorded in 1989 to 768,907. Also, more than 17,603 looms and many knitting machines were available. The increase in the number of spindles was associated with the new investments in the sub-sector.

To meet the present and future needs of the textile industry and to guarantee sustainable industrial operation, it is absolutely essential to build capacity for fabrication of spare parts and components. This will no doubt save the nation considerable amount of money spent annually on importation of spare parts.

Furthermore, there is the need to plan for sustainable production and supply of manufacturing inputs such as natural fibres (e.g. cotton, jute, silk, etc) and man-made fibres (like polyester, polyamide, nylon, polypropylene, etc).

While efforts should be geared towards rehabilitation of cotton production in the country, the petrochemical industry need to be completed to create room for the establishment of downstream industries that will produce the man-made fibres.

Of the estimated 55 million hectares of arable land in Nigeria, 1.6 million hectares could be devoted to cotton cultivation. The cotton variety commonly cultivated in the country is Gossypium hirsutum (American upland cotton) which is experiencing diminishing yield as an estimated yield of 300kg/ha has been recorded. Experimental trials show that a yield of up to 1,621kg/ha could be achieved with improved variety and irrigated fields. This yield could be able to meet the estimated national requirement of 500,000 bales.

The cotton varieties grown are short or medium staple length type, which accounts for 98 per cent of national cotton production. There is limited production of the long staple length, despite the high local demand for such variety.

From available data and information, it is extremely difficult to reconcile the national cotton production figures and the data from the textile industries on cotton availability for their manufacturing production.

Table 3.1 Estimated output of Cotton Production in Nigeria (1985-96)

Year	Production (000 Tonnes)
1985	46
1986	30
1987	32
1988	194
1989	187
1990	276
1991	309
1992	346
1993	192
1994	218
1995	251
1996	301

Source: CBN Annual Report, 1996

In 1989 for instance, the textile industry required about 117,650 tonnes of cotton, while 47,963 tonnes was available according to an RMRDC's study. When compared with the national production figure of 187,000 tonnes (Table 3.1), it seems quite clear that this production should be able to meet the industry requirements. The difference of 139,037 tonnes however, could not be accounted for in relation to the 47,963 tonnes available.

In recent times, bumper harvest of cotton has been reported, while farmers are complaining of their inability to dispose off their produce. In fact, in 1996, it was reported that about 78,002 tonnes of cotton were unsold by farmers due to dwindling demand from the textile industry. This development calls for a review of the cotton production activity vis-à-vis the requirements of the textile industry with the view to planning for sustainable production and even exports of cotton fibre by Nigeria. Other fibres required include polyester, polypropylene, polyamide, acrylics, etc. All these fibres could be sourced locally from the petrochemical industry.

The chemicals and auxiliaries required include dyestuff, spinning oils, knitting oils, desizing agents; scouring, bleaching and mercerising agents; pigments, levelling and fixation agents, etc. The bulk of these chemicals are imported apart from starch.

Considerable efforts are being made to produce dyes and pigments locally. One such effort is that of the Churchgate Group of Companies in establishing a dyestuff plant at Agbara, near Lagos. Also, the RMRDC is establishing a pilot plant for dyestuff production at National Research Institute for Chemical Technology (NARICT), Zaria.

The status of R&D in the textile sub-sector according to a recent study conducted by RMRDC, confirmed the low level of research in the textile industries. Current R&D efforts are limited to only cotton seed development and are carried out by government owned research and educational institutions. There is no private sector participation in R&D. The only recorded efforts by the textile mills at sponsoring cotton seed improvement was in 1985, when the Nigeria Textile Manufacturing Association (NTMA) invested about N4 million in cotton rehabilitation. However, this amount was expended mainly on publicity campaigns, grants to cotton growing states, seed distribution, seed breeding and multiplication, without effective monitoring in order to ensure positive returns.

The progress made by Institute of Agriculture Research (IAR), Samaru, Zaria in carrying out research on cotton breeding, agronomy, crop protection, and post harvest technology led to the release of varieties with different fibre quality traits (Table 3.2).

Table 3.2 Commercial Cotton Varieties Released by IAR, Samaru, Zaria

Variety	Effective Length (32 nd inch)	*Fibre Bundle Strength	Micronaire Value
Samaru 26J	38.4	20.0	4.0
Samaru 68	38.6	21.2	4.0
Samaru 69	38.8	20.2	3.9
Samaru 70	38.6	21.4	3.4
Samaru 71	38.7	21.7	3.4
Samaru 72	39.5	22.8	3.4
Samaru 77	40.1	22.9	3.1

Source: RMRDC Survey Report 1989. * g per tex at 1/8 inch length.

One major revelation from the research was that cotton can conveniently be cultivated under irrigation in the major cotton growing areas in the country, resulting in increased yield and fibre quality.

Furthermore, quality of made-in-Nigeria textile products has been reported to be low when compared with imported ones. Recent survey reports drew the attention to increasing poor quality of textile goods, which is associated with the inability of the textile millers to observe quality control measures and standards.

There is need for standards for locally produced textiles. The Standard Organisation of Nigeria is an institution established by government to set and monitor standards. It is therefore appropriate for locally produced textiles that meet standards to carry the Nigeria Industrial Standard Symbol (NIS).

The state of research facilities in the existing research institutes and universities offering opportunities for research on textiles is poor. Fairly basic researches are currently being carried out at Departments of Textile Science and Technology of Ahmadu Bello University, Zaria, Federal University of Technology, Owerri, Kaduna Polytechnic, Kaduna, Institute of Management and Technology, Enugu and Yaba College of Technology, Lagos. With adequate encouragement these institutions could widen their horizon of research on fibre quality improvement, dyes and pigments production and application.

The research areas identified by RMRDC study report requiring R&D are;

- Development of domestic spinning machines.
- Education in weights of locally produced fabric mainly the traditional fabrics (akwete and aso-oke).
- Development of “easy-care” performance and laundrability.
- Development of looms.

There is no doubt that textile industries need to support R&D in order to improve on product quality and contribute to capacity building in the sub-sector. The lack of effective linkage between research institutions and industry is a strong impediment to R&D and manpower development in Nigeria.

This study observed that of the more than 26 universities in Nigeria, 27 polytechnics and Federal Universities of Technology, only two Universities offer programmes on Textile Science and Technology. Two Colleges of Technology offer diploma courses on Textiles and related courses. More higher institutions are therefore required to offer training programmes in textiles and related fields.

3.3 NON-PHYSICAL INFRASTRUCTURE

The non-physical infrastructure requirements of the textile industry as discussed include industrial policy incentives, information system development, import and export policies, labour policies and technical maintenance services.

While some of these parameters are applicable to all the manufacturing sub-sectors, some are sub-sector-specific and are fully addressed in the main reports.

3.3.1 Information System Development

Current efforts at data gathering and information generation on the manufacturing industry are limited to the following institutions like Federal Office of Statistics (FOS), Central Bank of Nigeria (CBN), Raw Materials Research and Development Council (RMRDC) and National Industrial Data Bank of the Federal Ministry of Industries.

Other non-governmental organisations that have been keeping information on the industry include Manufacturers Association of Nigeria (MAN) and National Association of Chambers of Commerce, Industry, Mining and Agriculture (NACCIMA). These institutions keep relevant information used to advise on policy issues that affect industry.

The textile industry had over the years been severely criticised for its unwillingness at all times to provide information on manufacturing activities of the sub-sector. Perhaps, the ownership structure must have been a significant factor contributing to this, as most textile mills are owned by foreigners. Generally, data collection and dissemination in the country is affected by;

- Inaccessibility of available information.
- Unreliability of information and data, partly due to lack of standards for data gathering and poor record keeping among manufacturers.
- Inadequate requisite manpower for data gathering and analysis.

The available information on the sub-sector is scanty and uncoordinated. The collection of data is considerably constrained by the usual poor responses from industrialists to questionnaires used for data gathering. Also, information dissemination is limited by lack of feedback mechanism.

There is need for establishment of a data bank for industrial planning. This requires the development of computerised information system, which shall review from time to time industrial performance and achievement of production targets. Furthermore, it shall give a feedback to industry on production performance, reasons for shortfall in production, capacity utilization, export performance and progress made on R&D.

The recognition for a data bank requires the setting up of sectoral and sub-sectoral nodes for exchange of information within the industrial sector.

3.3.2 Banking Facilities

The banking facilities available to the sub-sector are reasonable to sustain meaningful and continuous production activities. The major development financial institution that is funding the textile industries in Nigeria is the Nigeria Industrial Development Bank (NIDB). NIDB lends mainly to medium and large-scale enterprises in the manufacturing sector.

The cumulative sub-sectoral distribution of NIDB approvals from 1964 to 1993 showed that the textile sub-sector received the highest allocation of 25 per cent, totalling 1.2 billion Naira. In 1996, the sub-sectoral distribution of NIDB disbursement to the textile industry is about 68.0 per cent of the total disbursement of 591,307 million naira.

