



**TOGETHER**  
*for a sustainable future*

## OCCASION

This publication has been made available to the public on the occasion of the 50<sup>th</sup> anniversary of the United Nations Industrial Development Organisation.



**TOGETHER**  
*for a sustainable future*

## DISCLAIMER

This document has been produced without formal United Nations editing. The designations employed and the presentation of the material in this document do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations Industrial Development Organization (UNIDO) concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries, or its economic system or degree of development. Designations such as “developed”, “industrialized” and “developing” are intended for statistical convenience and do not necessarily express a judgment about the stage reached by a particular country or area in the development process. Mention of firm names or commercial products does not constitute an endorsement by UNIDO.

## FAIR USE POLICY

Any part of this publication may be quoted and referenced for educational and research purposes without additional permission from UNIDO. However, those who make use of quoting and referencing this publication are requested to follow the Fair Use Policy of giving due credit to UNIDO.

## CONTACT

Please contact [publications@unido.org](mailto:publications@unido.org) for further information concerning UNIDO publications.

For more information about UNIDO, please visit us at [www.unido.org](http://www.unido.org)

RESTRICTED

17520

DP/ID/SER.A/1201  
11 May 1989  
ORIGINAL: ENGLISH

**STRENGTHENING INDUSTRIAL PLANNING AND PROGRAMMING IN SUPPORT  
OF THE GOVERNMENT'S INDUSTRIAL SECTOR ADJUSTMENT PROGRAMME**

DP/GHA/86/001

GHANA

**Technical report: Statement of industrial policy and programme  
to advance manufacturing in the Republic of Ghana, 1989-1993\***

Prepared for the Government of Ghana  
by the United Nations Industrial Development Organization,  
acting as executing agency for the United Nations Development Programme

**Based on the work of E. A. S. Taylor, CTA and  
senior adviser in industrial planning**

Backstopping officer: W. Eckert, Industrial Planning Branch

United Nations Industrial Development Organization  
Vienna

---

\* This document has not been edited.

V.89 55510

### Explanatory Notes

Value of the local currency - Cedi (¢) - in United States Dollars - US \$ - mid April 1989:

Bank rate	1 US \$ = 250 ¢
Forex rate	1 US \$ = 350 ¢

Reference to the Government means the Government of the Republic of Ghana, unless otherwise stated.

Reference to \$ means United States dollar, unless otherwise noted.

A slash between dates (eg 1987/88) indicates a financial year.

A dash between dates (eg 1988-1992) indicates the full period including the beginning and ending years.

N.A. means not available.

A dash (-) in tables indicate that the amount is nil or negligible. For summation purposes the (-) may be represented by a zero (0).

## ABBREVIATIONS

AGI	Association of Ghana Industries
BOG	Bank of Ghana
CIF	Cost, Insurance and Freight
CSIR	Council for Scientific & Industrial Research
CTA	Chief Technical Adviser
DAPIT	Development, Application & Promotion of Intermediate Technology
DLC	Domestic Linkage Industry
DRC; DRI	Domestic Resource Costs; Domestic Resource Industry
EDP(F)	Entrepreneurship Development Programme (Fund)
EPC(R)	Effective Protection Coefficient (Rate)
ERP	Economic Recovery Programme
GEPC	Ghana Export Promotion Council
GIC	Ghana Investment Centre
GSB	Ghana Standards Board
GSS	Ghana Statistical Services
GDP; GNP	Gross Domestic Product; Gross National Product
GRATIS	Ghana Regional Appropriate Technology & Industrial Services
ISA	Industrial Statistics Adviser
ISAC	Industrial Structural Adjustment Credit
ITTU	Intermediate Technology Transfer Unit
MDP	Management Development and Productivity Institute
MFEP	Ministry of Finance & Economic Planning
MIST	Ministry of Industries, Science & Technology
MOS	Manufacturing Operations Support
MVA	Manufacturing Value Added
NBSSI	National Board for Small Scale Industries
NPC	National Project Co-ordinator
PAMSCAD	Programme of Action to Mitigate the Social Cost of Adjustment
PME	Programming, Monitoring & Evaluation
PNDC	Provisional National Defense Council
PRP	Planning, Research and Policy
SAP	Structural Adjustment Programme
SME	Small and Medium Enterprises
SOME	State Owned Manufacturing Enterprise
SSIA	Small Scale Industrial Adviser
TCC	Technology Consultancy Centre
UNDP	United Nations Development Programme
UNIDO	United Nations Industrial Development Organization
UST	University of Science & Technology
VA	Value added
WB	World Bank

## TABLE OF CONTENTS

	Explanatory Notes.....	2
	Table of Contents.....	4
	Preface.....	6
	Executive Summary.....	7
1.	Introduction: The Macro-Economic Setting.....	11
	The Industrial Planning Scenario.....	11
	Guiding Principles .....	12
2.	Industrial Policy Objectives.....	13
	Locational Policy.....	13
	Investment Policy.....	14
	Taxation Policy.....	14
	Technology Policy.....	15
3.	Development Strategies.....	15
	The New Emphasis.....	17
	Products & Activities Identified For Extra Push .....	17
	Selection & Evaluation Criteria .....	19
	Main Mechanism For Growth .....	20
4.	Current Measures & Their Impacts.....	20
	Overview of Current Programmes.....	20
	A Look at the Industrial System.....	22
	The Industrial Structure.....	23
	Review of Industrial Performance.....	25
5.	Industry Prospects.....	29
	Role of Domestic Resource Industries.....	29
	Role of Non-Traditional Manufacturing.....	30
	Role of Non-Traditional Export Production.....	31
	Role of Export Promotion.....	31
6.	Support Programmes & Measures.....	32
	Rationalization of SOMEs.....	32
	Public Expenditure Programme .....	33
	Industrial Restructuring Programme .....	33
	Financial Sector Restructuring Programme.....	34
	Entrepreneurship Development Programme .....	34
	Role of Appropriate Technology Services (GRATIS).....	35
	Small and Medium Scale Enterprise Development.....	35
	Role of Research and Development Institutions.....	36
	Institutional Restructuring Programme.....	36
7.	Economic Policy & Reforms.....	37
	Industrial Policy Reform.....	38
	Industry Strategy Reform.....	38
8.	Industry Policy Guidelines 1989-1993.....	39
	Sectoral Targets and Outputs, 1988-1992.....	40
9.	Ministry's Action Plan 1988 - 1992.....	42
	Institutional Support.....	42
	Industrial Information Support .....	42
	Industrial Infrastructure Support .....	43
	Financial Sector Support .....	43
	Research & Development Support .....	44
	Policy, Taxation & Incentive Support.....	44
	Investment Promotion Support .....	45
	Training & Manpower Development .....	45
	Standards Development Support .....	45

10.	Special Programmes for Years 1989 and 1990.....	46
11.	Conclusions.....	47

**APPENDICES**

Appendix	I: General Work Programme For 1988-1992....	49
Appendix	2: Studies to Facilitate MIST Action Programme and Support for Industry.....	52
Appendix	2A: Sub-sector Studies & Delivery Schedule..	53
Appendix	3: Special Action Programme for Leading Sub-Sector Development.....	54
Appendix	4: Notes and Definitions.....	57

**TABLES**

Table 1:	Gross Output of Manufacturing Sector 1981-1987 at Constant 1975 Prices.....	24
Table 2:	Regional Distribution of Manufacturing Enterprises as at December, 1987.....	25
Table 3:	Manufacturing Share of GDP, 1975-1987.....	27
Table 4:	Index of Manufacturing Production, 77-87....	28
Table 5:	Sector/Sub-Sector Targets for 1988-1991.....	41

## INDUSTRIAL POLICY STATEMENT

### PREFACE

Ghana's First Industrial Policy was defined in the late 50's and popularized in the early 1960's. Essentially, it was designed to facilitate an import substitution strategy which at that time was the most widely used and accepted policy instrument to effect and advance industrialization in the developing world.

Since then dramatic changes in the world economic environment have occurred and these have produced many policy responses and much distortions, especially in the economic plans and programmes of Third World Nation States.

This statement of policy is being issued today against this reality and after much thought and reflection. Besides postulating a positive picture of the future that is achievable with the right mix of policy, entrepreneurship and national commitment, Government has also given full recognition to the vast endowment of human resource and natural wealth that remain under-utilized, and to a large extent under-exploited. Pursued within this framework and given the rich infrastructure that is currently in place, success is not beyond the capacity and capability of Ghanaians as progressive people. But like any other statement, the policy objectives that have been defined herein can only be actualized when, acting as one people, the nation can combine its skills and innovativeness for the effective use of resource, capital and existing production capacity in a conscious and mutually respectful relation in which labour and entrepreneurship both have their fair and due returns. Only then will it be possible to meet and match with confidence the many challenges that will always arise in the course of the economic restructuring and development.

This document is by no means all embracing, but it represents a new and solid beginning and a deliberate attempt to re-articulate Ghana's policy and strategies for the advancement of industry and the economy. During the course of plan implementation it will be necessary to make revisions. These will be done at least annually, to reflect new information gained from on-going studies and through the continuing and constructive dialogue that will be encouraged with the productive sectors and other participants within the wider industrial community.

We wish that this document will provide useful guidance and guidelines to Ghana's industrialists, entrepreneurs and investors and assist them to move forward together toward the twenty-first century.

## EXECUTIVE SUMMARY

This document defines the guiding principles for the structural adjustment of the Ghanaian economy and establishes the basis for the new industrial policy. It provides an up-to-date assessment of the state of the industrial economy taking into account the progress made and problems encountered with the import-substitution strategy which unfortunately still underlie the present industrial system. Special attention has been focussed on the programmes and achievements between 1985 and 1987, the period in which the first Economic Recovery Programme, (ERP I) was effected. This, inter alia, sought to correct certain systemic weaknesses and distortions in the industrial structure and lay the base for a new industrial growth profile. On the basis of the very positive response of the manufacturing sector, an attempt has been made to project the sector's performance over the next 5 years, FYs 1989 to 1993. Secondly, the paper presents a basic framework for advancing and spreading manufacturing activities throughout the country, building upon the rich foundation currently in place. Thirdly, it outlines the broad macro-economic goals and strategies which the Government is pursuing, and which will be continued within the context of trade liberalization, flexible foreign exchange policies and the market approach to encourage the efficient allocation of the country's resources.

A detailed analysis is made of existing manufacturing capacities, the state of the industrial infrastructure, the effectiveness of supporting and industry-related institutions, their current programmes and practices ending with a careful assessment of the very dynamic environment in which Ghanaian industry is expected to operate. An attempt is made in this statement to identify priority sub-sectors and activities to be given a new push and where restructuring, rehabilitation and expansion can be most effective; the basic objective being to promote efficient enterprises and facilitate their continued development to earn and save foreign exchange for the country within a liberalized and functional market system. In pursuing the new policies every attempt will be made by Government to identify and address the major constraints and concerns facing the manufacturing sector. The paper establishes finally an inventory of inter-sectoral and institutional imperatives which are necessary to improve co-ordination and collaboration in the areas of industry and investment promotion and programming, especially transactions between industry, agriculture, transportation, construction, health and trade.

In conclusion, this policy statement gives a clear indication of the direction and long term vision of Government. However, it should equally be clear that if the goals of economic self-reliance and self-supporting industrial growth are to be realized, a much higher level of effort and patriotism will be required of all who are involved in the production chain



including the agencies responsible for industrial programming, monitoring and policy co-ordination. The essential features of the document are captured in the general overview which follows:

## **GHANA'S ECONOMIC & INDUSTRIAL POLICY**

### **GOVERNMENT POLICY**

Market & Private-sector based Economy  
 Liberalizing Trade Policies  
 Flexible Foreign Exchange Policy  
 Diversified Products/Markets  
 Balanced Sectoral Growth

### **1. ECONOMIC STRATEGY**

- 1.1 **Mixed Economy**  
 -Public Sector 40%  
 -Private Sector 60%
- 1.2 **Balanced Economy**  
 -Industry 25%  
 -Agriculture 25%  
 -Commerce 20%  
 -Small Scale Industry 15%  
 -Service Sector 15%
- 1.3 **Industry Bias** Yes  
 1.4 **Self Reliance** Yes  
 1.5 **Diversification** Yes

### **2. INDUSTRY STRATEGIES**

- 2.1 Strengthen Traditional Sectors  
 2.2 Develop Non-traditional Sectors  
 2.3 Develop Small Scale Sectors  
 2.4 Tighten Import-Competing Industries  
 2.5 Push Export-Competing Industries  
 2.6 Push Domestic Resource Industries  
 2.7 Strengthen Linkage Industries  
 2.9 Devel Raw Material Supply Industries  
 2.10 Spread Industries outside cities

### **3. POLICY OBJECTIVES and targets for Industrial Sector**

- 3.1 GDP Contribution p.a. 8-12%  
 3.2 Export Increment p.a. 10-13%  
 3.3 Job Creation p.a. 8-10,000  
 3.4 New Skills Devel'mt p.a. 3-5,000

