



REPUBLIC OF KENYA  
LAKE BASIN DEVELOPMENT AUTHORITY

THE STUDY  
OF  
INTEGRATED REGIONAL DEVELOPMENT  
MASTER PLAN  
FOR  
THE LAKE BASIN DEVELOPMENT AREA

FINAL REPORT

Volume 4

SECTOR REPORT 2

MANUFACTURING/MINERAL RESOURCES/TOURISM

October 1987

JAPAN INTERNATIONAL COOPERATION AGENCY

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## Abbreviations

ACFC	Agro-Chemical and Food Company	ICIPB	International Center for Insect Physiology and Ecology
ADT	Average Daily Traffic	ICOR	Incremental Capital-Output Ratio
AED	African Economic Digest	IDA	International Development Association
ABSD	Agricultural Extension and Service Division	IDB	Industrial Development Bank
AFC	Agricultural Finance Corporation	IDS	Institute of Development Studies
AI	Artificial Insemination	IE	Industrial Estate
AIRS	Ahero Irrigation Research Station	IFAD	International Fund for Agricultural Development
BAT	British American Tobacco Kenya Ltd.	ILO	International Labour Organization
BOD	Biochemical Oxygen Demand	ILUS	Integrated Land Use Survey
CBK	Coffee Board of Kenya	IPA	Industrial Promotion Area
CBS	Central Bureau of Statistics	IRD	Integrated Rural Development
CL SMB	Cotton Lint and Seed Marketing Board	IRRI	International Rice Research Institute
CPCS	Cooperative Production Credit Scheme	IRS	Integrated Rural Survey
DAO	District Agricultural Officer	JICA	Japan International Cooperation Agency
DC	District Commissioner	JSCE	Japan Society of Civil Engineers
DCDC	District Community Development Committee	KCC	Kenya Cooperative Creawerdes
DDC	District Development Committee	KCPB	Kenya Certificate of Primary Education
DEC	District Executive Committee	KENAFYA	Kenya - Finland
DEO	Division Extension Officer	KENGO	Kenya Energy Non-Governmental Organizations Association
DFCK	Development Financial Company of Kenya	KETA	Kenya External Trade Authority
DME	Distance - Measuring Equipment	KFA	Kenya Farmers Association
DO	District Officer	KGGCU	Kenya Grain Growers Union
EAI	East African Industries Limited	KIE	Kenya Industrial Estates Limited
EATEC	East African Tanning Extract Company Limited	KITI	Kenya Industrial Training Institute
EEC	European Economic Community	K£	Kenya Pounds (20 Kenya shillings)
EIU	Economic Intelligence Unit	KMC	Kenya Meat Commission
ESMAP	Energy Sector Management Assistance Programme	KNAIS	Kenya National Artificial Insemination Service
FAO	Food and Agriculture Organization of the United Nations	KPCU	Kenya Planters Cooperative Union
FISS	Farm Input Supply Scheme	KPLC	Kenya Power and Lighting Company Limited
FMD	Foot and Mouth Disease	KQ	Kenya Airways
GDP	Gross Domestic Product	KRC	Kenya Railways Corporation
GRDP	Gross Regional Domestic Product	KREBP	Kenya Renewable Energy Development Programme
GTZ	German Agency for Technical Cooperation	KSA	Kenya Sugar Authority
HCDA	Horticultural Crops Development Authority	KSB	Kenya Sisal Board
HFA/2000	Health for All by the Year 2000 AD.	KSC	Kenya Seed Company
IADP	Integrated Agricultural Development Program	Kshs	Kenya Shillings
IBRD	International Bank for Reconstruction and Development	KSS	Kenya Soil Survey
ICA	International Coffee Agreement	KTDA	Kenya Tourism Development Authority
ICDC	Industrial and Commercial Development Corporation	KTDA	Kenya Tea Development Authority