Table 3.3 Sub-Sectoral Distribution of NIDB Disbursements

Sub-sector	No. of Projects	Equity	Loan	Total	% of Total
FOOD	17	0.0	18,2661	18,2661	3.1
BEVERAGES	15	0.0	10,474.6	10,474.6	1.8
TEXTILES	10	699.0	401,511.5	402,210.5	68.0
FOOTWEAR/ LEATHER PDTS	3	0.0	37,009.3	37,009.3	6.3
WOOD PDTS/ FURNITURE	1	0.0	470.0	470.0	0.1

Source: NIDB Annual Report, 1996.

Generally, banks were encouraged to allocate credit facilities to the priority sectors including agriculture, manufacturing and export (Table 3.4). The sectoral credit allocation was however, abolished in October, 1996.

Table 3.4: Sectoral Allocation of Credit

Sector	Sectoral Allocation of Credit (%)	
	Commercial Banks	Merchant Banks
A. Priority sectors (minimum)	75	75
a. Agriculture	18	13
b. Manufacturing	42	45
c. Solid Minerals	5	5
d. Exports	10	12
B. Other sectors (maximum)	25	25
	100	100

Source: CBN Annual Report, 1996.

The credit allocation to the private sector has not been stable in the past few years as credit to the private sector including manufacturing decreased by 2.2 per cent by the first quarter of 1996. By the end of 1996, it has risen to 21.9 per cent.

Furthermore, government had put in place policy measures to attract foreign capital and investment. Government has favourably modified its incentives on remittances of dividends, proceeds from sale of shares, payment of technical fees and taxes on them. The effect of these incentives is yet to be felt in the overall economic performance of the country.

In the textile sub-sector, there has been an increase in foreign private investment since the past 10 years, while in Apparel group, investment had been unstable (Table 3.5).

Sub-group	1985	1986	1987	1988	1989	1990	1991	1992	1993
Textiles	381,532	420,515	573,789	573,267	697,511	901,373	2,032,001	2,247,736	2,770,058
Wearing Apparel	28,535	42,429	42,429	42,429	42,429	15,346	15,346	20,771	37,242

Source: CBN Statistical Bulletin 1995.

In order to encourage investment in the real sector, government in 1997 liberalized the exchange rate. Exchange rate has remained stable between N80-N85 to US \$1 since 1995.

3.3.3 Import and Export Policies

The import and export policies have been discussed under food sub-sector, which cut across all other sub-sectors. Nevertheless, it is pertinent to reiterate that the present thrust of the government is to diversify the export base of the country by encouraging the export of semi-processed, processed commodities and manufactured goods. The textile industry is expected to play a leading role towards achievement of export-oriented manufacturing, because of its immense export potentials.

The status of export and import in the textile sub-sector changed dramatically since 1997 when government lifted the prohibition on import of textiles and garments thereby liberalizing textile trade in the country.

Prior to now, the textile industries had concentrated on domestic market for the sale of their products, without exploring the immense opportunities that abound in the sub-regional markets. Study report on the sub-regional market potentials showed that export of yarn, fabrics and garments, (mainly children's and women clothing) are quite lucrative.

Although, there has been increasing invisible trade on textiles across the borders of the country, statistics available showed that very limited quantity of textiles is exported out of the country in the past few years (Table 3.6).

Table 3.6: Export of Textile Goods (1988-1994) (\$ million)

Commodity	1988	1989	1990	1991	1992	1993	1994
Cotton & Yarn	0.2	1.5	20.1	19.6	4.6	5.4	10.6
Textiles	6.6	1.0	21.4	33.2	16.2	9.2	6.4

Source: Bullion, A Central Bank of Nigeria Publication, 1995. Volume 19, No.4

However, more of cotton and yarn are exported, compared to textiles. Export of textile goods outside the sub-region is limited by factors such as:

- High production cost.
- Problems associated with product quality.

Other factors affecting export of Nigerian textile goods include;

- Inadequate promotion of export by the private sector.
- Lack of adequate knowledge on marketing opportunities and techniques of penetrating into export markets.

The Nigerian Textile Manufacturers Association in addressing the problem of promotion of export trade, formed an export group called Nigerians Textile Exporters Association.

The lifting of restrictions on importation of textile products as contained in the 1997 budget has helped to enhance the competitiveness of locally produced textiles and product pricing. However, the favourable tariff on imported textiles relative to high cost of locally produced textiles, is a limitation to the realisation of the expansion of domestic market and exploitation of export markets. The import duty on textile goods is 45 per cent, which made the imported textiles to have significant price comparative advantage to locally produced textiles.

The Manufacturers Association of Nigeria (MAN) is of the view that it is absolutely necessary for government to carry out the following actions:

- Consolidation and rationalisation of existing export incentives; and
- Institutional reforms to make the export promotion agencies more effective and productive.

Though the implementation of the policy initiatives is slow thereby prolonging their possible early impact on the economy, much can be achieved if efforts are geared towards consolidating the initiatives. There is optimism expressed in the country that the national economy could be brought to a favourable standing if government diversify the country's exports, maintain stable and realistic exchange rate, promote supportive and stable policy environment and supported by speedy response by inventors to the various incentives.

3.3.4 Labour Policies

The textile industry is recognised as the highest employer of labour outside the government. The industry is quite labour intensive as it provides direct employment to more than 300,000 Nigerians.

The absorptive capacity of the sub-sector in relation to labour must be considered in planning for sustainable employment creation programmes. With investments in cotton production, processing and fabrics production, employment opportunities can be created.

The government has taken steps to enunciate measures and policies that favour healthy labour relationship. In fact, between 1994 to 1996, the number of trade disputes fell from 209 to 114, while work stoppages reduced from 134 recorded in 1995 to 101 in 1996. There is no doubt that government efforts at restoring industrial peace have achieved a lot in reducing man-days lost due to labour disputes.

3.3.5 Technical Maintenance Services

Plant maintenance has not been given the necessary attention it deserved so as to achieve increase in productivity and sustainable manufacturing activity. However, efforts are being made to build in-house capacity for maintenance of machinery. Improper negotiation of equipment cost without given due attention to annual cost of spare parts has been identified as a contributory factor to the poor state of maintenance services.

The study identified the need for audit of machinery currently being used in the textile sub-sector with the prime objective of determining their current state, and possibility for standardization.

3.4 SUSTAINABLE DEVELOPMENT PARAMETERS

Waste and energy management is recognised as sustainable development parameters used to assess the level of performance of the manufacturing sub-sector.

Prior to now, the country was faced with considerable problems associated with long term neglect of waste and energy management in the industrial sector. Industries were established without consideration to proper waste and energy management planning.

Government efforts in addressing waste and energy management problems are enshrined in various policy initiatives enunciated and pursued through institutional frameworks established for such purpose.

Waste Management

Public awareness, consciousness and opinion on environmental issues in the country are lacking despite government efforts through environmental edicts and laws to enforce environmental consciousness. Lack of pressures on the part of the public and weak state compulsion resulted in the inability of the country to find answers to environmental problems. Equally lacking, are appropriate technologies, production systems, non-polluting processes and recycling technologies, which are associated with lack of awareness. Industries were established without appropriate environmental guiding principles such;

- environmental planning
- environmental conscious design, and
- environmental-oriented management consultation.

The textile industry is a major contributor to the environmental problem as a lot of its processes leads to generation of solid and liquid wastes.

The total wastes generated annually by the textile industry is estimated at 35,910 tons according to the Winvent Waste Estimation Methodology and it is made up of hazardous wastes (27.9%), Solid wastes (21.0%), oil, grease (0.65%), liquid and other wastes (50.5%).

Generally, it has been observed that the textile industry lacks facilities to treat their wastes as spent chemicals are discharged as effluents into rivers and drainage in the country.

There is a need to assist industries to establish large municipal sewage disposal plants, more especially, in major industrial centres. Also required, is appropriate technology for waste recycling in the manufacturing sub-sector of the economy as it will help to address the huge wastes generated from agro-processing and related industries.

Furthermore, a national minimum standard level of effluents from the textile mills is needed to be established in the country and strictly observed.

The present trend in global promotion of environment friendly manufacturing is yet to take root in the country. It is therefore imperative to integrate Environmental Impact Assessment (EIA) in the industrial planning programme of the country. There is no doubt that the application of EIA procedures shall enable the country to adapt measures, which incorporates in the manufacturing processes, the following:

- Low-waste generation;
- Less toxic by-products and effluents;
- Higher waste recycling ratio.

Various guidelines incorporating regulations on effluent limitations and pollution abatement have been put forward by government through the Federal Environmental Protection Agency (FEPA).

The immediate implementation of the guidelines is not accepted by the manufacturers, as it will compel them to divert substantial part of their resources for production to pollution control. They equally feel that the high pollution levies imposed on them is a constraint towards the installation of treatment plant as the cost of installing treatment plants is quite high for some industries. They argued that small and medium scale industries would be limited by capital, if they have to provide treatment plants within a short period.

It is against this background that manufacturers recommended as follows:

- That government should assist industries to provide industrial estates/layout fully equipped with waste treatment facilities.
- That a time-phase should be established for installing treatment plants especially for the small and medium scale industries.
- That government should seek the support of international agencies such as World Bank, and UNDP to fund environmental programmes in the industrial sector with particular emphasis on;
 - (i) Provision of facilities for effluent treatment.
 - (ii) Evolving development strategies for the control of industrial pollution and.
 - (iii) Developing regularly, capacity to foster increased industrial safety.