### **4. APPROACH to promote/develop Industries**

#### **4.1 Priority Treatment & Extra Push for:**

##### **A. Domestic Resource Industries**

- [Agro-based]** - Food/Cocoa/Oil Prod  
 - Cereals/Fruits  
 - Plant/Drugs  
 - Cotton/Textile/Garmnt  
 - Rubber/Tyres  
 - Animal Feeds

- [Forest-based]** - Wood/Furniture/Craft  
 - Building Products

- [Mineral-based]- Clay/Bricks/Tiles
  - Salt/Caustic Soda
  - Silica/Glass
  - Bauxite/Aluminium

**B. Other Strategic Industries**

- [Chemical-base] - Basic Drugs
  - Agro-chemicals
  - PVC/Plastics

- [Packaging] - Cardboard/Paper products

- [Metal-based] - Machine Shops/Foundry
  - Tools/Implements
  - Wire/Nails/Bolts

- [Electrical] - Bulbs/Batteries
  - Cables/Switches

**5. EVALUATION CRITERIA**

- 5.1 Availability of local raw materials
- 5.2 Existence of plant capacity
- 5.3 Value Added contribution
- 5.4 Linkage & Multiplier effect
- 5.5 Product competitiveness
- 5.6 Employment creation
- 5.7 Export Earning capacity
- 5.8 Technology considerations

**6. SUPPORT MEASURES**

- 6.1 Productivity Incentives (MIST)
- 6.2 Value Added Incentives (MIST)
- 6.3 Tax Breaks (Dep/Inc Tax relief)\*
- 6.4 Equity Capital Access (Dev'mt Bank)\*
- 6.5 R & D Assistance (CSIR/UST etc)
- 6.6 Market Research & Promotion Asst\*\*
- 6.7 Standards & Quality Assistance (GSB)
- 6.8 Biased Training towards skill needs+
- 6.9 Improved Industrial Infrastructure)+
- 6.10 Increased Rehabilitation Funding\*
- 6.11 Improved Industrial Data base (MIST)
- 6.12 Improved Monitoring Capability (MIST)

**7. SUPPORT PROGRAMMES & ACTIVITIES of the Ministry of Industry**

- 7.1 Estab Statistical & Information base
- 7.2 Prepare/Update Industrial Master Plan
- 7.3 Establish/Monitor Production targets
- 7.4 Monitor Industry Rehabilitation prog

**8. SPECIFIC ACTIVITIES for the Ministry and its Implementing Agencies**

- 8.1 Complete Sub-sector Studies (by Oct 89)
- 8.2 Develop sub-sector/sector plans(Dec 89)
- 8.3 Carry out thematic studies for: tariff/taxation & protection (on-going)
- 8.4 Complete Rehabilitation Studies (Dec 89)

-----  
\* MFEP/BOG

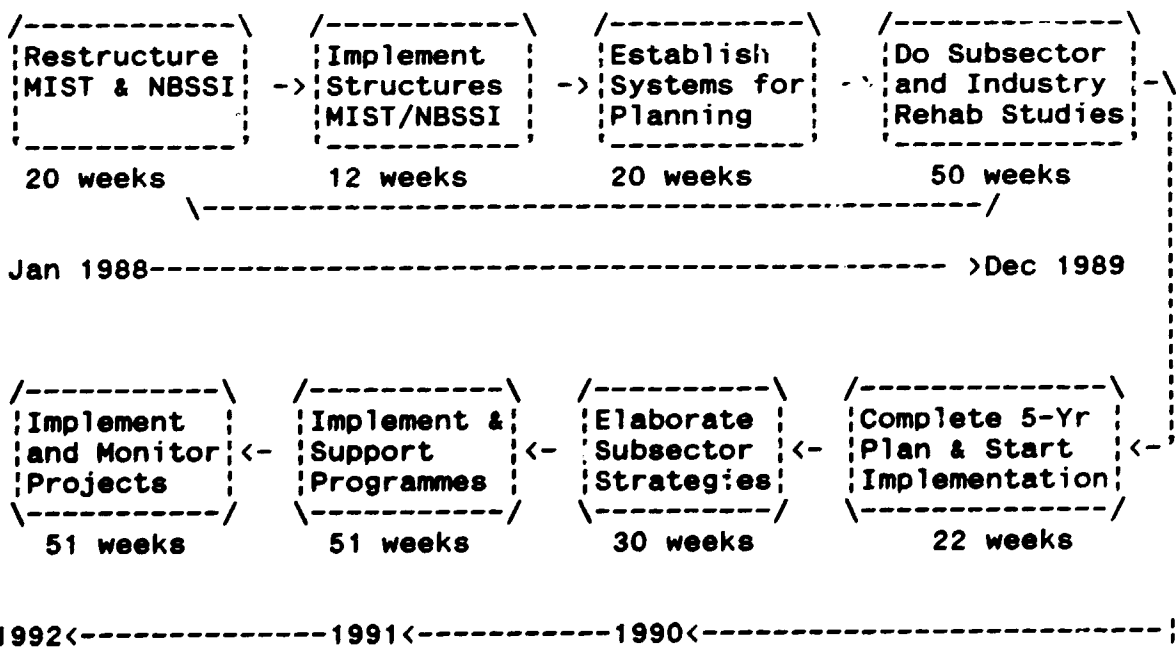
+ Under General Macro-economic Policy

8. SPECIFIC ACTIVITIES cont'd  
 for the Ministry & its Implementing Agencies
- 8.5 Programme Industry Rehabilitation (1990)
  - 8.6 Market & Opportunity Studies (on-going)
  - 8.7 Training (on-going)
    - entrepreneurship & management
    - technical & operational

9. OUTPUT & PERFORMANCE INDICATORS
- 9.1 Productivity Indices for: Labour, Capital & Plant
  - 9.2 Capital-Output Ratio
  - 9.3 Export-Import Ratio
  - 9.4 Value Added Content
  - 9.5 Domestic Resource Cost Ratio

10. CO-ORDINATING &/OR SUPPORTING ARRANGEMENTS WITH
- 10.1 Public Utilities: telephone,
    - telex, electricity, ports,
    - water, postal & air transport.
  - 10.2 Financial institutions: banks,
    - co-ops, insurance companies.
  - 10.3 Public sector institutions:
    - training, research labs.,
    - universities,

11. 5-YEAR INDUSTRIAL SUPPORT IMPLEMENTATION PROGRAMME



## 1.0 INTRODUCTION: THE MACRO-ECONOMIC SETTING

Ghana is an independent Republic in West Africa with per capita GNP in the upper range of the low income group. Occupying a land mass of some 238,000 square kilometers with a population less than 15 million the country's potential remains largely under-explored. Strategically located on the West Coast, it shares border with Togo on the East, Burkina Faso on the North, Cote D'Ivoire on the West and the Atlantic Ocean on the South, approximately 5 degrees above the equator and 5 degrees below the sub-saharan belt. The official language for most internal and international communication is English but several indigenous (written and spoken) dialects are actively used for local direct communication. The country is naturally rich in mineral resources; the main ones being gold, bauxite, diamonds and rutile. In addition to its mineral wealth there is an abundant resource in forestry, agricultural crops and fertile lands, a well developed hydro-electric generation capacity and, by African standards, a fairly sophisticated, now depreciated industrial infrastructure. Ghana operates a mixed economy which presently is comprised of a relatively high concentration of state-owned manufacturing enterprises (SOMEs) as well as some non-industrial economic activities. These economic activities which were developed largely to mobilize or support primary production are currently being actively assessed for divestment and privatisation. Thus, Government desires to see a substantial shift away from the dependence on primary production to a more progressive programme of domestic value addition to primary products. This is particularly necessary as cocoa earnings can no longer sustain the bulk of the nation's foreign exchange needs. Other activities including natural and replenishing agriculture, mining and agro-industrial production must therefore be fully exploited.

For considerations including effective linkage development and improved co-ordination some industrial establishments have been assigned to other sectoral Ministries, especially the activities that are closely allied to Mining, Local Government, Agriculture and Construction. In much the same way, certain industrial functions have been deputed by statute to implementing agencies, which among others, include: the Ghana Investment Centre (GIC), Ghana Export Promotion Council (GEPC), State Enterprises Commission (SEC), Council for Scientific and Industrial Research (CSIR), Ghana Standards Board (GSB) and the National Board for Small Scale Industries (NBSSI). Not-with-standing the above assignments, all matters concerned with the country's industrial policy remain the responsibility of the Ministry of Industries, Science and Technology.

### 1.1 THE INDUSTRIAL PLANNING SCENARIO

Ghana embarked on an intense industrialization programme as the basis for its economic development shortly after it gained its independence from the United Kingdom in 1957. Relevant to the time, the approach was based on import-substitution. On this basis

policies were promoted to encourage a wide mix of manufacturing activities albeit geared toward replacing finished imports using mostly imports of raw, intermediate materials and machinery as inputs for domestic production. Within the framework of a mixed economy the state became actively involved in industrial investments with the primary goal of stimulating linkage and spotting strategic enterprises in to hasten the pace of the country's industrialization. As a result concepts such as Tema was developed to promote rapid advancement in electrical, metal and other integrated industrial processes.

Manufacturing activities expanded rapidly in the 1960's under a highly protected trade policy and by 1970, Ghana boasted one of the largest and most diversified manufacturing sectors in Africa. The period between 1970 and 1976 saw a gradual saturation in manufacturing activities. The sector contracted rapidly between 1977 and 1983 with average capacity utilization rate reaching its lowest at 20% in 1982. This contraction resulted largely from the excessive dependence of the manufacturing sector on imported raw materials, spares and technology which became increasingly scarcer with the general deterioration in the economy's balance of payment. Since 1984, as a result of the Government economic recovery efforts, the economy has been showing steady emergence from its worst crisis, and from comparative analysis, an impressive recovery rate averaging 6% annually since 1985. This trend is continuing.

### 1.3. SOME GUIDING PRINCIPLES

Government in pursuing the task of economic reconstruction has committed itself to a policy that gives full recognition to the need for a dynamic and progressive private sector and where necessary, efficient public sector institutions. The private sector is expected to be the main vehicle for industrial investments and to link up with the various macro-economic sectors for optimal development and sustained growth. Within this general framework the performance of, and need for State-Owned Manufacturing Enterprises (SOMEs) will be continuously reviewed. Government's support or direct intervention in manufacturing operations will be by exception only, or in those cases where the national interest or its security is at risk.

This policy statement therefore represents a continuation of the approach embarked on by Government over the last three years, 1985 to 1987 and which will be carried through within the framework of trade liberalization, flexible foreign exchange policy and a market determined system for resource allocation. Special emphasis will be given toward consolidation of measures adopted as pragmatic responses to specific and broad base concerns of the private sector. Further opportunity will be taken to fill and strengthen current gaps created either by or through transitional measures identified above. The long-term objective of course remains that of creating the foundations for a constructive partnership between the public and the private sector and a careful balance between production for domestic consumption and export.

This will require strengthening the country's technological capacity and entrepreneurial skills in line with manufacturing and industrial production. Section 4 below identifies the main objectives of the industrial policy and strategies and targets for the various sub-sectors.

## 2.0. THE INDUSTRIAL POLICY AND OBJECTIVES

Recognizing that cocoa which has been the main stay of the economy for over a century is now a sunset industry and having regard to the wide range of mineral and agro-industrial resources available in the country a rapid programme of product diversification will be vigorously pursued. Such a programme envisages some rationalization in manufacturing operations as well as in their current production, and on the basis of efficient value added it is expected that the manufacturing sector will be able within the next five years:

- a. To exploit to the optimal economic level the country's mineral and agricultural output through the promotion of efficient manufacturing enterprises and the development of an effective chain of agro-industrial linkages throughout the country;
- b. To realign industrial and manufacturing activities to their raw material base so as to achieve the highest feasible level of value added, capacity utilization, industrial employment and foreign exchange returns from earnings or savings;
- c. To attract investments and entrepreneurs into desired, neglected and linkage sectors and activities in order to achieve a satisfactory balance between production for domestic consumption and for the export market;
- d. To strengthen and expand technological base and the range of domestic products to include raw material, capital goods, tools and production equipment through appropriate and applied research and other developmental assistance;
- e. To synchronize existing manufacturing linkages and develop new areas for industrial co-operation with key economic sectors, especially Agriculture, Transport, Construction, Education, Health and Trade;
- f. To facilitate the growth of domestic resource-based manufacturing enterprises in all regions of Ghana through positive promotion and support for small and medium scale industrial activities and an efficiently operated entrepreneurship development fund and training scheme.

### 2.1 Locational Policy

Industrial development in the past has been unnecessarily skewed toward the traditional centres of shipping or trade. With the exception of mining the resource rich areas have gained very little benefit from the direct conversion of their resources.

Government will seek to attract investments in these areas to spread and strengthen the opportunities for rural employment, small scale activities and industrial services. Attempts will be made to identify resources in all regions and through positive promotions encourage the development of domestic resource-based manufacturing and linkage industries. In addition, Government will be willing to consider on case by case basis, concessions to offset differential in cost of setting up in rural areas vis-a-vis the developed areas so as to overcome or establish infrastructural requirements.