KWDP	Kenya Woodfuel Development Project	SP1	Sessional Paper No.1 of 1986 on Economic Management for Renewed Growth
LBDA	Lake Basin Development Authority		
LPG	Liquefied Petroleum Gas		
LSI	Lake Shore Irrigation	SPSCP	Smallholder Production Services and Credit Scheme
LU	Livestock Unit		
MCH/FP	Maternal Child Health/Family Planning	SRRP	Smallholder Price Rehabilitation Project
MOLG	Ministry of Local Government	SSIOP	Small Scale Irrigation Development Project
MOA	Ministry of Agriculture		
MOALD	Ministry of Agriculture and Livestock Development	SWAP	Surface Water Extraction Permit
MOERD	Ministry of Energy and Regional Development	T&V	Training and Visit
MOEST	Ministry of Education Science and Technology	UNDP	United Nations Development Programme
MOH	Ministry of Health	UNESCO	United Nations Educational, Scientific, and Cultural Organization
MOLD	Ministry of Livestock Development	UNCEF	United Nations International Children's Emergency Fund
MOPND	Ministry of Planning and National Development	UNIDO	United Nations Industrial Development Organization
MOTC	Ministry of Transport and Communication	USAID	United States Agency for International Development
MOWD	Ministry of Water Development	VOR	Very High Frequency Omnidirectional Radio Range
MP	Member of Parliament	WHO	World Health Organization
MSC	Mumias Sugar Company		
MSS	Multispectral Scanner		
MSY	Maximum Sustainable Yield		
NCC	National Construction Corporation		
NCPB	National Cereals and Produce Board		
NCST	National Council for Science and Technology		
NEP	National Energy Policy		
NEP	National Extension Project		
NGO	Non-Governmental Organization		
NIB	National Irrigation Board		
NMWP	National Master Water Plan		
NSCC	New Seasonal Credit Scheme		
OD	Origin-Destination		
OECD	Organization for Economic Cooperation and Development		
PBME	Project Benefit Monitoring and Evaluation		
PC	Provincial Commissioner		
PCU	Passenger Car Unit		
PHC	Primary Health Care		
PIU	Provincial Irrigation Unit		
RAES	Rural Afforestation Extension Service		
RIDC	Rural Industrial Development Center		
ROK	Republic of Kenya		
RTPC	Rural Trade and Production Center		
RWSDP	Rural Water Supply Development Project		
SCIP	Smallholder Coffee Improvement Project		
SEFC	Small Enterprise Financial Corporation		
SEP	Special Energy Programme		

## Abbreviations of Measures

### Length

mm	=	millimeter
m	=	meter
km	=	kilometer

### Area

ha	=	hectare
km <sup>2</sup>	=	square kilometer

### Volume

ℓ	=	lit = litre
m <sup>3</sup>	=	cubic meter
MCM	=	million cubic meter

### Weight

mg	=	milligram
g	=	gram
kg	=	kilogram
t	=	ton = MT = metric ton

### Time

sec	=	second
hr	=	hour
d	=	day
yr	=	year

### Money

Kshs.	=	Kenya shilling
KE	=	Kenya pound
US¢	=	U.S. cent
US\$	=	U.S. dollar

### Energy

kcal	=	kilocalorie
J	=	joule
MJ	=	megajoule
HP	=	horsepower
TOE	=	tons of oil equivalent
kW	=	kilowatt
MW	=	megawatt
kWh	=	kilowatt-hour
GWh	=	gigawatt-hour

### Others

%	=	percent
°	=	degree
'	=	minute
°C	=	degree Celsius
cap.	=	capita
LU	=	livestock unit
md	=	man-day
mil.	=	million
no.	=	number
pers.	=	person
PCU	=	passenger car unit

## **Chapter 4 MANUFACTURING**

This chapter presents the results of the sector study of manufacturing, conducted as a part of the Integrated Regional Development Master Plan study for the LBDA region. The objectives of the study have been:

- to analyse existing conditions,
- to evaluate development potentials,
- to clarify constraints and development needs,
- to set the framework and main directions for industrial development, and
- to identify and elaborate on priority projects.