There is a need to achieve harmony in the implementation of various policy initiatives aimed at environmental friendly manufacturing. This, requires the provision of necessary enabling environment and incentives on the part of government, while the manufacturers reciprocate by compliance.

The current emphasis on environmental levy collection to the detriment of putting in place, requisite treatment facilities, need to be de-emphasized.

Energy Management

The energy crisis facing the manufacturing sub-sector in Nigeria is associated primarily with poor distribution of the generated energy. Over a period of five years, the pattern of energy consumption, more especially, electricity has been quite low. While electricity generation has increased from 14,833.36 kwh in 1992 to 16,210.9 kwh in 1996, consumption by industries has remained at not more than 3,000 kwh according to a Central Bank of Nigeria report. This low consumption is associated with the incessant power cuts and increasing breakdown of power transmission facilities such as transformers and pilfering of electric cables.

Energy consumption is also affected by the increase in tariff on electricity as manufacturers are forced to reduce power consumption in order to bring down to a competitive level, the unit cost of their products.

In order to determine the actual tariff for commercial energy consumption, appropriate pricing of energy must be carried out. Equally necessary, is auditing of public and commercial utilities as this will assist in formulation of comprehensive policy on them.

Government in recent times has placed emphasis on energy conservation through the use of more efficient technologies and alternative energy sources. In this regard efforts are being made to:

- Assist entrepreneur marketing or importing energy efficient machinery/technology with incentives.
- Encourage joint ventures and licensing arrangement between local and foreign companies involved with production of more energy efficient equipment.

Interruption of electricity supply to the industry and scarcity of petroleum products, mainly diesel required to run the electric generators, also contributed to the low capacity utilization experienced in the sub-sector.

As power consumption is declining, the consumption of petroleum products is equally falling, due, primarily to inadequate supply. The poor state of the refineries accounted for the inadequacy in supply.

The consumption of automotive gas oil (diesel) however, increased due to improved supply. The official price of petroleum products has remained stable since 1994, but their availability at official price remained a concern to manufacturers. Most often, they are procured at higher cost from retailers.

Finally, the national need for electrical energy should be reviewed with the primary goal to conserve energy. Nigeria can save billions of dollars by efficiently utilising the existing electrical energy sources.

3.5 PROBLEMS AND CONSTRAINTS

After careful appraisal of the physical and non-physical infrastructure and sustainable development parameters required for good manufacturing in the sub-sector, the following findings were made.

- Low level industrial performance associated with factors ranging from high production cost to high cost of maintenance of machinery and equipment;
- Poor infrastructure services leading to heavy investment on electricity, water boreholes, telecommunication and transport;

- Inadequate production capacity to meet the increasing demand for finer cotton yarn, polyester, and cotton-polyester blends;
- Ageing production equipment and machinery and delayed routine maintenance of plant;
- Lack of local basic chemical and dyestuff production industry;
- Low level or near absence of R&D in the textile and apparel sub-sector in Nigeria;
- Lack of effective quality control and industrial standards in textile production, as locally manufactured textiles are adjudged to be of inferior quality;
- Lack of well trained technical manpower in the sub-sector;
- Lack of well co-ordinated industrial information system necessary for planning;
- Poor waste management in the textile sub-sector and lack of public awareness, consciousness and opinion on environmental issues;
- Increase in energy cost associated with high tariff and irregular supply of electricity in addition to high cost of supply of fuel energy (diesel).

Other Findings

- availability of adequate cotton fibre to sustain increased manufacturing activities and investments in ginnery;
- availability of industrial policy incentives enunciated by Government to support the growth of manufacturing industry in Nigeria;
- availability of favourable import and export policies;
- availability of banking facilities required for production expansion and new investment;
- favourable labour laws and stable industrial relations, required for sustained manufacturing activities.

3.6 RECOMMENDATIONS

The report attempts to recommend actions to be taken to address the above identified constraints both by government and the private sector. Government is seen as a facilitator and needs to provide the enabling environment, while the private sector should take the lead in the implementation of these recommendations.

Actions Required of Government

- (i) With the global textile market restructuring, the emphasis on quality is rising and competition is becoming increasingly severe. Furthermore, with the poor infrastructural facilities in the country, local producers cannot engage in global competition. In order to facilitate globalization of the textile trade in Nigeria, Government should:
 - Upgrade the standard of infrastructural facilities in the country. Assistance could be sought from World Bank and other development institutions;

- Re-address the import duty tariff structure to take advantage of areas in which local textile industries have comparative advantage;
 - Implement the various incentives aimed at promoting exports;
 - Set export targets on specific products such as textiles and provide the enabling environment for achieving the targets.
- (ii) Government should set up an anti-dumping committee in order to address the problem of dumping of textiles in the Nigerian market. The anti-dumping committee shall comprise of representatives of Government, Trade Groups and the Private Sector in order to monitor and advise government on dumping of textile goods.
 - (iii) There is an urgent need to carry out a study on the state of technology and machinery for textile production in Nigeria, for the purpose of planning for standardization and development of spare parts industry.
 - (iv) Government should mandate and support the textile industries to modernize their plants and machinery to ensure the ease of standardization and improved quality manufacturing. Policy incentives could be put in place within a time frame for total rehabilitation and modernization of the existing plants and machinery.
 - (v) The existing foundry shops and machine tool companies should be supported to improve on their facilities for fabrication of spare parts and components.
 - (vi) Government should through Federal Ministry of Agriculture rehabilitate cotton production in the country by providing the needed incentives to farmers in terms of availability of suitable land, irrigation facilities improved seeds and other input resources.
 - (vii) Cotton is an important crop in Nigeria and there is a need to increase production and improve quality to meet the textile requirements of the country. Research has an important role to play in breeding new varieties especially the medium to long staple length varieties, determine fertiliser requirements and develop methods for pest and disease control. There is urgent need to link research with economic studies of the farmers' problems.
 - (viii) There is potential to produce man-made fibres for export market through the petrochemical feed-stock. Government should expedite action in completing the petrochemical projects.
 - (ix) Government should support industrial researches by rehabilitating existing research facilities in institutions of higher learning and research institutes in order to make research efforts more result oriented.
 - (x) There is inadequate technical and skilled manpower in the textile and apparel industry to ensure continuous growth of the sub-sector. Government should

encourage more higher institutions in the country to offer training programmes in textile science and related disciplines.

- (xi) Government should through the Standard Organisation of Nigeria (SON), and in co-operation with Textile Mill owners develop standards for locally produced textile products. Such textile products should carry the Nigerian Industrial Standard Symbol (NIS).
- (xii) Government should through the Federal Ministry of Industries establish an industrial data bank for industrial planning and promote the establishment of sectoral and sub-sectoral nodes for exchange of information among manufacturers.

Actions Required of Private Sector

- (i) There is need for technology auditing in the textile sub-sector. UNIDO should assist the sub-sector to carry out the technology auditing with a view to identifying their sources and possibility for standardisation of equipment.
- (ii) The ginneries in the country should be modernized in order to boost cotton lint quality and production in the country. This requires considerable investment by the private sector. Nigerian Industrial Development Bank (NIDB) and other development banks should assist in this direction by providing investment capital.
- (iii) There is significant need for promotion of investment in the establishment of dyestuff and chemical auxiliaries considering the huge domestic market for such essential inputs to textile manufacturing.
- (iv) Efforts are required to support the development of improved cotton varieties with better yield, effective length, fibre bundle strength, micronaire value and yarn count through the funding of R&D on cotton production.
- (v) The textile mills should operate a full quality assurance program, while at the same time patronise the services of institutions such as FIIRO, Kaduna Polytechnic (Department of Textile Technology), Ahmadu Bello University, Zaria (Department of Textile Science & Technology), in the field of physical testing of textile materials and R&D.
- (vi) Training of textile mills personnel, more especially, low and middle level management to appreciate the importance of quality control and problems identification relating to production, should be encouraged by the textile industries.
- (vii) Textile industries should co-operate in providing relevant and authentic information on their manufacturing activities, which shall be used for industrial

planning. Sub-sectoral information nodes should be established which should be linked to the national data bank.

- (viii) The various industrial policy incentives introduced by Government should be exploited by the sub-sector in order to improve on manufacturing and increase textile share in non-oil export of the national economy. In this regard, the duty draw back and manufacturing-in-bond scheme should be given greater attention.
- (ix) There is the need for the private sector to invest by establishing textile mills in the EPZ, primarily for export of textile goods. Improvement in competitiveness requires access to imported input, at free trade prices.
- (x) The textile mills should give considerable attention to the maintenance of its plants and machinery. Hence, the introduction of maintenance planing program is necessary.
- (xi) Waste generation and management should be given serious attention in the sub-sector. UNIDO in collaboration with FEPA should support textile mills to establish waste treatment plants
- (xii) There is the need for textile mills in addressing their energy problem, plan for energy conservation through the use of more efficient technologies. It is equally important to stabilise the tariff on commercial energy consumption, while arrangement should be made to embark on energy auditing of public and commercial utilities with the view to formulating appropriate and comprehensive policy on energy consumption.
- (xiii) There is an identified need to support the establishment of an export-oriented garment industry in Nigeria. UNIDO or other international agencies such as International Trade Centre (ITC), could assist by carrying out a study on the apparel sub-group with the view to identifying opportunities for future growth through export of garments from Nigeria.