## 2.2 Investment Policy

Recognizing the increasingly competitive world environment for good industrial investments, Government has adopted a very positive and flexible attitude towards promotion, attraction and retention of investments. Further measures are being developed to positively influence the climate for re-investments, foreign direct and portfolio investments and to encourage the development of an active stock market for mobilizing domestic and other long-term capital funds.

The Ghana Investment Centre (GIC), the country's primary investment promotion agency, has been restructured to provide a full range of investment services. Thus, the process and requirements for investment decisions will be simplified under one roof and management. A new investment code is being finalized to reflect this new approach and policy. Reference is directed to the Investment Code as a complementary document to this policy statement.

## 2.3 Taxation Policy

In line with Government's taxation policy, manufacturing enterprises may be liable to any or all local tax at any of the three production stages, namely: a moderate import duty payable at the port of entry which vary between 0% and 20% depending on the classification of the item of import; a 22.5% sales tax on finished production or service payable at the point of sale or delivery, and a standard rate of 45% based on declared or earned profit. However, these rates are calculated to maintain equity between items of domestic manufacture and imports, and in most instances the resultant rates are more favourable to the manufacturing sector. This practice will continue, and during the course of implementation of this plan, careful watch will be maintained to monitor any imbalance due to tax that have adverse impact on the manufacturing sector in general, or specific industries as a result of across-the-board macro-economic policy or resulting directly from the trade liberalization measures.

## 2.4 Technology Policy

The Government is committed to advancing the technology base of industry and to create the opportunity for the productive sector to maximize output built upon an integrated programme of scientific and technical education, applied research and appropriate engineering development. This process is intended to stimulate the establishment of core industries, such as caustic soda, basic steel, and supported by well developed engineering industries for the manufacture of tools, agricultural implements, spare parts, machinery and other medium level capital and technology products.

Active participation will be encouraged between and among the various scientific and technological institutions and the trade, manufacturing associations and enterprises to assure proper screening, design, adaptation and delivery of functional and appropriate technologies to industry. Greater emphasis will be given to the maintenance of capital stock and a special drive directed for the improvement of capital and labour productivity. The Council for Scientific and Industrial Research is presently preparing a national technology plan which will serve as a general guide to existing and new investors and entrepreneurs.

## 3.0 THE DEVELOPMENT STRATEGY

The strategies outlined herein are intended to provide support for, and to reinforce Government's commitment to restructuring the ailing agro-industrial economy. Fundamental to this process is the urgent need for reform in industrial production and its delivery system. No effort will be spared by Government in this drive toward achieving dramatic improvement in the general level of industry performance. Improved systems are being installed for better resource allocation and management combined with facilities for indicative sectoral targetting and achievement monitoring. Early removal of impediments in the way of domestic producers is receiving highest consideration and through timely-research and studies, an improved industrial data base will be developed to enhance policy formulation, policy monitoring and reforms, and to address enterprise and subsector constraints.

The Ministry, conscious of its role in providing policy guidance to the industry sector, hopes to make an effective contribution toward developing a stable and positive industrial environment for the advancement of manufacturing in Ghana. In its development programme, the Ministry will entertain all justifiable complaints and will seek to make or support appropriate representations to relevant Government agencies on behalf of genuine cases especially marginal and distressed enterprises.

Much thought and resource will directed to raise effective capacity levels of efficient plants and producers. Greater focus will be given to the first two years of the programme in order to attain the output target of at least fifty percent of the average



single shift capacity. This is to be achieved through improved access and priority to foreign exchange for domestic resource-based industries (DRIs) particularly those in the export sector and their domestic linkage industries (DLIs). Necessary assistance and support will be directed to promote, facilitate and enhance enterprise rehabilitation programming, especially in the key and linkage sectors of the economy. It is anticipated that by the end of FY 1991 the manufacturing sector would be well positioned to be internationally competitive and by then will have achieved a higher level of self reliance, cost-effectiveness with marked improvements in product pricing, quality and standards.

Accordingly, specific programmes will be promoted by MIST which will, among other things, seek actively to encourage and support greater use of indigenous and under-utilized local resources. In particular, R & D support will be organized and mobilized using the facilities of CSIR, GRATIS and the ITTU network to explore and exploit to the fullest extent the agro-industrial linkages and potential in all regions of Ghana. Parallel to, and consistent with this development strategy, it is the expressed intention of the Ministry to collaborate with other approved agencies to examine additional schemes and incentives that will attract and/or serve to guide existing and new entrepreneurs into other industrial areas and opportunities with special considerations given for high valued added investments, export-oriented industries and local raw material supply, intermediate and linkage-industries. Tangible support will be given to industries that are undertaking rehabilitation and modernization works to meet international competition.

The promotion and development of small scale industrial entrepreneurs and opportunities in all regions of Ghana has been given a high priority in the economic recovery programme. The Ministry through the NBSSI will assist and support small scale enterprises to upgrade their technology and business skills to enable them to optimize the advance capacity and their contribution especially to rural and suburban employment generation and to provide effective linkages and growth points for maturing and distressed industries. Development support will be increased and R & D programmes directed to upgrade and transfer relevant and appropriate technologies especially in the informal and small scale manufacturing sector.

In medium and large scale industrial activities, direct and indirect foreign participation will be positively encouraged in the private sector and actively pursued in the State-Owned Enterprises (SOMEs) to enhance and expand technology-linkages, inject better management practices and to facilitate export production and services. Such programmes will be pursued directly by the management of state-owned manufacturing enterprises through joint representation with the Ministry or other relevant agencies. Joint venture arrangements, management contracts and capacity subcontracting will be encouraged. Where necessary clear-cut divestment of SOMEs assets and control will be promoted

by the Ministry in coordination with other approved Government agencies. In the private manufacturing sector it is hoped that further equity capital will be injected in manufacturing enterprises to assure and attract active joint venture partners, private and public share subscriptions and effective mergers, buy-ins or buy-outs.

To facilitate the rapid growth envisaged in, and planned for the manufacturing sector, the Ministry of Industries, Science and Technology (MIST) including the National Board for Small Scale Industries (NBSSI) is to be restructured and their institutional capacity strengthened to improve systems for industrial data acquisition and analysis, for more effective planning and policy formulation and to improve the level of industrial communications. This restructuring exercise, together with its facility strengthening should provide the Ministry and its implementing agencies with the necessary skills and technical capability, not only to implement and monitor, but equally to respond to and assist the orderly transformation and redirection of the national economy toward promoting efficient and export-oriented production.

### 3.1 The New Emphasis

Mindful of the increased competition affecting cocoa-based products and the country's traditional dependence on a declining cocoa revenue, Government desires to diversify industrial production on the premise of optimum value addition to domestic resources by using minimum value strategic imports. Accordingly, the effective value added criterion will be promoted as the basis to assess comparative advantage and to determine the areas and activities for the "new push". In the implementation of this strategy, Government recognizes the wide range of existing manufacturing industries developed on the premise of import substitution. However, within the context of trade liberalization and the market approach such enterprises will be challenged to rationalize outputs, rehabilitate and modernize equipment and management to provide competitive products for domestic and international markets. A careful balance between production for domestic consumption and for the export market will be maintained. Enterprises using domestic-based resources and others while currently are import dependent for their raw materials are of sufficient strategic importance to the nation's health, security or providing essential sectoral linkage have been identified for most favourable status and will receive the new push. These include but are not limited to wood-based, mineral-based, agro-based, pharmaceuticals, chemical, engineering-based and sheet metal enterprises.

### 3.2 Products Identified For Extra Push

In line with the objective of Government to diversify the economy and make industry a lead sector in the medium to long term, some priority areas of industrial activity have been identified for extra push. These activities fall in four broad product categories, namely:

**3.2.1 Agro-based industries, which include:**

- a. Food Products for processing
  - cereals, oil palm, fruits & vegetables, nuts
- b. Cotton Products
  - lint cotton, yarn, thread, textile, garment
- c. Rubber Products
  - latex, rubber sheets, tyres, tubes, sandals

**3.2.2 Forest-based industries, which include:**

- a. Wood Products for processing
  - lumber, furniture, toys, crafts, building materials, household utilities, boats
- b. Paper & Paper products
  - toiletries (sheets & rolls)
  - stationery, exercise books
  - card board for packaging & labels

**3.2.3 Mineral-based industries, which include:**

- a. Aluminium Products
  - roofing sheets, louvre blades, other building materials, household utility & sheets for storage tanks and other fabrication requirements, electrical cables and packaging materials
- b. Ferrous Metal Products
  - building material, locks, nails, wires, iron billets, sheet steel, formed steel for construction and engineering industries (rods, angles, bars)
  - implements & machinery for agriculture (cutters, hoes, fabricated millers, presses and grinders)
- c. Non-Ferrous Metal Products
  - bricks, tiles, clinker, cement, glass products, crockery and other household utility, electrical insulators
- d. Salt and derivatives

**3.2.4 Strategic Industries which may require some imported materials but having a high proportion of value added. These will include:**

- a. Basic drugs
  - analgesics, antimalaria, disinfectants,
- b. Agro-chemicals
  - fertilizers, insecticides

- c. Fabricated metal products for manufacturing support
  - sheet metals, tools, spare parts, bolts
- d. Electrical Products
  - essential domestic appliances (bulbs, batteries, switches, plugs, cables, connectors, television sets, electrical irons and refrigerators)

The above products were chosen based on two broad criteria, namely:

- (a) the immediate and long term comparative advantage
- (b) the strategic advantage of having some domestic production even though currently they may require some imported inputs.

### 3.3 The Selection and Evaluation Criteria

In the development of the list of products and manufacturing activities to be given the extra push under the new industrial policy, an eight-point selection criteria was used to capture and exploit the country's current and dynamic comparative advantage. The following criteria were used:

1. availability/accessibility of local raw materials
2. existence of some rehabilitable domestic capacity
3. value added content/contribution
4. inter-sectoral linkage/multiplier effect
5. product competitiveness - price & quality
6. employment generation considerations
7. export earning capacity, now and long term
8. technology considerations

While the above list is not exhaustive, consideration of other products will require positive demonstration that they satisfy the conditions outlined either now or in the short term. It should also be emphasized that, unlike the previous industrial policy which promoted import substitution (and thereby positively encouraged a wide proliferation of import dependent manufacturing industries aided by high protective trade barriers), this new policy will be driven by market competition with limited protection to domestic resource-based and strategic industries that are approved under the new scheme. To ensure that this facility is not abused, manufacturing activities now protected under state ownership will be evaluated against the above mentioned criteria. Where their performance fall short, such enterprises will be fully or partly privatised. It should also be noted that notwithstanding the above, State intervention may be necessary in cases where national considerations justify. This will however be on a case by case basis and only after detailed assessment of the options.

Secondly, although cocoa-based products have not been specifically identified for the big push in their present form, their importance to the economy require that continuing efforts

be directed to achieve greater improvements in management and production efficiencies and to encourage additional processing within the country.

Given the fact that manufacturing equipment in almost every industrial activity is averaging over 20 years, it means that existing underutilized capacities may not necessarily produce competitive outputs. To allow for the necessary rehabilitation and modernization works to be accomplished, industries currently programming or pursuing rehabilitation may apply for temporary relief against immediate payment of income tax. Applications should be sent to the Ministry of Finance duly endorsed by the Ministry of Industries, Science and Technology.

### 3.4 The Main Mechanism for Growth

In view of the relatively poor condition of industrial technology in the medium-to-large scale enterprises, the new industrial policy will place high priority on the development of the small-to-medium scale enterprises for providing the lead, at least over the next two or three years. Small and medium scale enterprises therefore will be given the main focus of the new industrial development thrust as the medium-to-large scale industries are revitalized. To effect this approach the management and entrepreneurship development programmes under NBSSI, MDPI, GRATIS, ITTUs and other public and private bodies will be actively promoted through all regions of the country.

### 4.0 Current Measures and Their Impacts

Before detailing the action and support programmes shown on Appendices 1-3 and the measures to be undertaken during the next five years to facilitate the new strategies, it is instructive to review the achievements and failures of the programmes currently under implementation.

#### 4.1 An Overview of Current Programmes

The programmes which were introduced during the course of the past three years to correct and strengthen the macro-economic and structural linkages in the various sectors of the economy will continue with further refinements. This is necessary for policy consistency and to shift the burden imposed by an import-dependent manufacturing sector from off the country's limited foreign exchange to a self-supporting industrial sector. Thus, the measures aim to pave the way for the long-term viability of the industrial sector. To correct this unhealthy state of affairs and trend in industry and to advance the economic recovery process, Government intensified its efforts in 1983 with the launching of a comprehensive scheme to guide the country's economic and industrial recovery.