The industrial development plan presented in this chapter depicts the development of the manufacturing sector in the Region up to 2005, basically in line with the decentralization policy stated in the Sessional Paper No. 1 of 1986, and proposes the methods and processes to realize it. The study deals not only with the formal manufacturing sector but also with the informal sector.

In Section 4.1, the present situation of the manufacturing industry and its surrounding environment is discussed. The position of the manufacturing industry in the Region vis-a-vis other regions of the country and neighbouring countries is examined.

There are many kinds of constraints to the development such as lack of capital, technology, entrepreneurship, market information and infrastructure. These constraints are systematically analysed and the countermeasures to overcome or to alleviate the constraints are presented in Section 4.2.

Main points of the manufacturing industrial development plan are abstracted from the discussions in Sections 4.1 and 4.2 and elaborated in Section 4.3. In Section 4.4, the development processes and mechanisms of the manufacturing industry in the Region by development phase are presented. Section 4.5 describes priority subsectors to be introduced/enhanced and projects the output, value-added and employment of the manufacturing industry in the Region. Finally in Section 4.6, roles of public organizations for manufacturing development in the Region are clarified, including those of LBDA.

The results of informal sector survey conducted at this time are attached to this chapter.



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## 4.1 Present Situation

### 4.1.1 Existing manufacturing establishments

#### (1) Number of establishments

##### Overview

Number of the manufacturing establishments or units in the Region in 1985 is estimated to be 327 which correspond to 11% of the total manufacturing enterprises in Kenya (2,975 enterprises, estimated) in the same year, excluding the ones of the informal manufacturing subsector, for which the relevant information is lacking.

The agro-based units account for 87.7% of the total units and the chemical and metal product subsector units for the remaining portion of 12.3% (Table 4.1), while in Kenya as a whole, the former is estimated to be 65.9% and the latter, 34.1%. Of the total, Kisumu and Uasin Gishu districts accommodate 71 and 69 establishments respectively, followed by 38 in Kakamega and 27 in Trans Nzoia (Table 4.2).

Small scale manufacturing enterprises employing up to 9 workers dominate the sector in the Region with 152 units (45%), followed by 136 medium scale enterprises (10-50 workers) and 39 large scale enterprises (over 50 workers). The number of small scale units may be under-estimated. In Kenya as a whole small scale enterprises account for 55% of the total number of establishments (Tables 4.3 and 4.4). In the agro-based subsector, a relatively large number of the large scale enterprises are observed in the Region, while there are only very few in the chemical and metal subsector.

##### Decentralization trend

For three years from 1978 to 1981, 349 new enterprises were established in the country. However, the increase in the urban areas (the metropolitan areas and main towns) was small. The major increase took place in the rural areas (Table 4.5). This trend seems to hold also in the LBDA region.

It seems that the policy of distributing manufacturing enterprises to the rural areas have been successful, apart from the social and economic cost paid for it. In the four years from 1981 to 1985, an increase in the number of new establishments in Kisumu, South Nyanza and Kisii districts was relatively large in comparison with the accumulated number of establishments up to 1981. During the same period the total number in the whole country increased at annual average rates of 4.9% for 1978-1983 and 2.2% for 1983-1985. Therefore, it may be concluded that the manufacturing industry in the Region has been catching up with the national average in recent years as far as the number of establishments are concerned.

For the period from the end of the 1970's to the beginning of the 80's, establishments in the food processing (canned vegetable, bakery and beverage), the light industry (textile, leather and miscellaneous manufacturing) and the heavy industry (metal and electrical equipment) showed a marked increase for the whole country. The Region is lagging behind in the fields

of the machinery and even of subsectors based on natural resources endowed in the Region such as leather products, clay and glass products, and non-metallic minerals.