3.7 INPUTS FOR FORMULATION OF SUPPORT PROGRAMME

Most textile related projects entails huge investment capital. Consequently, some of the identified constraints can not be addressed through small scale/cottage level projects.

Nevertheless, the following projects proposed in the main report are highlighted:

1. Establishment of tie-dye and batik centre
2. Establishment of mechanised weaving centres
3. Garment accessories production
4. Cotton production
5. Production of buttons from plastics.

CHAPTER 4

LEATHER AND LEATHER PRODUCTS

4.1 INTRODUCTION

The leather and leather products industry is characterised of two major units; the mechanised and informal (traditional) tanning industries and the mechanised and informal cottage footwear and leather goods industries. The growth of the industry relies seriously on the availability of basic raw materials such as hides, skins, leather, processing chemicals and potential domestic and export markets.

The growth of the industry can be justified from the increasing number of mechanised tanneries, which was 17 in 1980 and 23 by 1989. By the first half of 1990's the number has increased to 30 mechanised tanneries with 23 located in Kano.

In the 1980's there were about 1.3 million cattle hides, 11.0 million goatskins and 2.3 million sheepskins available locally. The combined production capacity of the tanneries is estimated at:

*	10.22m square ft	-	Cattle hides
*	41.69m square ft	-	Goats skins
*	9.26m square ft	-	Sheep skins

These translates to 0.51m, 10.42m and 2.32m cattle hides, goats and sheepskins respectively, which was enough for the tanneries to process. The availability of the hides and skins was attributed to the export prohibition on raw hides and skins in 1978.

The change in government policy during the Structural Adjustment Program (SAP) period, which liberalised the export trade on raw hides and skins provided the exporter has license, brought a sharp increase in price and consequently resulted in acute shortage. Invariably, local tanning industries could not have access to these basic input materials to the production of leathers.

This development also resulted in loss of quality of locally produced hides and skins as improvement services were abandoned.

In 1990, the Government reacting to the call by tanneries, banned the export of raw hides and skins, but allowed the export of processed products. This development attracted more investment to the industry and thereby increased the number of tanneries in the country.

UNIDO, in a recent study in 1996, noted that the nation is capable of producing 272 million square ft of goat/sheep skins and 45 million square ft of leather. Findings from such study revealed that considerable quantity of raw hides and skins come into Nigeria from neighbouring countries like, Chad, Mali, Niger and Cameroon. Despite this quantity of hides and skins, the tanneries complained of their inadequacy.

In a recent study of 15 medium and large-scale tanneries in Kano, it was observed that production capacity dropped from 30.28 million square ft of sheep and goat skins in 1994 to 25.19 million square ft in 1995 and further to 17.15 million square ft in 1996. Of these, 85 – 90 per cent were exported as wet blue or chrome crust. This implies that only 10 – 15 per cent of the sheep and goat skins are processed for domestic market. Usually, this quantity is of poor or low grade as the best grades are exported. The local consumption of hides as “pomo” is a significant contribution to scarcity of cattle hides.

The footwear and leather goods manufacturers depend greatly on the tanneries for the supply of leather. The production capacity of the footwear industry was estimated at 19.52 million pairs of shoes annually and 63.7 million pieces for leather goods, requiring about 48.8 million square ft and 65 million square ft of leather, respectively. By mid 1990’s, the capacity had risen to 25 million pairs of shoes and 70 million pieces of leather goods. About 50 per cent footwear and 90 per cent leather goods during this period were produced by cottage industries with a large concentration in Aba and Onitsha.

The footwear and leather goods manufacturers have in recent past suffered serious set backs associated primarily with the following factors:

- Limited volume of leather available for production.
- Very low quality of the available leather.
- High cost of importation of quality leather.
- Increasing importation of second-hand shoes.

These factors contributed to the low production capacity of 30 – 45 per cent experienced by the manufacturers and the closure of considerable number of footwear industries, mainly medium and large size industries.

4.2 PHYSICAL INFRASTRUCTURE

The leather and leather goods manufacturers are operating in the same industrial setting with other sub-groups of the Manufacturers Association of Nigeria (MAN). Consequently, the status of industrial facilities is not different either.

The growth and sustenance of the leather and leather goods industries is linked backward to the availability of livestock as hides and skins are products from the livestock industry. There has been an increase in the population of livestock in the country (Table 4.1).

Table 4.1: Estimated Livestock Population in Nigeria

Livestock	1992	1993	1994
Cattle	2,125,000	5,112,000	16,286,000
Goat	16,551,000	25,058,000	40,834,000
Sheep	7,564,000	11,987,000	19,590,000

Source: Federal Office of Statistics, Lagos.

Factors identified for this growth in population size of national livestock include among others, the increased and improved veterinary services, application of modern production technology that enhanced herds productivity and control of incidence of diseases. Within the same period, the importation of livestock into the country decreased tremendously (Table 4.2). This decrease gives credence to the potential livestock population growth as an entirely domestic development effort.

Table 4.2 Livestock Imports into Nigeria

Livestock	1990	1991	1992	1993	*1994
Cattle	381,615	365,000	91,290	111,022	68,597
Goat	1,844,500	1,844,500	84,222	95,969	31,209
Sheep	2,788,769	2,788,769	53,606	87,711	38,084

Source : Federal Ministry of Agriculture

* figures are provisional.

The major product of the leather industry identified earlier include wet blues, chrome crust, finished leathers which are indirectly linked with availability of quality hides and skins. For global competitiveness of local leather goods, there is the need to improve on production facilities and this requires continuous adoption of improved technology. There is no doubt that the absence of technologically strategic and viable capital goods industries that could manufacture machines and spare parts, are major hindrance to the development of leather industry in Nigeria.

Equally, the near absence of viable chemical and allied industries that should produce the basic chemical inputs required is a factor affecting the industry.

Furthermore, research and development in the leather industry has not been given the deserved attention. Very few industries have quality control laboratories for their products and are not into research. These industries include Great Northern Tanning Company (GNT), Nabegu Tannery, Intertan, Bata Shoes, etc.

The only institutions that carries out R&D in leather and Leather goods sub-sector are the Government owned National Research Institute for Chemical Technology (NARICT), Zaria and the Federal College of Chemical and Leather Technology (CHELTECH), Samaru, Zaria.

Tanning and some auxiliary chemicals such as bate, fatliquors, lime and dyestuffs have been developed to pilot stages at NARICT. Manpower development has been carried out by CHELTECH, as a lot of skilled manpower required for leather and leather production have been trained by the college.

4.3 NON-PHYSICAL INFRASTRUCTURE

The leather industry has not enjoyed significantly sub-sectoral policy framework, as government policies over the years have not been sufficiently sub-sector specific. The industry is subsumed in the categorization of agro-allied industry going by its basic raw materials input like hides and skins. Consequently, strategic sub-sectoral policy has been difficult to be established and hence the implementation and monitoring of some policy issues that affects the industry has been quite difficult to evaluate. The deletion programme proposed by the sub-sector has not been able to take root, almost 13 years after its proposal.

Nevertheless, the policy issue on ban on export of hides and skins aimed at sustainable supply of raw hides and skins to the industry enunciated by Government in 1990, was sub-sector specific and yielded success. This policy issue however, did not last long as the leather and leather product manufacturers were divided over it, which invariably made government to lift the ban in 1994.

The export of hides and skins and semi-processed leathers has been quite encouraging, as Nigeria has already acquired a high status for exports of these products. However, export trade is affected by poor quality of raw hides and skins, high cost of production, associated with input costs and machinery.

The balance of trade in leather and leather products from 1990 to 1995 shows unfavourable balance.

There is more import of leather in 1990 and 1993, while by 1995, more favourable exports trade was recorded (Table 4.3).

Year	Export Value (N'000)	Import Value (N'000)	Balance (N'000)
1990	60,789	194,243	-133,454
1991	579,364	530,878	48,486
1992	447,634	572,260	-124,623
1993	-	-	-
1994	-	-	-
1995	519,529	184,014	335,515

Source: Nigerian Trade Summary 1990 – 95

Equally, favourable trade balance was recorded in 1995 for semi-processed leathers as N431.37 million was realised from export trade.

4.4 SUSTAINABLE DEVELOPMENT PARAMETERS

The energy management situation in the leather industry is not different when compared with other manufacturing sub-sectors. A lot of tanneries invest significantly on water boreholes and electricity.

The leather industry in Nigeria over the years, have not bordered on adoption of cleaner production technologies and environmental friendly manufacturing. A lot of tanneries have been discharging their effluent wastes into streams, drainages, thereby contributing significantly to the gradual deterioration of the environment.