Under this action programme the manufacturing sector was assigned a very critical role as the lead sector in the face of declining cocoa. Special emphasis was placed on the development and cost-

effective link between industry and agriculture. Realization of this long term objective required the promotion of specific policies and measures to urgently massage the massive and largely idle industrial capacity. Thus, the need for immediate positive reforms in trade and taxation policies as well as review of the structure and practices of trade protection of domestic producers became more obvious and onerous. Under the import substitution regime carried over from previous policies, manufacturing enterprises prospered in spite of grave inefficiencies in the industry. Based on findings of numerous studies carried out during the period, some drastic policy measures were implemented to stimulate and guide potentially efficient and cost-effective producers toward higher productivity levels and to promote early realignment of industries to their domestic raw material base. The programmes sought to encourage rationalization of product range, output quality and factor costs and prices. Hence, the manufacturing sector though challenged, was assisted with increased access and availability to foreign exchange through a dynamic foreign exchange auctioning system, to show early expansion in industrial output. To balance the shortages in goods and services which had occurred, a phased programme of trade liberalization of essential consumer items was introduced. Under this programme freer flow of raw material supplies (both local and imported) was made possible with improvement in access and availability of foreign exchange through implementation of the foreign exchange bureaux throughout the country.

As will be recalled in the earlier section of this document, the first phase of the ERP focussed much attention on assisting efficient enterprises, particularly those with high domestic resource content, and those with demonstrated export capacity. Next, in the order of priority, was the efficient import-substitution enterprises whose outputs were closely comparable with or competitive at the international level. Despite some adjustment problems the aggregate response of the manufacturing sector in the first three years resulted in remarkable improvement in MVA growth, averaging 8, 11 and 13% per annum in each of the three years, 1985-87 respectively. Similarly, there was a corresponding increase in industrial capacity, up from 15% in 1984, 20% in 1985, 28% in 1986 to 35% in 1987 in the import-reliant manufacturing sub-sectors; and up from 38% to 56% in the domestic resource-based industries over the same period. To build further on the positive achievements attained under the ERP I, Government introduced in 1986 a second comprehensive scheme geared specifically to address the technical and structural requirements of the manufacturing sector, and specifically to facilitate rehabilitation of selected key enterprises in both private and state sectors. In addition, the restructuring, rehabilitation and modernization requirements of industry and financial institutions were given equally high priority. Many private enterprises as well as the more able state-owned manufacturing enterprises were also benefitted from the rehabilitation scheme specially negotiated with the World Bank. However, the additional need for medium and longer-term funds under more amenable conditions was recognized. Further negotiation lead to the Small and Medium

Enterprise and the Entrepreneurship Development Fund which are currently being operationalized.

Based on numerous industry subsector and thematic studies carried out between 1985 and 1988, it became apparent that continued success based on the aged capital stock could not be assured without massive improvement and replacement in equipment, technology, and in the productivity and attitude of the production labourforce. It was recognized also that improvement in the financial supplies by itself, would not be sufficient to assure the effective mobilization of funds for rehabilitation. Augmentation of such resources and its management was necessary and this had to be combined with a comprehensive restructuring in the financial sector and its implementing institutions. As a parallel and complementary exercise some further refinements were necessary to re-align the industrial policy and strategies with the trade liberalization measures which were introduced and currently under implementation.

Further re-alignment will require continued studies, technical training of operational staff in both financial and industrial enterprises, and technical assistance, particularly in the subsectors of food and wood processing. To provide some semblance of balance in the industrial system, these programmes geared to support industry rehabilitation will need to consider in more detail the implications on, and for essential linkage industries, such as public utilities, communication and basic infrastructure if these are not to be bottlenecks in the way of industrial progress. The general and specific action programmes for the various subsectors of Industry are discussed in greater depth under the Ministry's work programme for the next 5 years.

However, to give effect to this action programme a new look at the organization of the Ministry of Industries, Science and Technology, its structure and functions is patent. This action addresses a fundamental weakness in the Ministry's capability to monitor the performance and targets of the industrial sector and deserves urgent attention if the economy is to avoid the costly mistakes of the recent past.

#### 4.2 A Look at The Industrial System

It is worthy to note that despite the setback of the late 70's and early 80's, the manufacturing industry in Ghana is still relatively active in most subsectors. (See Table 1). Given the diversity of products in the sector and the aged equipment in most enterprises, it is not difficult to visualize the many problems that continue to impact the sector.

Currently, the sector's output, capacity, product price, quality, all seem to vary depending on whether raw materials are sourced locally or imported. To the extent that raw materials are imported, capacity utilization has continued to show marked fluctuations depending on the importer's capacity to access foreign exchange, supplier or banker's credit. However, unlike

the period preceding the ERP, the country's foreign exchange management was substantially improved and the positive effects on the industrial system are shown in Tables 1 & 3. A further analysis of the distribution and performance of the sector is provided in Tables 2 and 4.

To facilitate a more detailed analysis of the state and potential of the manufacturing sector in Ghana a separation is made of industries based on two important policy criteria, namely: domestic resource-based industries and import reliant industries.

#### 4.3 The Industrial Structure

Domestic resource industries constitute over 40% of the manufacturing sector.[1] In every case reviewed in a recent survey however, the problem seems to vary very little among the enterprises. There were few industries with strong linkages with domestic raw material base. In the circumstances individual recovery seems to be integrally linked to the recovery and development of not only the manufacturing industry but with a substantial improvement in agriculture as well. The domestic resource industries include among others the Food and Agro-products, Wood-based products, Non-metal and earth based products, and to some extent Basic Metal and Textile (with the recent attempt to indigenize cotton) [2]. According to the 1987 industrial census the total number of enterprises in the medium and large scale category was 420 and for the formal small scale sector the estimations are in excess of 3000. Of this total the majority were in Food, Beverage and Tobacco. Tables 1 and 2 below give a breakdown and the respective outputs as well as the regional distribution of industries. The figures suggest that industrial establishments are concentrated in Greater Accra (including Tema) with 32.1% and the Ashanti region with 31.2%. The rest of the country all together accounts for only 36.7% of manufacturing establishments. In the new strategy a greater dispersion and distribution of industries will be encouraged especially in small scale operations.

---

[1] Ghana Industrial Policy, Performance and Recovery p 2, World Bank Report No. 5716-GH, September, 1985.

[2] The Ghana Cotton Company's successful attempt at growing and ginning cotton for supply to local textile factories is an encouraging achievement and which activity requires further strengthening and technical support.



Table 1

Gross Output of Manufacturing Sector, 1981-1987  
(Constant 1975 Prices) '0000 Cedis

Sub-sectors	1981	1982	1983	1984	1985	1986	1987 a/
31. Food/Bev	18398	11952	14437	9168	13079	12703	14608
32. Text/Garmnt	4462	2184	1473	2210	2669	3183	3247
33. Wood Product	3836	2635	3338	4414	5516	5820	7158
34. Paper/Print	932	529	1503	1416	1281	1387	1664
35. Chem/Pharm	2308	1137	1237	2687	2115	2527	2654
Oil Refin	17338	16952	10229	12136	15577	14700	16232
36. Non Metal	2157	1405	1520	1281	1922	1432	1575
37. Base Metal	10192	11100	2497	-	2770	7072	8486
N/Ferrous	2300	1018	422	867	1522	1279	1470
38. Metal Fabr	100	22	45	50	172	274	311
Equip/App1	201	201	54	259	386	693	831
39. Misc	934	998	264	200	-	278	328
<b>Total</b>	<b>63158</b>	<b>50133</b>	<b>37069</b>	<b>34688</b>	<b>47009</b>	<b>51348</b>	<b>58564</b>
Manuf Sector							
Performance /a	63.0%	50.0%	37.0%	34.6%	46.9%	51.2%	58.4%

/a Performance compared to 1975 output level of ₵ 1002.5 Mio.

Source: Derived from several tables of Industrial Data

Quarterly Digest of Statistics, CBS, 1981

Industrial Statistics, 1982-1984, Statistical Service,  
July 1986

Quarterly Digest of Statistics, Statistical Service,  
December 1987

a/ Provisional Estimate by the Statistical Unit of the  
Ministry of Industries, Science and Technology.

Table 2

Regional Distribution of Manufacturing Enterprises, 1988  
as at December 1987

Regions in Ghana	Establishments		Persons Engaged	%age	Population in '000
	No	%age			
Ghana	8,163	100.0	142,179	100.0	13,391
Western	690	8.4	16,985	11.9	1,260
Central	286	3.5	4,157	2.9	1,244
Greater Accra	2,619	32.1	52,764	37.1	1,559
Eastern	1,052	12.9	14,088	9.9	1,831
Volta	216	2.6	7,630	5.4	1,320
Ashanti	2,548	31.2	34,318	24.1	2,276
Brong Ahafo	298	3.7	5,275	3.7	1,314
Northern	235	2.9	4,649	3.3	1,269
Upper East	171	2.1	1,644	1.2	841
Upper West	48	0.6	669	0.5	477

Based on 1987 GSS Industrial Census

4.4 Review of Industry Performance

The manufacturing sector over the last three years has made remarkable progress in its attempt to adjust its cost and price structure to the competitive reality of a much more dynamic and liberal market system. Evidence in the import-reliant manufacturing sub-sectors indicate that many enterprises have switched to more cost-effective sources of raw and intermediate material supplies and others are actively exploring domestic supply linkages.

All together, the manufacturing share of GDP (based on GSS 1987 preliminary estimate) was 10% in 1986/87 FY compared to 8.8% in FY 1985/6 [1]. Table 3 shows the movement in manufacturing sector's share of GDP between 1980 and 1987. Considering the large industrial infrastructure that has been built up over the past 20 years this MVA share in GDP is still not commensurate with the installed capacity. Four sub-sectors continue to dominate industrial production: Food and Agro-products with 36.1%, Chemicals (including Petroleum Refining, Plastics and Rubber) with 37.2% [2], Wood-Based products with 10.9% [3] and Textiles with 5.6%. The decline in Textiles, Basic Metal and Machinery

[1] Based on weighted average.

[2] Petroleum refining accounted for 27.7% of the sector's output or 85.9% of the sub-sector's gross output.

[3] Wood products have shown remarkable recovery in the last three years.

sub-sectors is very noticeable and is perhaps due to the high import content. Apart from the processing industries mentioned above, the bulk of manufacturing centers around small scale and light consumer-type goods. It is expected that the domestic resource-based industries especially food and agricultural products, wood-based and earth-based products will make substantial progress towards vertical integration.

Since the introduction of the ERP, industrial capacity utilization has shown positive improvements though it is somewhat slow and skewed (see table 3). Aggregate manufacturing capacity moved from 43% in 1986 in domestic resource-based industries to 58% in 1987 and from 25% in 1986 in import reliant industries to 35% in 1987. Significant increases were recorded in Food and Agro-products and Wood-based products while declines were noticeable in Textile and Chemicals.

Significant and continuous increase in capacity utilization have been realized in most sub-sectors and especially in the agro-based industries, wood processing, tobacco, beverages, printing and small scale activities. The manufacturing sector registered an estimated annual growth of 13% in 1987 which is a marked improvement over 1986 (11%). Correspondingly, capacity utilization improved from 35% in 1983 to 55% in 1987 and the trend seems encouraging in most domestic resource sub-sectors. As a combined result of new policy measures, increased training activities and selected technical assistance support there has been noticeable adjustments in production processes and systems and significant enterprise realignment to their raw material base. Manufacturing employment continues to be stagnant and according to GSS 1987 estimate it remains below 5% of labour showing a slight decline under 1986 estimate.

Table 3

Manufacturing share of GDP: 1975 - 1987

Years	MFG %age SHARE		TOTAL MANUFACTURING e/			
	of GDP *		MVA		GROSS OUTPUT	
	a/	b/	M Cedi a/	M Cedi b/	M Cedis a/	M Cedis b/
1980	5.6	10.6	2344	575	6934	1226
1981	5.8	8.8	4337	464	8764	1032
1982	3.4	7.6	3117	369	7166	674
1983	3.4	7.7	7101	328	14973	679
1984	5.5	7.6	17306	371	36822	700
1985 c/	6.6	8.5	39562	461	.	919
1986 c/	7.8	9.8	61864	511	131908	1003
1987 d/	8.3	10.5	86610	586	182856	1108

\* Abstracted from WB Report No. 5716-GH, on Industrial Policy, Performance and Recovery Vol II, September 1985

a/ Current prices,  
b/ Constant 1975 prices,

a/ and b/ generated from data reported in Central Bureau of Statistics Quarterly, Digest of Statistics, September 1981 p.6; March 1984, p.74

Economic Survey, 1977-80 pgs. 24-24, 91, 123  
Economic Survey, 1975-76 pgs 94-95

c/ Provisional estimate, Quarterly Digest of Statistics, December, 1987 pg 82.

d/ Estimate based on preliminary data, Ministry of Industries, Science and Technology and Ghana Statistical Services

e/ Includes Small, Medium and Large Scale Industries

Table 4

Indices of Production, 1977 - 1987  
(1977 = 100%)

Subsectors	1977 weight	78	79	80	81	82	83	84	85	86	87 a/
31. Food	30.9	24.0	21.5	21.0	20.0	12.8	13.0	14.2	15.0	16.6	17.3
32. Text	14.0	11.0	9.5	5.7	4.4	2.2	1.5	2.2	2.6	3.1	3.3
33. Wood	7.2	6.7	5.1	5.8	3.4	1.9	3.3	4.3	5.4	5.7	6.5
34. Paper	1.9	2.0	1.4	1.6	0.9	0.5	1.5	1.4	1.3	1.4	1.7
35. Chem	6.6	2.7	2.4	2.3	2.3	1.1	1.2	2.7	2.1	2.5	3.0
Petrol	19.0	18.2	15.8	16.7	17.1	16.7	10.1	12.0	15.3	14.6	14.6
36. Non-Met	3.0	2.6	1.3	1.6	2.1	1.4	1.5	1.3	1.9	1.4	2.0
37. Metal	12.9	10.0	8.1	13.2	12.4	12.0	2.8	0.9	4.2	8.2	8.7
38. Met Fab	1.8	1.3	0.7	0.5	0.3	0.2	0.1	0.3	0.2	0.3	0.5
39. Others	3.0	2.3	2.1	2.4	0.9	1.0	0.3	0.2	---	---	1.3
Total b/	100	81	68	71	64	50	35	40	48	54	59

--- no statistical information was available

a/ Based on MIST targets

b/ Columns may not equal totals due to rounding

Source: Derived from Database of Central Bureau of Statistics,

Industrial Statistics, several years

Ghana Quarterly Digest of Statistics, June 1984

Ghana Quarterly Digest of Statistics, Dec. 1987, pg 11

## 5.0 Industry Prospects

Ghana's current industrialization programme rests basically on three main pillars: largely cocoa and its rich and well developed endowment of energy (hydropower), secondly, its rich endowment of mineral and ready-to-use agricultural products; such as forestry, hardwoods, fishery, perennial tree and ground crops, which unlike most other tropical countries is still largely under-developed. Thus, the third option is the wide range of production possibility for agro-industry processing which offers distinct advantage and profitability to efficient domestic producers. Among the economy's many product advantages for the short and medium-run scenario are: wood products (with great prospect for furniture), a variety of food products, rubber and drug manufacturing activities with great immediate prospects for cocoa upstream development, grains and cereals, canned fruits, and fats and oils from various plant and nuts. In the long term development programme, comparative advantage may also be possible in paper production, caustic soda and alumina production, but these will require large scale investments and further feasibility studies.