#### Dichotomy trend

Another trend observed in the manufacturing sector of Kenya in recent years is that small and large scale enterprises tend to increase their numbers as compared with the medium scale. This may be explained as follows.

Potential enterprises begin their business on a small scale mainly due to the easy entry or constraints on their initial investments and skill/technology. However, it seems very difficult for them to climb up the ladder to the medium scale due to the lack of capital, management technology and other constraints. These constraints are due primarily to the lack of enterprises' endeavors and to the industrial policy which tends to favour the large scale enterprises. As a result, only a small portion of small enterprises can make it up the ladder, while the remaining large portion remain small or die out. On the other hand, it seems to be relatively easy for the medium scale enterprises to upgrade themselves to the large scale in comparison with the small scale enterprises, mainly because the technology (managerial and production) which the large scale enterprises utilize is also utilized by the medium scale enterprises.

The medium scale enterprises can therefore cope with the change, and gain from the industrial policy. Also powerful entrepreneurs can enter the manufacturing industry with large initial investment and well equipped factories as well as a confidence for success, thus avoiding the hardship of starting small.

#### Competition between small and large

Small enterprises are generally superior to large ones in the subsectors utilizing locally endowed resources, such as canned vegetables, fish, oils and fats, bakery products, sugar and confectionery, textile, leather and foot-wear, rubber products and non-metallic minerals. Large scale enterprises dominate the food processing subsectors such as grain mill products, miscellaneous foods, beverages, textile and leather products, metal products and electrical equipment. Except the last two, however, these subsectors are also domains of small enterprises. Competition between small and large enterprises in these subsectors is becoming severe. Small enterprises can survive in these subsectors by providing specialized and diversified products demanded by local people.

#### (2) Outputs

The total output of the manufacturing industry in 1985, including the informal sector's, is estimated at K£ 417.7 million, of which K£ 5.35 million comes from the informal manufacturing subsector. The output of the formal units of K£ 412.4 million or 98.7% of the total output in the Region accounts for 13.2% of the corresponding output of Kenya in 1985 (K£ 3,130.2 million, estimated). The Region's share is larger for the output value than the number of establishments, indicating the average scale of enterprises in the Region in terms of the number of employment is larger than the national average. This may be explained by the following:

- 1) The enterprises recently established in the Region are of relatively large scale; and
- 2) The room for fostering the small scale enterprises is relatively small mainly due to the small inducement power of the existing or newly established subsectors and/or the relatively low level of household income.

The non-agro-based formal manufacturing subsectors, i.e. chemical and metal subsectors share only 4.0% of the subtotal and the remaining 96% is attributed to the agro-based subsectors, while at the national level these are 42.8% and 57.2% respectively (Table 4.6). The manufacturing industrial structure in the Region is very weak. The fosterage of the chemical and metal subsectors in the Region, which have large inducement capability of the related manufacturing subsectors and service subsector, will become the most important issue for the future industrial development in the Region.

The biggest agro-based subsector is the miscellaneous foods subsector, which includes tea manufacturing with an output of K£ 127.1 million, or 30.8% of the total in the Region, or 21.0% of the corresponding subsector in the whole country, followed by the sugar and confectionery with K£ 52.7 million, or 12.9% of the Region's total and 65.0% of the output in Kenya. Kericho district leads all other districts in the Region with the output of K£ 94.5 million, of which 86.4% derives from the tea industry. Kisumu and Uasin Gishu districts follow with K£ 81.1 million and K£ 76.8 million respectively, with a much wider range of agro-based industries than is the case in Kericho.

The potential for industrial development in the Region has been assessed at this time from the availability of human resources, although many other factors affect the potential such as the level of income and the existing and future level of technology. As compared with the potential, the present manufacturing sector is characterized as follows:

- 1) Only 33.4% of the potential has been realized in 1985. This implies that the level of manufacturing industry development in the Region is fairly below the expected level.
- 2) Only the sugar and confectionery subsector exceeds the potential. Other agro-based subsectors remain at 50-60% of the corresponding subsectors potentials, and the metal and chemical subsectors, around or below 10%.