Pollution in the tannery comes from processing chemicals used in hides and skin treatment. The effluents resulting from the processing of hides and skins are characterized by high volume of oxidizable matter, soluble and toxic substances.

There is a need to build a primary waste treatment plant for tanneries in Nigeria, more especially in Kano, where there are about 23 tanneries.

4.5 PROBLEMS AND CONSTRAINTS

Lack of specific government development policies for the sub-sector has been identified as partly responsible for the poor performance of the sub-sector. The major constraints include the following:

- Poor quality of raw hides and skins;
- Poor recovery rate of hides and skins from slabs and abattoirs;
- Very high import bills on machinery, spare parts, process chemicals and auxiliaries;
- High tariff on utilities.

4.6 RECOMMENDATIONS

- There is need to improve on livestock breeding.
- Production of raw hides and skins and quality maintenance requires urgent attention.
- There is a need to promote the development and indigenous manufacture of the basic processing chemicals.
- Quality of finished leather and leather products need to be improved upon by manufacturers. Government should set a definite time frame to complete the deletion programme that would make for availability of good quality leathers locally.
- Government policies should be sufficiently discriminatory in order to foster the growth of the leather industries.
- Government should ensure that the ban on importation of second hand shoes and leather goods is effectively enforced.
- There is an urgent need for the establishment of waste treatment plants by tanneries in Nigeria.

4.7 INPUTS FOR FORMULATION OF SUPPORT PROGRAMME

The following projects are proposed as strategic to the growth of the sub-sector.

- Rehabilitation of the national hides and skins improvement services.
- Pilot plant production of Bagaruwa Extract (Acacia nilotica v. adonsonii), a vegetable tanning material.
- Establishment of pilot plant for the production of pancreatic/fungal bates.
- Manpower training and development support to Federal College of Chemical and Leather Technology, Zaria.

The details of the proposed projects are contained in the main report.

CHAPTER 5

WOOD AND WOOD PRODUCTS

5.1 INTRODUCTION

The Wood and Wood Products sub-sector consists of formal and informal groups, comprising of both small and medium enterprises. The large-scale enterprises are part of the formal sector and are mainly located in the southern part of the country. The informal group comprises of significant number of small-wood-working enterprises operating in both primary and secondary processing segments.

The industry contribute to about 3.0 per cent of the nation's GDP and 8.0 per cent to agriculture's share of the GDP. The industry has a well developed formal wood-based industrial activity comprising of mechanical wood transformation; including saw milling, veneer, particle board manufacturing and secondary wood processing; particularly furniture manufacturing. The secondary wood processing industry in Nigeria is mainly small scale outfits which include furniture making, doors, parquet, mouldings, etc. The main economic activity in this sub-groups is in the wooden furniture making, which commands considerable share of the wood and wood products market in Nigeria. Specialized wooden doors and frames such as carved doors are made by individuals scattered all over the country. However, the Premier Plywood Nigeria Limited is noted for its modern wooden doors, which are mainly produced for export and domestic markets. Other enterprises identified within this sub-group include canoe/boat production outfits, mortar and pestle production, chewing stick production and fuelwood collection.

These segments of the sub-sector are mainly private sector owned, while the pulp and paper mills are owned by the public sector. The industry relies heavily on the forestry sub-sector for raw materials.

The immense potentials of the wood and wood products sub-sector have not been fully exploited as the country lacks proper management of forest estates, resulting to insufficient raw material base for the wood industry both in terms of quantity and quality.

Furthermore, high cost of procurement of wood processing machinery with the associated maintenance cost limited the level of investment in the sub-sector.

The sub-sector however, employs a lot of Nigerians engaged in various economic activities. It is estimated that about 2 million Nigerians are actively engaged in the

informal wood sub-sector. Employment in the secondary wood conversion sub-group alone is estimated at 75,000 people.

Local sourcing of raw materials increased in the wood-based sub-sector as a result of restrictive policies, but capacity utilization remained low. A survey by Manufacturers Association of Nigeria in 1989, reported 46 per cent rate of capacity utilization in the wood industry and 33 per cent in the pulp, printing and publishing industry. Local sourcing of 82 per cent was reported for the Wood and Wood Products and 32 per cent for Pulp and Paper sub-sector.

5.2 PHYSICAL INFRASTRUCTURE

The industrial facilities available cut across such segments as saw milling, ply-milling, pulping and splint making. The facilities are classified based on extraction technology, levels of raw materials transformation, end products and investment outlay.

The saw mills which are responsible for processing about 80 per cent of the total industrial round wood in the country are located in the following areas; Lagos, Ogun, Oyo, Osun, Ondo, Edo and Delta States. Other states having fair share distribution of the saw mills include Benue Kwara, Kogi, Niger, Kaduna and Taraba. The chain saw converters are mainly located in Cross River and Akwa-Ibom states. The estimated capacities and current production of these saw mills are presented in Table 5.1. The type of sawmills include those with 1-3 dimension cut units (CD units), portable sawmills using circular saws and guides and modernized pit sawing. The CD units available are of capacities ranging from "CD 4" to "CD 6", and are mainly of French make. The CD units are used for conversion of large diameter (30 – 155 cm) logs.

Table 5.1 Estimated Capacity and Production by Sawmills

Type	Number	Capacities (m ³)	Production (m ³)
CDC & Carriages	1,600	5,500,000	2,531,000
Portables	100	57,000	30,000
Pit Sawing	1,100	285,000	150,000
Total	2,800	5,842,000	2,711,000

Source: FORMECU, Review of the Wood-Based Sub-Sector in Nigeria, 1994.

The location of sawmills is greatly influenced by availability of raw materials. The conversion rate of the sawmills is around 35-47 per cent, with a total capacity of about 11,684,000m³/year, in log equivalent. The production facilities in the sawmills include a few log bandsaw and carriage units, circular saws and guides, pit sawing using chain

saws. The installed capacity of the sawmills is not being met due to inadequate supply of timber from the forest.

The veneer and plywood industry are located mainly in southern parts of the country. There are nine plywoodmills in Nigeria made up of the following:

- African Timber and Plywood (AT&P), Sapele;
- Piedmont Plywood, Ologbo;
- Premier Timbers, Bolorunduro, Oyo;
- Delta Plywood, Burutu;
- Omo Woods, Ijebu-Ode;
- Epeply, Epe.
- Wood complex, Calabar

The plywood mills have a total capacity of 126,000m³ and an average capacity utilization of 57.3 per cent. The mills unfortunately suffers from frequent shutdown due mainly to operational problems, associated with financial and management problems. This problem is unique to the public owned enterprises. Of these mills, it is only Piedmont Plywood, Calabar Veneer and Plywood, and Omo Wood are in operation, while African Timber and Plywood was shutdown in 1997 due to lack of high quality logs.

Plywood requirements for the country were estimated at 179,000m³ in 1990 with a possible increase to 453,000m³ by the year 2010. These requirements necessitate the availability of 537,000m³ to 858,000m³ of Veneer logs. It is speculated that wood availability will decrease from 170,000m³ to 119,000m³ by the year 2010. Invariably, the nation might not be able to sustain the veneer logs requirement of the plywood industry.

Particle board manufacturing facilities exist in four plants, which include African Timber and Plywood, Piedmont Co. Ltd, Seromwood Industry Ltd, and Nigerian-Romania Wood Industry. Apart from Piedmont, others have closed down. Current production is affected by high cost of input, more especially the resins which are imported. With the declining supply of sawn logs and plywood, particle board is expected to pick up. Product quality affect the competitiveness of locally produced particle board.

The pulp and paper industry is made up of three government owned mills; which include, the Nigerian Paper Mills (NPM), Jebba, Nigerian Newsprint Manufacturing Company (NNMC), Oku Iboku and the Nigerian National Paper Manufacturing Company Ltd. (NNPM), Iwopin. The three paper mills were designed to produce the different grades of paper as summarised below:

- | | | |
|---|-------------------|---------------------------------------------------------------------------------------------------------|
| - | NMMC
Oku-Iboku | 48g/m ² paper for newsprint
60 – 75 g/m ² paper for books & printing materials |
| - | NNPM
Iwopin | fine paper grades |

-	NPM	30g/m ² Kraft paper
	Jebba	60 – 120g/m ² envelop grade
		125 – 440g/m ² liner board
		112 – 127g/m ² fluting media for corrugated boxes.

These industries have not been able to sustain production due to factors such as, non-availability of long fibre pulp, increasing cost of other inputs like processing chemicals and inadequate working capital. Invariably, the combined capacity of 185,000 tons/annum of the three paper mills could not be met due to these factors.

The other wood product industry include the safety match splint making industry, furniture and joinery, and wood product producers. With dwindling wood raw materials for the safety match industry, some firms went into the establishment of plantations for wood species used in splint production. Safa Splint for instance, established 1,000ha of Triplochiton, scleroxylon, Gmelina , and Cedrella. Nevertheless, the industry produces an average of 600 million match boxes using 53,000m³ of wood, annually. Despite the efforts to manufacture enough matches to meet domestic market requirements, imported matches from China, Taiwan and Indonesia have dominated the local market.

The tertiary wood industries covers those engaged in domestic wood products production, industrial wood and speciality wood products.