The economic strategy being pursued by the Government has provided many new opportunities for the serious investor. Government recognize however, the hangover from previous years of policy neglect and over reliance on protection measures and the unwillingness of some entrepreneurs to accept the challenge of change. Equally many others who are willing to innovate are caught with low equity-based operations, obsolete equipment and inefficient technologies. Notwithstanding the above, structural adjustment policies are necessary and accommodation will be made on case by case basis to facilitate mergers of such enterprises, or to assist where feasible alternatives are presented to take advantage of new opportunities not only in domestic resource industries but for new industries poised on the country's comparative and competitive advantage of domestic labour made possible through positive realignment of the Cedi. Such opportunities which could lay the way for a variety of labour intensive industrial operations include contract manufacturing in the garments and textiles sub-sector, electrical and electronic assemblies for both domestic and export markets and numerous other low-level technology-based capital goods assembly and manufactured products.

### 5.1 Role of Domestic Resource Industries (DRIs)

Review of the domestic resource-base sub-sectors shows a significant shift between 1986 and 1988 toward greater use of domestic materials. However, while this trend is visible in some sub-sectors, namely, wood, textile, food, and to a lesser extent chemicals, other sub-sectors are still quite heavily dependent on imported inputs. Value added content in wood-based furniture products is improving steadily due, among other things, to policy tightening and increased operational training and some new incentives in the sector's export activities. In the case of the chemical sub-sector the use of palm oil in the manufacture of soap has

replaced a significant portion of tallow (imported). Sheanut and citronella plants are currently showing great promise in cosmetic preparations and rubber production is showing positive improvement. The textile sub-sector, (mainly through the Ghana Cotton Company's successful attempt at growing and ginning local cotton) has shown some improvement in value added at competitive market price and standard (replacing almost 30% of imported inputs). However, the pattern in the industry is not very clear as capacity utilization as reported appears relatively high in some enterprises and relatively low in others. Plans are being put in place to conduct more intense studies on the sub-sector to ascertain the areas and extent of problems. Dialogue has also commenced with the sub-sector for its rehabilitation, further development, integration and technical strengthening.

The food sub-sector is currently benefitting from a number of local innovations mainly in the areas of processing and packaging. Improvements in local equipment, technology and material processing have been responsible. In the case of the brewing subsector a comprehensive programme is underway for partial replacement of imported barley malt by locally grown cereals (sorghum has been identified as the initial grain). This innovation is being pursued jointly by all breweries and will be responsible for a significant part of their expansion programme.

Based on findings of a number of studies carried out on these domestic resource or domestic linkage industries, Ghana's capacity to maximize its comparative advantage in industrial production will depend to a large extent on the degree of the vertical integration possible within these subsectors, (DRIs) and on the extent of horizontal development between and among the macro-economic sectors.

## 5.2 Role of Non-Traditional Manufacturing

To accommodate the mixed characteristics of this industry category, a combination of both domestic and imported inputs will be required for the sector's revival. Their continued development however, will depend on the general improvements in the country's foreign exchange position and on enterprises adjustments to labour and capital productivity. This absolute dependence on foreign inputs explains the wide fluctuation in domestic production which occurs in the import-reliant industries. Even though some of these products fall under the strategic category, some rationalization is desired in this sector in order to improve output cost and quality. The objective of this industrial policy is to improve efficiency and the competitiveness of locally manufactured products through dynamic market competition. Only in situations where it can be positively demonstrated that an import dependent enterprise can achieve comparative advantage in the medium term with rehabilitation, modernization or expansion Government will be willing to provide some minimum protection to assist the transition. Import-reliant industries so assisted which are producing multi-products for the domestic market should make serious attempt to rationalize their product range and re-adjust

appropriately their production practices during the period of transition. The Ministry of Industries Science and Technology will give particular attention to monitor their progress during this period of grace. Positive support will be given to assist such enterprises to move toward higher levels of labour and capital productivity, and to enable them to take advantage of production subcontracts, particularly in the areas where excess capacity exist.

### 5.3 Role of Non-Traditional Export Production

The Non-traditional manufacturing export sector while responding positively to current policies and incentives will require further strengthening in their technology and linkages. For instance, the value of non-traditional exports in 1986 was estimated at 45 million US dollars compared to a value of \$18 million, estimated for 1984. However, according to a recent UNIDO-lead study, further processing of wood to furniture of the log-equivalent exported in 1984 could realize net revenue in excess of 90 million dollars. The potential of wood-based industries has been recognized and enterprises producing high value added furniture products for the export market will be accorded most favoured status and special support under the new industrial policy. Not-with-standing the above, performance in the non-traditional export sector has been reasonably good during the last three years. The subsectors responsible for this significant improvement included food, beverage and tobacco (mainly lager beer and tobacco) and wood products. Other agro-products such as fish canning and fruit juices have shown a slight decline in export performance due in part to problems in production and increased domestic demand. Plans for their facility modernization are being studied to enhance technology and international competitiveness.

### 5.4 The Role of Export Promotion

While the principal instrument for this activity is with the Ghana Export Promotion Council, close and continuous collaboration between the Council and the Ministry of Industry Science and Technology has been fostered to assure optimal growth and support for the industrial sector. Major areas of co-operation and support for this sector include product opportunity and thematic studies, trade, tariff and taxation reviews, product and market analysis, market identification and development, export information as well as training and trade promotions. Industries with export production will receive under the new industrial policy priority treatment and special support.



## 6.0 Support Programmes & Measures

The Government in its attempt to encourage product rationalization and structural reform in the industrial economy has introduced major policy changes particularly in the years, 1986 and 1987. The effects on the industrial sector while being largely positive, have not been as favourable on the import dependent enterprises. The result is that industrial capacity utilization varied depending on the firms ability to secure its imported materials. Taking into consideration the present low capacity utilization levels and the poor state of machinery and capital equipment, it is anticipated that as capacity utilization increases excess labour will be absorbed by rehabilitated capacities and expansions particularly in the new growth sectors. Otherwise it is conceivable that in adjustment process some redeployment may be unavoidable especially in the distressed and ailing industries. These steps will become even more urgent if labour and plant productivity are not substantially improved. Notwithstanding the positive achievements to date, government is concerned about the negative consequences of some of these necessary adjustments. As a result, special programmes have been advanced including PAMSCAD under the joint supervision of the Ministry of Finance and Economic Planning and the Ministry of Mobilization and Social Welfare (MMSW) as well as the Entrepreneurship Development Programme under the NBSSI to assist and redirect redeployees toward gainful resettlement. As a further support to the implementation of these special programmes, additional studies will be carried out by MIST and NBSSI in conjunction with other interested agencies to identify, among other things, operational problems and areas and opportunities for developing small scale industrial activities. Furthermore, a comprehensive training and retraining programme which was initiated by the NBSSI will be institutionalized to assist, train and direct redeployees as well as existing small manufacturing entrepreneurs. The Ministry of Industries and the NBSSI will collaborate with other Ministries and Government agencies to enhance the success of these programmes.

### 6.1 Rationalization of SOMEs

Rationalization of the State-Owned Manufacturing Enterprises is a part of the on-going strategy of Government to divest the state of direct involvement in activities that are best done by the private sector. This is in keeping with the overall macro-economic strategy for stimulating efficiency and profitability in the manufacturing sector. In the absence of either efficiency or profitability, divestment in the most economic form will be pursued. This programme is already under implementation and forms a major function of the State Enterprises Commission (SEC). It should be noted however that decisions for divestment involve detailed enterprise studies to determine, inter alia, the best mode and form of divestment. Several approaches are being examined and these include (a) strengthened management of SOMEs with performance monitoring and public accounting system installed, (b) management subcontracting of operational facilities, with the state continuing to own the assets, (c) joint venture option with

foreign partners where the technology and market development justify, (d) joint ventures with other state institutions or with national investors, (e) mergers with other similarly composed enterprises for increased resource use and management efficiency and (f) clear-cut sale of enterprise assets. To assure optimal decision-making, this programme will proceed on a case-by-case basis but only after the relevant in-depth studies and necessary techno-economic analyses have been completed. Presently, some thirty SOMEs are identified for divestment under the Government Divestment Programme.

## 6.2 Public Expenditure Programme (PEP)

To address the issues related to uneconomic public investments and to monitor the mode of operations of public enterprises, Government has made various provisions to ensure autonomy, accountability, responsiveness, efficiency and profitability. SOMEs under the aegis of the Ministry of Industries, Science and Technology are being continuously monitored. It should be emphasized that Government policy requires the reduction of SOMEs budgetary resource reliance to zero within a 5-year period. Similarly, planned investments, expansions or rehabilitation work in all SOMEs will be mandatorily reviewed by the Ministry prior to submission to appropriate Government authorities. Through this system and policy Government hopes to limit the direct participation of the state in industrial activities to situations where it is necessary or critical to the nation's welfare. Expenditures of all support institutions will be rigidly approved and monitored by MIST. The services of support institutions as the CSIR, GSB etc., will provide the main channel through which Government will indirectly influence the pace, depth and direction of industrial development and therefore these institutions will continue to be funded by the State. MIST will liaise with MFEP and related Ministries on behalf of those agencies under its charge on all budgetary matters.

## 6.3 Industrial Restructuring Programme

The trend in capacity and output of the manufacturing sector through various policy measures introduced over the last three years is quite encouraging. However, further growth in the industrial sector may require the modification to a mix of policies and strategy in order to influence pace and level of transformation. The extent to which the manufacturing sector will be able to effect necessary and desired changes and innovations in its production facilities, or to shift its mix and/or sources of inputs, cost structure and operational procedures is critically linked to the availability of industrial finance, and on the reappraised attitude of the financial community toward mobilization of industrial and development capital. Not only is the latter crucial to continued recovery of the sector but pivotal if current gains are not to be eroded by the easy options of trading. In addition to the financial resources that have been made available for rehabilitation, the banking system will require some level of restructuring to cope with the demands for industrial investments.

#### 6.4 Financial Sector Restructuring Programme

In recognizing the pivotal role that financial institutions play in the mobilization and delivery of investment capital, Government initiated in 1986 a diagnostic study of the structure and operations of the financial sector as well as introduced a comprehensive retraining programme directed towards an internal reappraisal and physical restructuring of financial lending and service institutions in the country. This was designed to influence the shift away from the traditionally known commercial biases toward productive investments and to stimulate an improved flow of commercial and investment capital into industrial activities. However, the shifts envisioned in financial policy and lending attitudes of the banks will naturally take sometime before they become fully operational. Financial restructuring within the prevailing environment of high interest rates, low rate and level of domestic savings, depreciation of the Cedi inevitably requires deeper understanding by the banks of industrial investments, and in order to respond positively, improved access to financial packages to facilitate refinancing, rescheduling, mergers, buy-ins, buyouts, existing debt conversion, equity expansion and re-capitalizations should be supported.

Government, in order to augment the limited supply of foreign exchange inflows and credit, increased its efforts to attract and expand short, medium and long term industrial financing. These efforts have met reasonable success. However, with any appreciable increase in manufacturing activities present resource levels will be, at best, marginally adequate to advance recovery beyond the present stage. Increased efforts will be necessary to secure additional lines of credit or loans for raw materials and spare parts. Further expansion of the rehabilitation fund will be necessary and its access made more available to industrialists.