From the viewpoints of income level and availability of raw materials, some subsectors such as grain mill products and bakery products may be in keeping with the potential, but most agro-based subsectors have much room for development.

### (3) Value-added

The total value-added of the manufacturing industry in the Region in 1985, including the informal manufacturing subsector's is estimated at K£ 75.2 million, of which K£ 3.66 million is brought about by the informal subsector. The value-added of the formal sector units of K£ 71.5 million, which corresponds to 95.1% of the total value-added, is estimated to account for 13.7% of the corresponding figure for the whole formal manufacturing sector in Kenya in 1985 (Table 4.8). The average value-added ratio of the formal sector in the Region is estimated to be 17.3% which is higher than the national average of 16.7% (Table

4.7). The constituent ratios by subsectors in the Region are: 95.5% for agro-based subsector, 1.8% for chemical and 2.5% for metal, while the corresponding figures for Kenya are 58.9%, 19.1% and 22.0% respectively. The structure in the Region is biased extremely to the agro-based subsectors.

The average value-added ratios by subsector in the Region are: 17.3% in agro-based subsector, 20.0% in chemical and 18.0% in metal, while in Kenya as a whole, ratios are 17.2% , 12.0% and 22.6% respectively. The low nationwide ratio of the chemical subsector is mainly brought about by the petroleum and other product subsector, whose value added ratio is 7.7%. The average ratio would be 18.3% when the petroleum subsector is excluded. The relatively higher ratio of the chemical subsector in the Region is due to the absence of the petroleum subsector. The relatively low ratio of the metal subsector in the Region is due to the absence of the non-electrical machinery and electrical equipment subsectors, whose value-added ratios are 25.2% and 31.4% respectively.

The largest amount of K£17.7 million or 24.7% of the total, comes from the sugar and confectionery subsector, followed by the miscellaneous foods, K£8.8 million or 12.3% and the beverage and tobacco, K£7.7 million or 12.7% (Table 4.8). The order in the value added is different from the one in the output, due to big difference between the value-added ratios of the sugar and confectionery subsector (50.4%) and the miscellaneous foods subsector (6.4%).

#### (4) Employment

It is estimated at this time that 29,740 persons, including owners, are engaged in the manufacturing in the Region, of which 25,070 persons or 84.3% of the total are in the formal sector and 4,670 persons or 15.7% in the informal. The share of the formal sector employment in the Region is 16.2% of the national total which is fairly low when the population share (40%) is taken into consideration, but fairly high when the share of establishments/units in the Region (11.0%) is considered. The agro-based subsector shares 94.4% of the formal sector's total employments. Only 1,410 persons are engaged in the non-agro-based manufacturing subsector (Table 4.9). The textile subsector employs 6,782 followed by 4,185 and 4,124 in the sugar and confectionery and miscellaneous foods subsectors respectively. Only the textile and sugar and confectionery subsectors employ proportionately more people than the population share of the Region. The employment in the remaining subsectors, excluding grain mill products and baker products are fairly below the corresponding potential.

In Uasin Gishu, 8,152 persons are employed in the manufacturing industry followed by 6,141 and 3,325 persons in Kisumu and Kericho districts respectively. The total employment in the Region is about 48.1% of the potential estimated based on the population share. Uasin Gishu and Kisumu districts exceed the corresponding potentials, while the remaining districts (13 districts) are fairly below the potentials, implying considerable inequality in the employment opportunities among the districts.