The domestic wood products include fuelwood/Charcoal, Chewing sticks, including tooth-picks. The fuelwood enterprises dominates the economic activity of this sub-group. The intensities of fuelwood and charcoal exploitation are illustrated in the main report.

Construction materials in terms of round and sawn woods constitutes the major components of the industrial wood products. Increasing utilization of round woods such as poles and posts are recorded in the building construction as the Government is promoting national housing projects.

The estimated wood raw materials consumption in the informal wood-based sector shows that the use of wood as energy source has the highest consumption and it is projected to reach 156,634,000 m³ by the year 2010. The total consumption by the various sub-groups is expected to increase from 130,896,000 m³ in 1993 to 203,639,000 m³ by the year 2010.

Other pertinent aspect of the wood industry that requires consideration is the production of poles which involves the utilisation of small diameter logs (SDL). The industry has an input capacity of 310,00m³ and average production of 163,000m³ per annum. The demand for wood poles in the country is increasing with the rural electrification programme of the Government.

The raw materials availability to the sub-sector is dependent on the state of Nigeria's forest. The two principal categories of the forest; the woodland and Savanna region forests are sources of fuelwood and poles, while the rainforest of the southern humid zone supply the domestic timber and lumber, with fuelwood as by-products.

Deforestation has steadily reduced the forest potentials of the country, as its rate has reached up to 3.57 per cent between 1981 and 1990.

The forest occupy about 10 million ha (Table 5.2) which is about 10 per cent of the total land area. About 70 per cent of the forests are located in the humid forest zone, while about 20 per cent are in the sub-humid forest zone. The rest are located in the savanna zone. Only about 5 million ha of the forest is commercially accessible for exploitation.

Table 5.2 Statistics of forest Reserves in Nigeria

STATE	NO. OF FOREST RESERVES	TOTAL FOREST RESERVES (HA)
ABIA	27	9,122.10
ADAMAWA	27	151,687.00
AKWA-IBOM	3	31,857.00
ANAMBRA	10	32,868.00
BAUCHI	74	817,580.00
BENUE	50	60,325.00
BORNO	81	314,154.00
CROSS RIVER	18	639,499.00
DELTA	11	35,953.42
EDO	45	565,035.00
ENUGU	19	9,006.07
IMO	10	1,557.11
JIGAWA	82	97,732.20
KADUNA	64	660,807.71
KANO	63	72,366.79
KATSINA	97	321,666.66
KEBBI	24	307,676.00
KOGI	37	481,486.87
KWARA	30	575,687.40
LAGOS	5	12,579.00
NIGER	109	756,037.00
OGUN	9	280,983.00
ONDO	27	342,712.00
OSUN	7	86,133.76
OYO	9	341,230.00
PLATEAU	63	370,777.61
RIVERS	10	121,440.00
SOKOTO	41	1,694,371.00
TARABA	48	1,162,747.00
YOBE	42	386,710.00
FCT	18	10,914.65
TOTAL	1,160	10,752,702.35

Source: Foremecu, 1996.

The forest plantation in Nigeria are listed in Table 5.3 on State basis. Gmelina , arborea alone accounts for 40 per cent of the plantation. Gmelina plantations were established under the World Bank forest projects so as to supply the three pulp and paper mills with raw materials. Other species include Eucalyptus, Pinus caribea, Tectona , Grandis, Nuclea didernchii and Tryplochiton , Screroxylon.

Table 5.3 AREA OF FOREST PLANTATIONS IN NIGERIA BY STATES, 1994

STATE	HECTARES
ABIA	2,115.3
ADAMAWA	535
ANAMBRA	15,000
AKWA-IBOM	2,812.5
BAUCHI	2,657
BENUE	4,992
BORNO	8,772
CROSS RIVER	19,706
EDO	9,100
ENUGU	9,972.85
DELTA	14,805
IMO	512
JIGAWA	5,154
KADUNA	7,749
KANO	17,250
KATSINA	2,506
KEBBI	1,432
KOGI	4,039
KWARA	5,366
LAGOS	2,192
NIGER	5,424
OGUN	18,927
ONDO	43,000
OSUN	6,615
OYO	49,089
PLATEAU	6,744
RIVERS	231
SOKOTO	8,585
TARABA	2,251
YOBE	555
FCT	547
TOTAL	269,537

Source: Foremecu, 1994

Of the 10 million ha of forest land, about 5 million is currently being utilised by the wood industry for timber. This consist of mainly low to moderately stocked forest. In 1990, the commercial growing stock in the country was estimated at about 750 million m³ for the forested area. More than 60 per cent of the timber growing stock originated from the unreserved forests.

The summary of wood requirement and production for the country by wood type is presented in Table 5.4.

Table 5.4 Summary of Demand, Supply and Balance of Each Log Category for Nigeria (1990 – 2010) (000m³ Roundwood Volume)

Wood Type	1990			2000			2010		
	Demand	Supply	Balance	Demand	Supply	Balance	Demand	Supply	Balance
Fuelwood	73,949	82,026	8,077	83,521	71,349	-12,172	88,138	63,099	-25,039
Poles	1,678	1,423	-255	2,183	1,272	-911	2,729	1,153	-1,576
Sawlogs	3,992	3,482	-510	6,378	2,996	-3,382	10,205	2,480	-7,725
Veneer logs	395	163	-232	650	136	-514	1,078	114	-964
Pulpwood	227	724	497	410	724	314	760	724	-36
Total	80,241	87,818	7,577	93,142	76,477	-16,665	102,910	67,570	-35,340

SOURCE: FOREMECU, 1994

Fuelwood alone accounts for over 90.0 per cent of the total wood produced, while sawnlogs, poles, pulpwood and veneer logs account 4.08 per cent, 2.09 per cent, 0.28 per cent and 0.40 per cent respectively.

Sawlogs production is sustained from the forest reserves and unreserved zones. The forest reserves contributes more with about 55 per cent of sawlogs originating from the natural forests. About 85 per cent of the sustained sawlog supplies comes from the natural forest in Anambra, Edo, Delta, Kogi, Cross Rivers, Ogun, Ondo, Ekiti, Osun and Oyo States. Sustained veneer logs supply for the year 1990 is estimated at 163,000m³ with Ondo State producing more than 70 per cent.

Forest plantations in Nigeria support more than 40 per cent of the pole requirements. The estimated commercial volume of poles is about 1.45 million m³. Reserved forest contributes up to 15 per cent, while off-reserved forest areas contributes about 43 per cent of the production.

Pulpwood supply potential is estimated to be 723,660m³. Gmelina species account for more than 56 per cent of the overall supply potentials originating from plantations.

Manpower development in the sub-sector has not been quite encouraging despite the existence of one forest research institute and nine universities offering courses related to the sub-sectoral activities.

Of the universities, only University of Ibadan offers graduate and post-graduate degree on wood and related courses. Like in other sub-sectors, teaching and training facilities

are lacking and inadequate in some cases, where available. The Forestry Research Institute of Nigeria (FRIN) is the only research institute with mandate to research into all aspects of forestry. The institute has sub-stations in the North, West, Mid-west, East and South-Eastern part of the country. There are also federal colleges of forestry at Jos and Ibadan responsible for training middle level manpower.

Vocational training is provided by the Federal Department of Forestry through its Forestry Manpower Development Centre, Epe-Makinde, Ondo State; Forestry Utilization Centre, Benin City. The Forest Utilization Centre, Benin, is presently concentrating on training the private sector with the view to transferring appropriate technology for the utilization of Small Diameter Logs (SDLs).

The World Bank is currently funding forestry research under the National Agricultural Research Project (NARP).

5.3 NON-PHYSICAL INFRASTRUCTURE

The policy for the wood and wood products industry is encapsulated variously in the forestry, energy and industrial policies of Nigeria, with varying degrees of relevance. However, the major responsibility lies within the forestry policy. The main objectives of the forestry policy is to achieve national self-sufficiency in wood and wood products through the use of sound forest management techniques. Aspects of the policy with direct relevance to this sub-sector are:

1. Consolidation and expansion of the forest estate, and its management for sustained yield.
2. Forest regeneration at a greater rate than exploitation.
3. Reduction of waste in utilising both the forest and forest products.
4. Protection of the forest estate from fires, poachers, trespassers and unauthorised graziers.
5. Creation of man-made forests for specific end uses.
6. Development of secondary forest products which are significant to the local economies, and encouragement of agro-forestry.
7. Development of more efficient use of wood energy and encouragement of alternative energy sources to wood fuel.

To achieve its objectives the following strategies are proposed:

- (a) The enforcement of timber grading rules;
- (b) Encouragement of integrated wood processing establishments to enhance efficiency in the wood processing industry;
- (c) Encouragement for adoption of appropriate intermediate technology for converting small-dimension logs efficiently;

- (d) Promotion of new projects and technologies to enhance the economic recovery and use of wood, wood wastes and forest by-products;
- (e) Provision of adequate extension and man-power training with a view to promoting greater efficiency in forest products utilization;
- (f) Involvement of forest industries in forest regeneration; and,
- (g) Discouragement of the use of inefficient implements (e.g. power saws) for primary log conversion.