In addition, efforts to improve the quantity and quality of domestic output, and equally important, at more competitive price levels will necessitate substantial increase in the flow of medium and long-term funds to the investment community. The full use of such funds by industrial beneficiaries will require more amiable loan conditions for acquisition of technology and equipment.

#### 6.5 Entrepreneurship Development Programme

The importance of developing a competent pool of local entrepreneurs for the ownership and management of small and medium scale enterprises and for the provision and generation of employment opportunities is well recognized by Government. Government has given high priority for the establishment of an Entrepreneurship Development Programme (EDP) under the NBSSI and the MIST. Cooperators in this programme include the International Development Association (IDA) for funding and the Entrepreneurship Development Institute of India (EDII) for technical assistance. The National Board for Small Scale Industries is directly responsible for overseeing the operations, for the transfer of skills

and the development and promotion of the newly motivated indigenous entrepreneurs. The programme which began in August, 1987 envisaged the orderly growth and transition of small manufacturing firms into medium size enterprises with appropriate technical, managerial and marketing skills relevant to their activity.

#### 6.6 Role of Appropriate Technology Services (GRATIS)

To encourage the formation and development of small scale manufacturing and service-oriented units in rural and suburban centres, the Ministry established the GRATIS to identify and train small scale manufacturing entrepreneurs as well as to provide guidance and counseling services. In consultation with the Technology Consultancy Centre (TCC) of the University of Science and Technology GRATIS under the supervision of MIST introduced the concept of the Intermediate Technology Transfer Unit (ITTU). The first such ITTU unit was established in Kumasi within the Suame industrial estate. Since then units have been established in Tamale, Tema and Cape Coast and the present plan is that at least one will be placed in each of the regional centres throughout the country. Besides being directly involved in small scale production of basic engineered products, the units serve as technology information centres, while they perform advisory functions and vocational training in engineering skills.

#### 6.7 Small and Medium Enterprise Development

In addition to numerous schemes being advanced for the manufacturing sector, Government wishes to promote distinctly a development programme for small and medium size enterprises. As a result of positive negotiations and multi-lateral support Government established in February, 1988 an inter-ministerial working group under the Ministry of Industries, Science & Technology. This team prepared a comprehensive action programme and among other things, identified appropriate level of resources & actions necessary to motivate private sector entrepreneurs toward new and productive investments that will utilize basic and available domestic raw materials and to draw suburban and rural labour into the manufacturing sector. This type of development anticipates formation of a variety of linkage industries, service-oriented activities and feeder establishments in each region and in a wide cross section of industries. Thus the small and medium scale manufacturing sector has been identified under the new industry policy for extra push especially because of its role in generating employment, using domestic raw materials and addressing the locational imbalances created between import-reliant industries in cities and raw material bases in the rural and suburban communities as well as its firm and deep-rooted linkages with agriculture. The programme is being supported by the World Bank and amenities include integrated package of loans and technical assistance, credit for working capital for equipment acquisition and/or rehabilitation.

## 6.8 Role of Research & Development Institutions

Research and development institutions including the Council for Scientific and Industrial Research (CSIR), Ghana Standards Board (GSB) and the Universities will have a more positive role in developing, demonstrating, de-packaging, transferring and promoting technologies appropriate for Ghana. They will be given shared responsibility for the diversification of Ghanaian exports, by undertaking the technological research required to improve production processes, strengthen and monitor industrial standards, receive, coordinate and disseminate technical and scientific information to the industrial and technological community. In advancing the use of food, wood and other agricultural inputs by industrial firms it is expected that the R & D institutes will play a major support role based on organized industry/research extension services. To assist in this development, a research fund is to be established shortly through membership and voluntary contributions, and where necessary a technology support fund may have to be introduced to address immediate specific and/or common industrial research needs.

## 6.9 Institutional Restructuring Programme

In support of the ERP and the industrial sector adjustment programme (ISAP), the joint UNDP/World Bank/UNIDO Industrial Planning Project under implementation at MIST was requested to undertake the following tasks: (a) the restructuring of the Ministry of Industries, Science & Technology to strengthen its capacity for planning, programming and monitoring industrial developments (b) the establishment of an industrial database with appropriate systems, structure and data processing facilities, (c) the restructuring of the NBSSI to improve coverage, service and to foster entrepreneurial growth, (d) the development of a comprehensive industrial development plan based on detailed sub-sector studies and (e) based on the sub-sector studies develop a rehabilitation programme for key and critical private and public enterprises. All five programme components are in progress. The restructuring exercise for MIST and NBSSI have been completed and staff are to be reassigned, redeployed and recruited to fit the new structure and functions. The industrial census for the Medium and Large-scale industries was concluded in February, 1988 and field work for the main survey completed in December, 1988. The nation-wide survey of small scale industries is programmed to start in February, 1989. Sub-sector studies commenced in April, 1988 with the food and agro-products as the first of nine sub-sectors. These studies are due to be completed by September, 1989 and will provide the basic data for the sub-sector plans. On the basis of these sub-sector studies a detailed programme will be prepared to provide the basis for the rehabilitation work in state owned manufacturing enterprises and key private sector enterprises.

## 7.0 Economic Policy & Reforms

Government efforts will continue toward the improvement of the present positive macro-economic environment and infrastructure for manufacturing, and it is hoped that these efforts will motivate significant developments in the sector. Currently, the sector comprises ten active sub-sectors. It is expected that by 1992 this number will increase to 15 or more with expansion in food and agro-products, chemical, textile, mineral and new investments attracted into the electrical and capital goods sub-sectors. By 1990 it is anticipated that the manufacturing sector will attain an annual growth rate of between 13 and 15% with a GDP contribution of between 12 to 14%.

While the present policy framework for industry is likely to continue (with refinements and adjustments made when and where necessary) further in-depth study and analysis of the tariff system and structure will be necessary to clear any remaining disincentives in the way of increased domestic production, and to remove any bias inherent in or created by the implementation of general trade and monetary policies. Similarly, any temporary facility that was initiated to ease transitional difficulties and dislocations in some industrial sub-sectors and enterprises during the recent policy adjustments will be phased out. Vulnerable and troubled industries will be encouraged and assisted towards merging resources or moving into other positive economic activities. Active support and assistance will be given to export-products development, their promotion and marketing.

To accelerate the pace of private sector developments a number of important initiatives are contemplated and will be undertaken during the second phase of SAP. These include but are not limited to:

- a. further rationalization of tax structure for profit and dividend so as to positively encourage expansions and new investments.
- b. programmed and phased release of blocked funds (capital, dividends, interest, technical fees, royalties, etc) so as to rebuild and maintain investors' confidence in establishing long term investments in Ghana.

Toward this end major efforts will be directed to improve dialogue with the private sector and to reduce the "communication gap" between Government and private investors. In particular the Ministry will seek actively to provide on a regular basis necessary industrial information and to explicate Government policies and their impacts. Efforts will be strengthened at both the institutional and enterprise levels through programmed visits by sub-sector officers and support technical institutions. The effects of all major policy changes will be studied and monitored and appropriate changes implemented when justified.

Through the strengthened planning and research unit of the Ministry timely production of industry-related information will also be made available to all industrial information users to improve the environment for public policy and industry-related decision-making.

### 7.1 Industry Policy Reform

Having examined the structure and composition of the manufacturing sector, the attendant problems and constraints and the vast prospects and potentials, the following macro-economic policy objectives of Government are reiterated to give direction and form that the industrial development programme in Ghana should take as we approach the next five years, with greatest focus directed on the first three.

### 7.2 Industry Strategy Reform

- a. to continue the structural adjustment of the industrial sector by way of development, promotion and implementation of timely, relevant measures based on up-to-date information, move the sector to achieve self-propelling growth through effective foreign exchange generation for its own needs and savings through rationalization of import substitution industries.
- b. to accelerate the pace of recovery and growth of the manufacturing sector through positive promotion and programmed financial and R&D support for domestic resource expansion and rational improvement in effective capacity and value added contribution of the sector.
- c. to create additional jobs through revitalization of existing industries, expansions and new investments and with special attention for small and medium scale enterprise development.
- d. to exploit to the optimal economic level agricultural output and agro-industrial linkages so as to improve value added content.
- e. to provide necessary information and incentives to attract new investments into selected and neglected industries and sub-sectors, like leather, capital goods, building materials, electrical goods and electronics, in order to fully exploit the comparative advantage of an abundant and well trained industrial labour.
- f. to support and promote industrial programmes and productive ventures in rural areas and all regions with good industrial raw material base.

- g. to strengthen and expand the base and breadth of small and medium scale manufacturing activities in the country through special programmes and entrepreneurial training schemes, R&D assistance and support. These programmes will involve rural communities and regional and district organizations as far as possible to promote sectoral growth outside of cities and townships.
- h. to expand existing and develop new industrial linkages and cooperation with key economic sectors including Agriculture, Transport, Construction, Education, Health and Trade.

#### 8.0 Industry Policy Guidelines for 1989-1993

In pursuit of the macro-economic goals outlined in the Economic Recovery Programme and the development objectives defined for the Manufacturing Sector, the first two years of industrial programming activities will be pivotal to assure subsequent attainment of the targets established for the various enterprises. The degree of success achieved, will to a large extent determine the pace of adjustments and extent of reform and the probable solutions to the many endogenous problems that are associated with the industrial transformation and restructuring process. It will also provide a good basis on which to gauge future policies and measures. The following guidelines should be useful in directing entrepreneurs, to define the work programme of the Ministry and to indicate MIST's commitment:

- a. to investigate and recommend extent of temporary protection of industries whose existence is nationally desired and which demonstrate long-term viability upon injection of required technical, financial & managerial inputs; such protection will be removed gradually within an agreed period.
- b. to promote and facilitate adjustments in standards and quality of industrial outputs through effective standardization programmes, R&D support, training and improved product monitoring.
- c. to assist the development and expansion of enterprises with excess capacity into contract manufacturing arrangements for exploiting existing and new export market opportunities through studies, and direct promotion.
- d. to enhance the image, capacity and responsiveness of MIST through the promotion of regular meetings, dialogue, industry visits and policy impact review sessions. In pursuit of this the Ministry's reorganization will include a public relation and information section with appropriate support from the technical divisions of MIST.



- e. to increase coordination with other industry-related institutions through regular meetings, information exchange to improve the infrastructure for industry and to promote efficiency and accountability in public manufacturing enterprises through the installation of appropriate performance management systems, operational indicators and improved management controls.
- f. to provide assistance and support to the industrial sector through the strengthened and combined facilities of the CSIR, the Ghana Standards Board, Ghana Regional Appropriate Technology Industrial Services, Technology Consultancy Centre (TCC) of the University of Science & Technology, Development Application and Promotion of Intermediate Technology Project (DAPIT), the Intermediate Technology Transfer Units (ITTUs) and the National Board for Small Scale Industries (NBSSI).

#### 8.1 Sectoral Targets & Outputs for 1988-1992

Main sectoral targets for the next five years are summarized in table 5. However, until the comprehensive sector plan is prepared, individual enterprises in the import reliant sub-sectors will be expected to improve annually real MVA by an average of 10% over 1987 production level and industries in the domestic resource sector by an average of 13-15% based on 1987 results. The minimum sub-sectoral targets are summarized in Table 5. To monitor sectoral performance the Ministry of Industries, Science and Technology in collaboration with the Ghana Statistical Service shall be conducting regular surveys of output, MVA and selected indicators. In addition the Planning Unit of the Ministry shall be carrying out regular three monthly impact assessment studies to measure effects of policy and to monitor progress against sector targets, general industry performance and recognize undue hardships, problems or constraints. The main targets for the sector are:

- a. aggregate annual growth in manufacturing Gross value added of 11% for 1988-1990 and 10% for 1990-1991
- b. per annum growth in manufacturing export of 12%
- c. creation of 10,000 to 15,000 jobs by 1992 through programmes to revitalize existing industries, spurring expansions, and new investments especially in small and medium scale manufacturing activities.
- d. seek to improve manufacturing capacity utilization from current level estimated at 35% in the import reliant manufacturing sector to 44%, and from the current estimated level of 43% to 65% in domestic resource industries by 1990.

**Table 5**  
**Sub-sector Targets for 1988-1991**

in Million Cedis (based on constant 1986 prices)

Industrial sub-sectors	Prov. Estimates & Indicative Targets for:				
	1986/7	1987/8	1988/9	1989/90	1990/1
31. Food, Bev & Tobacco	15371	17369 (13)	20496 (18)	22955 (12)	25480 (11) a/
32. Text/Garm/Leather	3851	3936 (2.2)	4153 (5.5)	4651 (12)	5209 (12)
33. Wood & Wood Products	7042	8662 (23)	10221 (18)	11754 (15)	13164 a/ (12)
34. Paper & Printing	1664	1997 (20)	2257 (13)	2528 (12)	2781 (10)
35. Chemical, Pharm	3058	3211 (5)	3451 (7.5)	3796 (10)	4176 (10)
Petroleum Plast/Rub	17787	18676 (5)	20077 (7.5)	21583 (7.5)	23201 (7.5)
36. Non Metal Products	1733	1906 (10)	2097 (10)	2307 (10)	2537 (10) a/
37. Base Metal	8557	9327 (9)	10353 (11)	11129 (7.5)	11964 (7.5)
Non Ferrous Metals	1548	1780 (15)	1975 (11)	2173 (10)	2390 (10)
38. Met Fab & Machinery	331	348 (5)	374 (7.5)	402 (7.5)	442 (10)
39. Miscellaneous	838	989 (18)	1128 (14)	1297 (15)	1492 a/ (15)
3. Total Manufacturing	61780 (13)	68201 (10.4)	76582 (12.3)	84575 (10.4)	92836 (9.8)

a/ shows domestic resource industries with higher growth expectancy. Figures shown in brackets represent expected percentage per annum growth in the manufacturing sector/subsectors.