Aside from the forestry policy, policies of other sectors such as Energy and Waste Management also impact indirectly, and at times directly, on the wood and wood products industry.

The overall thrust of the energy policy in Nigeria is the optimal utilization of the nation's energy resources by reducing dependence on oil through diversification, aggressive research and development, institutional capacity building and energy exploitation. This diversification involves the maximal utilization of wood, either through development of efficient wood stoves, increase in the raw materials base and harnessing biomass energy – this would also entail the production of briquettes.

Given the array of problems inherent in the present forest policy document, efforts are being made to put in place a forest development master plan that conforms with the aim of ensuring industrial wood-sufficiency for the country.

A major step in this direction is the commencement of the Nigerian Forestry Action Programme (NFAP) in 1990. The major aim of the NFAP is to produce an action plan for the forestry sector that would contribute to achieving the aims of the forestry policy. The final report of this document, awaiting ratification by the National Advisory Council, contained strategies and options for ensuring wood-sufficiency in Nigeria, amongst others. The NFAP is therefore, a bold attempt to produce a master plan that would chart the course of the development of the forestry sub-sector in Nigeria.

Also, the forestry node of the Environmental Management Programme (EMP) has produced land use and vegetation maps for the country covering two time periods. These maps would contribute immensely to addressing land use and allocation.

Furthermore, a Forest Resources Study is about to be concluded. Its overall objective is to conduct an inventory of forest resources in the High Forest Zone and in states with plantations of 50 hectares and above in the Savanna zone. This exercise is an update of an earlier inventory conducted in 1976/77.

As regards policy issues, the Federal Department of Forestry has set up a committee for the review of Forest and Wildlife Policy and enactment of legislation. The FDF is

currently seeking for assistance to conduct this study. At the conclusion of which it is expected that a realistic policy, backed up with appropriate legislation, within an inter-disciplinary framework shall be promulgated.

The various institutional frameworks established by Government to promote the development, exploitation and utilization of wood resources include:

- Federal Ministry of Agriculture and Natural Resources;
- Forestry Research Institute of Nigeria (FRIN)
- Federal Environmental Protection Agency (FEPA)
- National Parks Board (NPB)

The details of the activities of these institutions are presented in the main report on the sub-sector.

5.4 SUSTAINABLE DEVELOPMENT PARAMETERS

The sustainable development parameters as discussed in the other sub-sectors of the Manufacturing Sector include waste management and energy. While the situation with environmental and energy policy is the same for the manufacturing industry, it is pertinent to note that the wood industry generates a lot of agro-wastes.

This situation demands serious attention as wood not suitable for plymilling could be recycled. Equally, particle boards could be produced using wood wastes. Small and short pieces of lumber from saw mills could form the basis for establishing mills to convert such wastes into useful wood products.

There is urgent need for introduction of appropriate technology for management of wood wastes in Nigeria.

5.5 PROBLEMS AND CONSTRAINTS

The Wood and Wood products sub-sector like other sub-sectors of the Manufacturing industry of the economy has considerable problems which have affected the growth. These problems include among others, issues related to sourcing of raw materials, processing and utilization of wood resources, technology and process equipment, requisite manpower, and government policies such as legislations and tariffs. These problems and constraints are briefly discussed below:

1. Raw Materials

A decline of timber in volume, size of logs and quality is being experienced. Demand exceeds supply due to increasing population. High quality timbers are fast disappearing from the forests and supplies are uncertain due to illegal cutting. Timber movement

between states is difficult due to restrictions. Political considerations have been observed to affect significantly economic exploitation of wood resources in the country.

Long fibre are not available, as they have to be imported and this constitutes increased cost to the pulp and paper industry.

2. Transportation

Most vehicles used for timber haulage are old and are not easy to replace due to scarce foreign exchange. Entrepreneurs are also not investing their profit on purchase of vehicles.

3. Storage/Preservation

The utilization of untreated wood for construction and other purpose promotes deforestation as a result of frequent need to effect replacement of wood members due to attack on them by wood termites, fungi and insect borers.

The factors limiting the use of treated wood in Nigeria is ignorance of the majority of the populace on the importance of wood treatment and high cost of imported chemicals.

4. Power supply

Most wood and wood based industries rely on public power supply. Five (5) working days are lost every month as a result of epileptic power supply.

5. Manpower

Manpower is in short supply. Education and training have concentrated almost entirely on the public sector. In the private sector, trainings are mainly on-the-job and are mostly not formal. Most of the training, therefore, enable trainees to perform certain basic tasks. There is shortage of qualified trainers in timber harvesting, transportation, wood processing, preservation and seasoning. Polytechnics and technical colleges are not serious in the areas of wood-based industry training. Where available, technical training are more theoretical hence practical skills are not often gained.

6. Revenue and Tariff

Low tariff charges on timber makes it difficult to generate enough revenue for forest regeneration. Wood wastage is also encouraged by this low tariff as loggers consider the wood as more or less free resource, thereby encouraging degradation of the forest. Illegal removal of logs also result in lack of funds for regeneration.

Compounding these problem is the fact that the meagre revenue generated in forestry is not re-invested in forestry but paid back into the states' treasury account, and it is eventually utilised for other state activities that most often do not contribute to forestry

development. However, some states like Ondo, Ekiti, Kaduna and Oyo do set aside at least 25% of such revenue for forestry development.

7. Policy

The forestry policy as presently put in place is a fine documentation of efforts at ensuring wood sufficiency, but it lacks the necessary legal framework to make it operational. It thus makes it difficult for sustainable management of forest resources to be actualised.

8. Waste

Sawmill wood residue and forest materials from land preparation for agriculture and forestry are not fully utilized but flared. About 50% of wood resources is lost through poor conservation techniques, poor utilisation standards, etc.

9. Machines and Equipment

Most machines in the mills are old and need replacement or total refurbishment. Spare parts are also expensive due to high foreign exchange required for their procurement.

10. Marketing

There is little emphasis on quality control in the Nigerian wood and wood products sub-sector. This makes it difficult for Nigerian wood products to compete favourably in the international market and with imported ones. Wood certification has not yet been adopted, hence timber are being taken from forests which are not sustainably managed.

11. Working Tools

Most often the right tools are not available to work with. This results in production of low quality wood and wood products, which attract low prices. For instance, power-saws are used to convert LDLs. This produces planks with rough surfaces which wastes more wood during planing.

5.6 CONCLUSIONS AND RECOMMENDATIONS

The wood and wood products sub-sector has been identified to be very vital to the Nigerian economy in terms of employment generation, provision of raw materials and contribution to GDP. Nevertheless, the full potentials of this sub-sector have not been exploited due to a number of reasons; among which are, lack of proper management of forest estates resulting to inadequate raw material base in quantity and quality, high cost of machine replacement and maintenance, proliferation of ill-equipped sawmills (with its attendant high degree of waste generation), inadequate manpower and the lack of an effective quality control.

Added to this, is the existence of a policy framework without legal backing, and in states where legislations do exist, these laws are obsolete without reflecting the present situation and are difficult to enforce. However, in spite of all these hindrances, some privately owned industries are still carrying out production activities.

Suffice it to mention that the present draw-backs are not insurmountable. With the introduction of positive measures to address the problems of this sector, the wood based industry would occupy an enviable position in the Nigerian economy. The following recommendations are made in order to ensure sustainable growth of the subsector.

1. In order to ensure the availability of raw materials for the industry in terms of quality and quantity. There is an immediate need to boost afforestation efforts, ensure the sustainable management of forest resources and encourage the private sector to participate in forest regeneration.
2. The immediate implementation of timber certification scheme in Nigeria should be pursued with vigour, so as to ensure the availability of quality wood and sustainable management of the wood raw materials base.
3. Efforts should be made to develop and commercialise the use of local preservatives such as cashew juice.
4. Generation and distribution of electricity should be decentralised and made the responsibility of the private sector. In view of its mention in 1998 budget, government should pursue this with vigour.
5. Academic programmes of Universities, Polytechnics and other Technical Colleges should be reviewed to incorporate wood utilization and skills development which are especially absent even in Colleges of Forestry. Wood Engineering should also be an important focus of the educational system. The Sawmill and Forestry Utilization Centre (SAFUC), Benin and other related centres should be upgraded or expanded to enable them improve on the delivery of technical and vocational training.
6. The current practice of setting up prices of forest produce arbitrarily without any scientific consideration or economic justification should be discouraged, because the stumpage rates and tariffs are not a true reflection of the market situation. There should thus be an upward review of tariff. This would considerably assist in reducing the current high levels of waste in the industry. Thus, the existing forest revenue systems and the marketing of forest resources need to give way to open and competitive markets for forest resources.
7. An appropriate incentive framework needs to be put in place which will stimulate investment by the private sector (farmers, communities, individual entrepreneurs) in tree growing. This will allow government to complement what the private

sector is doing as well as perform some selective services which the private sector is not able to perform.