## 9.0 Ministry Action Plan for 1988-1992

In support of industry the Ministry has identified the following activities which will form the basis of its work programme over the next 5 years. This action plan, though not exhaustive, will enable the Ministry to programme its limited resources to assist the manufacturing sector to achieve specific targets outlined for key enterprises and subsectors as it works toward meeting the national objectives. In line with the new industrial strategy a special action programme has been developed to support the development of certain industries which have demonstrated comparative advantage, or could become internationally competitive in the medium term and those of strategic importance to the nation. This action programme is shown on Appendix 3. To facilitate the general and special action programmes it is necessary to:

### 9.1 Institutional Support

- a. Restructure the Ministry of Industries, Science and Technology and the National Board for Small Scale Industries to improve organization and to enhance their capacity and systems so as to enable them to carry out their mandate of coordinating, planning, monitoring and overseeing the various activities of industry.
- b. Rehabilitate, restructure and strengthen research and scientific institutions to enhance their delivery of services to the industrial sector in general and small and medium scale enterprises in particular.
- c. Coordinate the services provided to industry by various support institutions in the country. To do this MIST will carry out detailed review of all institutions that in some way have a mandate to provide technical assistance and support services to industry with a view to determine (i) the degree to which there is overlap, (ii) the extent to which these mandates are being implemented and (iii) identify any gaps in systems and resources and recommend appropriate actions.

### 9.2 Industrial Information Support

Through the restructured Ministry and NBSSI, appropriate facilities and systems will be provided for the establishment and maintenance of an industrial data base center for processing data for both small scale enterprises and medium and large industries. Specifically, the following activities will be initiated during the first two years of the action programme:

- a. A nation-wide survey for small scale industry will be carried out by the NBSSI. This is scheduled to start in February, 1989.

- b. A national census on medium and large scale industries has recently be completed by the Ghana Statistical Services (GSS) in collaboration with MIST. Basic industrial data are available.
- c. A nation-wide survey on medium and large scale industries was carried out by GSS in collaboration with MIST between October, 1988 and December, 1988. Data processing is in progress and results will be available in May, 1989.
- d. The production of regular industry-related reports and reviews (separately and in conjunction with other institutions) and pulishing of performance indicators and accomplishments of the industrial sector, SOMEs under MIST and support institutions will be facilitated by the Indutech Journal.

### 9.3 Industrial Infrastructure Support

- a. In conjunction with Ghana Export Promotion Council (GEPC) and other relevant Government agencies, determine the viability of an industrial export processing zone in Ghana, and if feasible draft a programme for its implementation.
- b. Establish a business advisory center at MIST or in collaboration with an appropriate institution to prepare, inter alia, project profiles, promotional materials; provide general counseling on industrial matters; encourage financial institutions to set up similar in-house advisory or extension services especially for small scale enterprises.
- c. Establish regional intermediate technology transfer units to enhance skill acquisition, upgrade existing technologies as well as provide special support packages to encourage the formation and transition of small and medium scale enterprises.
- d. Work closely with relevant ministries and agencies to influence the allocation of budget resources for the provision and maintenance of such essential infrastructure as roads, electricity, water supply and telecommunication for industry.

### 9.4 Financial Sector Support

- a. Collaborate with the Bank of Ghana (BOG), the GEPC and other relevant institutions to institute an effective export credit guarantee scheme and provide export marketing development assistance to enterprises especially in the non-traditional export sectors.

- b. Work closely with the BOG to determine ways of making the Small Business Credit Guarantee Scheme more effective.
- c. Assist both development and commercial banks, in consultation with the MFEP and BOG to secure credits for the establishment of the industrial restructuring fund.
- d. Continue preparing industrial programmes/projects which the Government can use as bases for seeking financial assistance to the sector for selective rehabilitation, expansion, new investments, and in some cases working capital.

#### 9.5 Research and Development Support

- a. Promote the integration of science and technology through industrial research directed at the plant and operating level. This is to be assisted with the development of a Research and Development Fund (R & D Fund) to be subscribed by individual firms in the medium and large scale categories, Government, regional, international, multilateral institutions and friendly governments.
- b. Promulgate a comprehensive Science and Technology Policy (S & T Policy) and technology plan that will, among other things, seek to upgrade traditional technologies, expand the use of locally available raw materials and provide support for existing medium and large scale enterprises. Special assistance and emphasis will be given to small scale entrepreneurs to enhance their development and transition.

#### 9.6. Policy, Taxation & Incentive Support

- a. On the basis of sub-sector studies, surveys and annual industrial results, develop comprehensive sub-sector plans and a 5-year industrial development plan for the total manufacturing sector. This development plan will elaborate the policies for the industrial sector and the strategies that are to guide the implementation of the plan and actions.
- b. Based on sub-sector studies and relevant analyses of enterprise data, constraints and potentials and after due consultation with relevant industry groups, enterprise output levels will be established and sub-sector targets estimated. On the basis of this sub-sectoral aggregation the industrial sector plan will be integrated in the national development plan being developed by MFEP.
- c. Further studies will be carried out to review the impact of existing customs duty, tariff and taxation

policies on the manufacturing sector as a whole and to assess the implications for adjustments in protection measures in selected sub-sectors and enterprises.

- d. Assist in the periodic review, evaluation and updating of the Investment Code.
- e. Redefine and amplify the role and function of MIST in the new economic structure to give more homogeneity and relevance to the task of industrial rebuilding, structural transformation, guidance, performance tracking and management. In particular the structure will include units for planning, research and policy formulation, industrial statistics and data processing, policy and performance monitoring and industrial programming and support unit. These technical units will be supported by a strengthened administrative unit for improved internal organization efficiency and SOME coordination and a science and technology policy and programme coordinating unit.

#### 9.7 Investment Promotion Support

- a. Collaborate with investment related institutions such as the Ghana Investment Centre (GIC), Ghana Export Promotion Council (GEP) and other relevant institutions to promote and to strengthen capabilities for the operation of an effective one-stop investment advisory service center.

#### 9.8 Training and Manpower Development

- a. Implement the final phase of the Entrepreneurship Development Programme, i.e. project assessment and small scale marketing techniques.
- b. Identify training opportunities for staff in MIST and the support institutions to enhance their capabilities to provide support for industry.
- c. Assist in providing training for staff in SOMEs through in-plant training programmes under the UNIDO system; also to assist in identifying relevant management training programmes.

#### 9.9 Standards Development Support

- a. Through the strengthened Ghana Standards Board, promote the development and observance of minimum safety and health requirements, technical specifications, standards and quality. This programme will be rigidly enforced and appropriate legislation promulgated to assure compliance. Through this programme it is expected that locally produced goods will be assisted to meet international standards and imported products monitored

to ensure fair domestic market competition.

10.0 Special Programmes for Years 1989 and 1990

- a. establish priority between and within the various enterprises and sub-sectors for rehabilitation support and for restructuring on the basis of sound techno-economic criteria,
- b. identify potentially viable industries and promote their development through appropriate policies, R&D support, and provision of technical assistance and guidance.
- c. through timely produced studies determine the prospects and constraints for medium-term development plan (up to 1992) of the sector focussing on actions to speed up the modernization and rationalization necessary in each major enterprise;
- d. through the Programming, Monitoring & Evaluation Unit in MIST, assess foreign exchange requirement & utilization, foreign exchange returns and economic contribution of each sub-sector giving special attention to imported raw materials for spares and capital goods equipment;
- e. prepare in collaboration with the State Enterprises Commission (SEC) a programme for medium and long-term reform for SOMEs under MIST within the context of new Structural Adjustment Programme (SAP II) and any other available resources or external aid.
- f. to assist potentially viable industries to attain maximum utilization of capacity and value added by promoting increased linkages with domestic suppliers of local raw and intermediate materials. This programme is to be supported through positive incentives to intra-firm sales getting similar treatment as imported raw materials.
- g. prepare terms of reference and initiate proposals for medium-term industrial enterprise and sub-sector studies, rehabilitation and modernization programmes, technical requests. This programme is intended to support marginal industrial sub-sectors to achieve minimum target levels established for the sub-sector;
- h. in association with SEC appraise and monitor the Public Expenditure Programmes for the SOMEs under MIST with the aim of identifying and recommending changes in size, re-composition and efficiency considerations;
- i. assist in the reformulation, review, periodic updating and evaluation of Government's Investment Code;

- j. promulgate the S & T policy and technology development plan that will, among other things, seek to upgrade traditional technologies, expand the use of locally available raw materials and provide technical support for existing medium and large scale enterprises. Special assistance and emphasis will be provided to small scale industries to assist their development and transition.
- k. carry out periodic review of the impact of existing Customs, Tariff and Taxation policies on the manufacturing sector as a whole and assess the implications for protection and de-protection measures in selected sub-sectors and enterprises.
- l. implement regional units for industry planning and programming and prepare assistance plan for distressed enterprises and for strengthening existing and developing new manufacturing firms with special focus on small scale manufacturing activities.
- m. promotion of regular industry-related publications and reports, identifying outstanding achievements, reporting on industry performance, highlighting accomplishments of SOEs to inspire public confidence and public sector efficiency.
- n. to promote the integration of science and technology through active participation in School management and curriculum formation, and linking industrial research with academic and technical institutions.
- o. in consultation with the Bank of Ghana and other related government and non-governmental agencies to actively promote at the industrial level the optimal use of a export financing scheme for pre-shipment funding and export marketing development assistance.
- p. through the strengthened bureau for standards to promote the development and compliance of minimum safety, health and technical standards to assure and ensure quality of internationally acceptable domestic production and fair domestic market competition.

## 11.0 Conclusions

With approval and timely implementation of the new structure of the Ministry the manufacturing sector may be assured of an up-to-date and functional industrial data base and an interactive relationship between policy formulation and policy impacts. Regular production and publication of industrial information will be prepared for the various sub-sectors and special attention will be given to the monitoring of certain key economic and industrial development indicators.



Finally, to permit the Ministry to function properly within its new role and to facilitate further strengthening of the linkages between industry, science and technology there is urgent need for some rationalization in the practices and functionality of the agencies concerned with industrial investments, promotion and production. Important considerations have to be given to strengthening collaboration and coordination among the various implementing agencies of Government to assure optimal use of, and returns from industrial resources.

The new structure of the Ministry and its implementing organs will permit greater homogeneity in policy-making and more relevance to the urgent and important task of industrial rebuilding, policy guidance, strategy formulation and industry performance monitoring through specialized units for planning, research and policy formulation (PRP), industrial statistics and data base processing, policy and performance monitoring and evaluation.

In addition to the above organizational strategies, the new structure will include a strengthened administrative and support unit to improve internal control, organization efficiency and public sector accountability, especially in the areas of financial control, investment and divestment analysis of State-owned manufacturing enterprises and performance monitoring of enterprises especially those identified for push. MIST staff will be appropriately deployed to facilitate developments in the sector. The general work programme for the Ministry is described in Appendix 1. These are to be elaborated further to form the work plan for each sub-sector and implementing agency.