8. Entrepreneurs should take advantage of the removal of import duties on equipment, machinery and spare parts for forestry industry put in place since 1994 and invest in the sub-sector.
9. Adequate funding should be provided to forestry sector research and wood resources development. Forestry Research Institute of Nigeria (FRIN), and other related research institutions should be encouraged and supported to conduct researches in fabricating equipment for conversion of Small Diameter Logs (SDLs).
10. Quality control should be pursued vigorously by the Standard Organisation of Nigeria (SON), this would enable Nigerian woods to compete favourably in the international market. It would also ensure the presence of quality wood in the domestic market, leading to increased income for wood based entrepreneurs.
11. The use of treated construction wood should be enforced, especially in public housing estates, as the wood presently being used are not treated and thus deteriorate quickly. SON should also ensure the use of appropriate machinery, equipment and tools to reduce wastage of raw materials.
12. Wood based entrepreneurs should be encouraged to form trade associations, especially at the national level. This would enable the interest of members to be protected, as they would realise the full benefits of the market of their products. This has the added advantage of enabling government to monitor adherence to quality control measures introduced.
13. The wood and wood based sector should be restructured for greater efficiency. The sawmills need to be reduced in number and refurbished to be able to convert both LDLs and SDLs.
14. Government should provide guarantees of long term loans with low interest rates particularly for equipment replacement, as it is presently very difficult to procure loans to service the wood based industry.
15. Market opportunities outside Nigeria should be explored, especially within the ECOWAS and ATO member countries.
16. Substitution of fuelwood with alternative sources of energy for domestic use should be pursued, especially as the current rate of fuelwood extraction are unsustainable.

17. The current transport system involving the use of rickety vehicles should be looked into with the view to improving on the state of wood haulage in the country.

5.7 INPUTS FOR FORMULATION OF SUPPORT PROGRAMME

The need to locally process timber to meet not only commercial, economic and social considerations, but also to address conservation and sustainable management of natural resources is the guiding principle for the formulation of support programmes. The benefits of such support programme to the rural communities is of paramount importance in project formulation. The major focus therefore, is in the promotion of Small and Medium Scale Enterprises.

Projects required to be established in order to promote the growth of the sub-sector include:

- (i) Development of wood preservatives
- (ii) Production of wood cement boards
- (iii) Production of Briquettes
- (iv) Development of cane chair production
- (v) Improvement training on wood conversion technology for processing logs.

The details of the projects are presented in the main report.

CHAPTER 6

REVIEW OF GOVERNMENT POLICIES ON INDUSTRIAL DEVELOPMENT OF NIGERIA

Government policies on industrial development of Nigeria are linked with the economic environment in which such policies exist. In other words, the economic situation directly or indirectly impinge on the effective implementation of such policies.

Invariably, the essential elements of macro-economic and structural policies adopted by government affect the industrial performance.

6.1 MACRO-ECONOMIC PERFORMANCE

Attempt is made to examine the macro-economic performance of the country within the context of the following indicators.

- Real GDP growth
- Industrial value-added growth
- Gross domestic investment
- Government deficits
- Inflation
- Import growth
- Export growth
- Current account deficit

For the past ten years concerted efforts have been made to stabilize the Nigerian economy following the persistent unstable macro-economic development. The key issues looked into include; Government spending, which resulted in large deficits, excessive borrowing, rapid monetary expansion, over-valuation of currency, inflation, reduced export competitiveness, rising domestic and external debt, etc.

In Nigeria, macro-economic adjustments over the years have not significantly improved the response of private investment. Even, with the substantial progress made in the past three years in correcting the imbalances, the effect on private investment has been weak and slow to manifest.

The larger volume of investment in Nigeria is public. Government in response to this development, made concerted efforts to reverse it through policy measures in order to stimulate private investment. The private sector is now the corner stone of the government economic policy.

Gross Domestic Investment (GDI) declined considerably in both the debt period (1982-1994) and Structural Adjustment Programme (SAP) period (1987-1994). GDI as a percentage of GDP declined from an annual average of 24.4 per cent in the pre-debt period. Equally, GDI declined from about 21 per cent of GDP in the pre-SAP period (1973-1985) to 14.2 per cent in the SAP period, according to a Central Bank of Nigeria (CBN) report.

One possible reason advanced for this declining trend in private investment is the nature of adjustment policies of government. Adjustment policies that advocate reduction of government expenditure tend to undermine private investment.

Furthermore, Manufacturing Value-added (MVA) which is a basic indicator for measurement of a country's industrial growth declined within the same period. Average annual real growth of MVA declined from 5.2 recorded between 1985-1990 to -0.3 between 1990-1995. This trend in decline of MVA is associated with both economic forces and policies which impinge on sustainable manufacturing activities in the country.

However, the Gross Domestic Product (GDP) at 1984 factor cost increase from 1.3 per cent in 1994 to 2.2 per cent in 1995, 3.3 per cent in 1996, and 3.8 per cent in 1997. This increase, though quite below the budget target of 5.0 per cent was attributed to the sustained macro-economic stability achieved since 1995.

Similarly, interest rate remained quite stable at not more than 21 per cent from 1995 to 1997. Equally stable, was the foreign exchange rate, while external reserve increased up to \$7.7 billion in 1997.

Within the period under review, inflation rate dramatically declined from the hyper-inflationary level of 150 per cent in 1994, 73 per cent in 1995 to 28 per cent in 1996 and 8.5 per cent in 1997.

Also, no foreign loan was taken from 1994 to 1997 and external debt declined from \$32.6 billion in 1995 to \$28 billion in 1996 and \$22 billion in 1997. Also, notable achievement was recorded in terms of improved GDP, stable exchange rate and declining inflation. However, import bills continued to grow.

By 1994, the total import bill was N161 billion (\$7.3b) which increased to N563 billion (\$8.2b), in 1995 and declined by 25.7 per cent in 1996. In contrast, total exports grew by 37.4 per cent to N1.3 billion. The increase in total exports was largely attributed to the increase in crude oil exports.

The current account deficit of \$2.4 billion in 1994 and \$2.6 billion in 1995 were improved upon with a surplus of \$3.0 billion in 1996.

Despite the improvement recorded in the economy due to the macro-economic measures taken by the government, there are pertinent areas requiring urgent attention if sustainable economic growth is to be achieved.

- There is need for guided rehabilitation and development of infrastructural facilities such as roads, railways, telecommunication services and industrial layouts.
- Emphasis should be placed on rehabilitation and rapid completion of major capital projects involving huge investments such as the paper mills, the petrochemical complex, the Liquefied Natural Gas (LNG) projects and the Ajaokuta Steel Complex.
- The private sector should be assisted with credit facilities to establish resource-based cottage industries for the purpose of job creation, value-addition on resources, technology acquisition and development and improved local sourcing of industrial inputs.
- There is need to introduce guided trade liberalization so as to encourage local production and establishment of new industries.
- The effective implementation of the guided industrialization strategy and continuity of policies should be ensured and vigorously pursued.

It is anticipated that with these measures if implemented and the macro-economic stability maintained, the growth in the GDP can be improved upon.

6.2 REVIEW OF THE INDUSTRIAL POLICY

The industrial environment has undergone a chequered history of development from the import substitution era, structural adjustment programme (SAP), to enunciation of industrial policy.

After the launching of the Industrial Policy in Nigeria in 1989, it was evident that neither the structural adjustment programme nor the domestic industrial development policy could effectively achieve the much desired economic growth and development. The distortions brought about by this development to the economy, made government in 1994 to embark on a guided de-regulated industrial development strategy. Consequently, the 1989 Industrial Policy of Nigeria was modified as stated below:

1. The Exchange Control Act of 1962 was repealed in 1994 in order to allow in-flow of foreign capital into the country.
2. The introduction of new banking and monetary policies in order to sanitize the financial sector and reduce inflation to less than 10 per cent.
3. Introduction of additional tax incentives and modification of tariff structures.

4. The repeal of the Nigerian Enterprises Promotion Decree of 1989 so as to encourage foreign investors participation in viable ventures in the country.
5. The introduction of Bilateral Protection Agreement to protect and guarantee investments of foreign nationals.
6. The introduction of commercialization and privatization programme for public enterprises in order to make them more productive and efficient.
7. The establishment of Nigerian Investment Promotion Council as an institutional framework for promoting investment in Nigeria.
8. The establishment of Family Economic Advancement Programme (FEAP) to promote the establishment of resource-based cottage industries and provide employment opportunities for Nigerians, in order to improve on family economic empowerment.

6.3 FUNDING OF SUPPORT PROGRAMME

The following institutions were identified to have mandate relevant to the proposed resource endowment study in Nigeria.

- Raw Materials Research and Development Council (RMRDC).
- Family Economic Advancement Programme (FEAP).
- Federal Ministry of Industry (FMI).
- Federal Ministry of Agriculture (FMA).
- Manufacturers Association of Nigeria (MAN).

Through institutional collaboration and with the assistance of UNIDO, these institutions should be able to fund the study. UNIDO, through the Diversification Fund for Africa's Commodities and Alliance for Africa's Industrialization could fund the resource endowment study. Equally, development institutions such as Nigerian Industrial Development Bank (NIDB), National Economic Reconstruction Fund (NERFUND), and Risk Fund Plc., could contribute to the resources endowment study in Nigeria.