## APPENDIX 1

## GENERAL WORK PROGRAMME FOR 1988-1992

PROJECTS	OBJECTIVES	ESTIMATED COST (\$US)	EXECUTION PERIOD
<u>INSTITUTIONAL SUPPORT</u>			
1. Complete the Restructuring of MIST/NBSSI and implement 9 sub-sector studies	To improve the organizational effectiveness and delivery capability to assist and guide industry	350,000 a,c	1988-89
2. Install data base systems at MIST	To improve industry data for more effective monitoring and decision-making	100,000 a,c	1988-89
3. Strengthen CSIR & GSB facilities	To increase R&D support for Industry growth local material development and standards monitoring	4,000,000 b,c,d	1989-92
4. Study areas & impact of Technical Support Institutions	To determine overlaps and proper role for MIST	20,000 d	1988/89
<u>INFORMATION SUPPORT</u>			
5. With GSS Carry out nationwide industrial census on M & L scale enterprises	To update & prepare a directory of M & L Scale Enterprises in Ghana	200,000 a,b,c	1987-89
6. With GSS Carry out nation-wide survey on M & L scale enterprises	To update and prepare data base for 5-year Industrial development plan	100,000 a,b,c	1988-89

PROJECTS	OBJECTIVES	ESTIMATED COST (\$US)	EXECUTION PERIOD
7. Carry out nationwide survey on SSI Firms	To prepare data base for SSI 5-year Development	150,000 a,b,c	1988-89
8. Carry out policy assessment studies	To monitor impacts of policy and prepare re-form actions	30,000 b	1988-90
<b><u>Infrastructure Support</u></b>			
9. Carry out study on Export Processing Free Zone	To determine feasibility of developing a Free Zone	50,000 d	1988-90
10 Establish Business Advisory Centre for NBSSI	To support industrial promotion and development efforts	120,000 b	1989-90
11 Set up four Regional Intermediate Technology Transfer Units	To support S/S industrial development & create new employment opportunities	900,000 c,d	1989-92
<b><u>Financial Sector Support</u></b>			
12 With BOG/GEPC for study of distressed industrial enterprises	To improve ascertained nature of problems and assistance	30,000 b	1988-89
13 With BOG/NBSSI carry out studies on Small Business Credit Guaranty Scheme (SBCGS)	To improve effectiveness of SBCGS	10,000 b	1989

-----  
a= UN Funded; b= W/Bank Funded; c= Government Funded; d= to be Funded

PROJECTS	OBJECTIVES	ESTIMATED COST (\$US)	EXECUTION PERIOD
<b><u>R &amp; D Support</u></b>			
14 Establish S&T Fund	To relieve immediate pressure on Governments' Resources.	50,000 d	1989
14A	To re-direct research into key areas of private and public sector activities	50,000 b	1989
15 Prepare comprehensive S&T development Plan & Policy	To integrate S&T into Ghana's economic plan & reduce overlaps & duplication of resource	40,000 d	1989/90
<b><u>Policy Support</u></b>			
16 Carry out nine Ind sub-sector studies	To prepare basis for sectoral development plans	500,000 a,b,c	1988-89
16A	To prepare basis for enterprise rehabilitation programming	do	
17 Complete MIST in-service training in industrial planning	To improve MIST technical and support staff capacity to manage data base and do planning	25,000 a,b	1989
18 Rehabilitate CSIR & GSB Laboratories	To improve and monitor industry output quality and standards	50,000 b	1989

a = UN funded    b = WB funded    c = Government funded    d = To be funded

## APPENDIX 2

### STUDIES TO FACILITATE MIST ACTION PROGRAMME AND SUPPORT FOR INDUSTRY

---

In preparing the 5-Year Industrial Development Master Plan for Ghana, several sub-sector and thematic studies have been commissioned by the Ministry. These studies will, among other things, provide the basic inputs for the sub-sector data base in addition to serving as a reference points for assessing the improvements in production structure, capacity, systemic constraints and potential of the sub-sector as a whole. From these studies it will be possible to determine areas of strengths and weaknesses in the industrial system and from which, specific programmes and/or projects will be further generated in response to identified needs and opportunities.

Upon completion of each sub-sector study, a 3-year sub-sector development plan will be prepared to provide the basis for technical assistance programming, sub-sector indicative targeting and enterprise performance monitoring by MIST. With completion of all nine sub-sector studies and plans, i.e, by December, 1989, an integrated master plan will be developed for the manufacturing sector which will link up with the 5-Year National Development Plan to be formulated by the National Planning Commission.

MIST technical staff have been deployed to effect these studies in association with a team of local and foreign consultants engaged by MIST. The programme and status of the studies are shown below:

<u>SUB-SECTORS</u>	<u>ISIC CLASSIFICATION</u>
1. Food, Beverage & Tobacco	31
2. Textile, Garment, Footwear & Leather	32
3. Chemicals, Plastics & Rubber	35
4. Pharmaceutical & Cosmetics	
5. Wood, Paper & Printing (M & L Scale)	33
6. Wood, Rattan & Handicraft (Small Scale)	
7. Metal, Machinery & Vehicle Assembly	37/38
8. Non-metal, & Earth-based Products	36
9. Electrical, Electronics & Service	38
10. Packaging #	
11. Building Materials #	
12. Impact Assessment Studies, 1985, 86 & 87 ##	
13. Effective Protection Studies (Textile) #	
14. Resource Mapping study in the Western, Central and Ashanti/Brong Ahafo regions ##	
15. M & L Nation-wide Industry Survey	
16. Small Scale Nation-wide Industry Survey	

-----  
# composite studies      ## thematic studies

Appendix 2A

SUB-SECTOR STUDIES & DELIVERY SCHEDULE

STUDIES SCHEDULED	1ST	2ND	3RD	4TH	1ST	2ND	3RD	4TH	Remarks
	QTR	QTR	QTR	QTR	QTR	QTR	QTR	QTR	
	1988				1989				
Sub-sectors	Study/Report				Delivery Status				Remarks
1. FOOD/BEV/TOBACCO	*	***							Final draft completed
2. TEXTILE/GARMENT			*	+					Draft report awaited
3. CHEMICALS			*	**					Draft report received
4. PHARMACEUTICS				*	+				Study in progress
5. WOOD PRODUCT (M&L)						+			programmed
6. WOOD (SMALL SCALE)					+	++			programmed
7. METAL					+	++			programmed
8. NON-METAL						+	++		programmed
9. ELECTRICAL							+	++	programmed
10. PACKAGING						+	++		programmed
11. BUILDING PRODUCTS						+	++		programmed
12. IMPACT ASSESSMENT 85*			**		+++				Final report awaited
13. IMPACT ASSESSMENT 86			*		++				Draft report awaited
14. PROTECTION (T&G)					+	++			programmed
15. M & L INDUSTRY SURVEY *							**		Data being processed
16. SMALL SCALE IND SURVEY					+	++	+++		in progress

- \* study started
- \*\* draft report received
- \*\*\* final draft report received
- + study programmed to start
- ++ draft report due
- +++ final draft report due

-----  
**APPENDIX 3**

**SPECIAL ACTION PROGRAMME FOR LEADING SUB-SECTOR DEVELOPMENT**

**A. AGRO-BASED PRODUCTS**

<b>PRODUCTS</b>	<b>ACTIONS</b>
<b><u>1.0 Food Products</u></b>	
1.1 Cereals (maize, sorghum)	<ul style="list-style-type: none"><li>. facilitate the development of efficient processing mills</li></ul>
1.2 Vegetable oils (palm, nut)	<ul style="list-style-type: none"><li>. encourage the production of efficient small scale equipment for processing palmfruits and improve oil extraction rate from sheanut and coconut fruit.</li><li>. facilitate access to financing and finalize and/or streamline marketing arrangements</li><li>. encourage the use of appropriate locally developed technology for small scale manufacturing</li><li>. direct research institutes to develop alternative sources of essence and other local material to support soap-making industry</li><li>. establish production specifications and product standards.</li><li>. encourage local production of feed</li></ul>
1.3 Coconut & Sheanut	<ul style="list-style-type: none"><li>. streamline marketing arrangements</li></ul>
<b><u>2.0 Cotton Products</u></b>	
2.1 Textile products)	<ul style="list-style-type: none"><li>. improve climate for raw material production (reexamine pricing policy)</li><li>. facilitate wide-scale rehabilitation and labour balancing in the sub-sector</li><li>. encourage research into the development of local dyes and upgrade small scale spinning and weaving sector</li><li>. promote export of Kente and other unique Ghanaian printed fabric</li></ul>
<b><u>3.0 Rubber Products</u></b>	
3.1 Tyres, Tubes	<ul style="list-style-type: none"><li>. initiate negotiations for funding Phase 2 of the plant rehabilitation</li><li>. seek for strengthened Board and key management personnel on plan-</li></ul>

tation and tyre factory

**B. Forest-based Products**

**1.0 Timber Products**

**1.1 Log and Wood**

- . encourage further processing of log

**1.2 Furniture for home and export**

- . establish specialist wood work training facilities in Accra and Takoradi
- . facilitate technology improvement in sector
- . facilitate further investment in wood treatment

**2.0 Wooden carvings & wicker-work**

- . assist in quality improvements, especially in small-scale activities
- . strengthen small scale activities in art and craft through specialist training.
- . streamline marketing & financing arrangement for small scale sector

**C. Mineral-based Products**

**1.0 Non-Ferrous Metal Products**

**1.1 Aluminium Products**

- . promote establishment of precision foundries
- . promote further investment/expansion in extruded, tubular & foil plants

**2.1 Non-metallic Minerals**

**2.1 Clay products (bricks/tiles).** facilitate production of cheaper brick and tile through improved technology and product design

**2.2 Clinker, cement**

- . facilitate investment in cement production

**2.3 Glassware (bottles/sheet)**

- . initiate viability assessment study of Aboaso Glass Factory
- . initiate feasibility assessment study of glass production
- . facilitate investments if feasible

**3.0 Salt Products**

**3.1 Salt & derivatives**

- . facilitate further production
- . facilitate settlement connected



## D. Strategic Industries

### 1.0 Chemical Products

- 1.1 Pharmaceuticals (basic drugs) . facilitate increased local production of basic drugs, analgesic, anti-malaria, prophylactics, etc  
. promote local production of herbicides  
. encourage scientific research in production & certification of locally developed herbs

- 1.2 Agro-Chemical Products (fertilizers, insecticides) . facilitate further production of agro-chemicals

- 1.3 Industrial chemicals (PVC tubes, resins for moulded/extruded products & packaging materials) . facilitate and promote investments for broader base production

### 2.0 Iron and Steel Products

- 2.1 Iron, steel & Scrap . facilitate production of sponge iron  
. promote local production of angles, profiles and sheet steel  
. promote/facilitate development of foundries, tool-making & spares part making facilities

### 2.2 Fabricated Metal Products

- 2.3 Tools, spares & machinery . facilitate expansion of foundry operations through ITTU facility  
. promote manufacture of tools, components, spares, agricultural implements and processing machines

### 3.0 Electrical Products

- 3.1 Cables, switches & plugs . facilitate increased domestic production  
3.2 Bulbs, tubes and appliances . facilitate increased local production

### 4.0 Packaging Products

- 4.1 Metal containers . facilitate alternative production  
4.2 Paper . initiate feasibility study of full paper production in the country  
. strengthen and expand facilities for local conversion of paper products.

## Notes and Definitions

Border protection:	Shield to local industries from external competition applied in the form of additional duties, taxes, tariff, physical, financial, qualitative or quantitative constraints on imports.
Cross-sector data:	Data collected from each enterprise or a representative sample in a particular sector at a point in time.
Comparative advantage:	The ability to be locally competitive through a dynamic process of specialization based on one's strength and efficient use of one's resources. This concept is used frequently in comparative statistics and trade analysis and can be gauged by the effective <u>local value added</u> measured at world price or border price (sometimes referred to as the domestic resource cost of foreign exchange), (DRC).
Co-operating Agency	Body or Agency with which one must meet with regularly and discuss mutual work programmes in order to realign plans and support actions.
Co-ordinating Agency	Body or Agency with which one must deal in order to have consistency and to avoid duplications in programmes and resources.
Collaboration	Refers to on-going relation which may include acts of co-operation and/or co-ordination.
Dependence:	A state of reliance such that one's output is determined by others.
Derivatives:	Products which are generated as a result of a technological process
Interdependent:	A mutual beneficial relationship or arrangement
Indigenous:	Connected with the citizens or belonging to the country.
Industrialization:	An intense programme of manufacturing industries, support services, training, R&D, technical, commercial and financial institutions and physical infrastructures.
Industrial structure:	Characteristics of the main features of industrial production which usually includes: product range, production processes, type of equipment, age, size based on employment, assets and output level; raw material sources, import and export content, pricing and costs,

	spatial distribution, type and ownership and detailed composition of employed labour.
<b>Infrastructure:</b>	Basic facilities, usually provided by Government or with Government franchise to support or facilitate economic development eg. roads, ports, utilities, communication and transport.
<b>Interaction:</b>	Multiple and multi-level responses, might be instantaneous, immediate or delayed.
<b>Inter-sectoral or Inter-industry:</b>	Trading and other industrial/commercial transactions with other sectors (Industries)
<b>Intra-industry or Intra-sectoral:</b>	Trading and other industrial/commercial transactions among the sub-sectors
<b>Liberalization:</b>	A policy which promotes & supports the removal of impediments to free market trade. In every country there exists several levels of policy to protect negative investment flows and undesired capital movements; In some countries trade liberalization is limited to imports and exports, wages and labour mobility. In practice no country practices complete liberalization. Certain measures are provided to monitor and balance the deficiencies of the market.
<b>Macro-economic:</b>	Concerned with the wider national economy.
<b>Plant productivity:</b>	Refers to total factor productivity, i.e. the combined productivity of labour, management and capital assets.
<b>Policy:</b>	General statement of principles which give guidance on major economic issues and for the plan, action programmes and implementation strategies.
<b>Policy Measures:</b>	Specific actions which give effect to policy. eg. a legislation to reduce import duty on raw materials.
<b>Strategy:</b>	That which defines one's basic approach for reaching a target.
<b>Time series Data:</b>	Aggregated data collected at specific periods of time, usually annually covering the same information and period each year.

**Value Added:**

The contribution of domestic inputs in total industrial output, valued at market price. There are many types of value added and readers should be clear to distinguish which is which. For instance, there is manufacturing value added (MVA) which defines the contribution made by the individual manufacturing enterprise or in the aggregate sense is the sum of the additional value put on to raw materials by manufacturing.