#### **4.1.2 Procurement of production inputs and market structure**

##### **(1) Formal manufacturing sector**

###### **Procurement of raw materials**

From interviews with the KIE regional managers, districts trade officers and managers of private firms, the ways of procurement of raw materials which the firms require for the daily production are summarized as follows. The agricultural raw materials are procured through the following two channels:

- 1) Related cooperatives and government agencies, when the materials are under the Government's regulation for their sales, and
- 2) Direct purchase from farmers.

Some managers of private firms, e.g. edible oil and sugar subsector industries pointed out that the direct purchase from farmers would benefit both the firms and farmers concerned in the sense that the farmers can be paid in cash and can obtain a sure market at present and in the near future and that the firms can procure the materials of required quality as much as they plan. It should be pointed out that the cash transaction and assurance of market are the biggest incentives to the farmers. A disadvantage of this case to the firms is that they have to look for the farmers scattered in rural areas and to lead the farmers to produce the raw materials with a quality which they desire.

In the case that the materials are for manufactured goods like basic chemicals and metal products, they are often imported from abroad through import traders in Nairobi and Mombasa. The managers of the firms pointed out that since the traders in Kisumu and Eldoret are not capable of nor knowledgeable in negotiations with foreign traders it is very difficult for them to convey the request of the firms, resulting in a delay in delivery. They also pointed out that the corresponding domestic raw materials are mostly inferior to the imported ones in both prices and quality.

###### **Procurement of capital goods**

Almost all the capital goods to be installed in the Region would be imported through the traders in Nairobi and Mombasa, and the enterprises in the Region ask for assistance and parts from the traders when repair/maintenance of the facilities/equipments are needed.

However, as can be seen in certain firms in Eldoret, relatively well-equipped workshops for the repair of production machines are developing. The possibility is foreseen that they will accumulate their technology through the experiences, spin out of the mother firms and become independent with speciality in repair of machinery/facilities and/or machinery production.

###### **Sales of manufactured goods**

The distribution channels of processed agricultural products depend on:

- Whether the marketing of processed agricultural products are controlled by the government;
- Durability of the finished products; and
- Production volumes of firms in comparison with the market size in the vicinity.

In case of the finished goods under the regulation like processed cereals and sugar, all the finished goods produced are shipped to the related government agencies.

Less durable goods like bread and confectionery products are distributed from the producers directly to the retailers. At present, the market of any firm in the Region is limited within their vicinity and small in scale. However, when the quality of the products and transportation means are improved, the market might expand beyond the boundaries of towns and districts. When a firm produces relatively large amount of finished goods like edible oil in comparison with the market in the surrounding districts, the firm uses wholesalers to distribute the products to retailers scattered in the country.

In case of the manufactured goods, such as chemical and metal products almost all the firms adopt a order-made basis, and ship the finished goods directly to the customers.

## (2) Informal sector

### Activities

The informal sector is broadly divided into three subsectors: viz. manufacturing, retail trade and catering, and repair and other services. The shares of these subsectors on the employment basis were 16.4%, 70.7% and 12.9% in 1982, respectively.

The goods and service provided by each subsector of the informal sector enterprises are as follows:

#### Manufacturing subsector (open air)

##### Consumer goods

tile, flour, pot, pan, brush, paper, match, glass, soap, shoe, hide and skin products, box, furniture, copper products etc.

##### Capital goods

sickle, hoe, harness etc.

#### Service subsector

taxi, barber, laundry, shoe cleaning, repair (vehicle, bicycle, radio), restaurant etc.

#### Retail trade subsector

beverage, newspaper, daily necessities including the consumer goods above.

As is clear from the kinds of the products and service enumerated above, the informal sector is characterized by the fact that the sector provides goods and service which the households, especially low income ones, demand daily.



More thorough analysis on the informal sector is included in the Attachment to this chapter.

#### Procurement of raw materials

Procurement of raw materials by informal sector enterprises may be summarized as follows:

- Collection of waste materials by themselves, and
- Purchase from the formal sector enterprises (trade and manufacturing).

In case of the purchase of the raw materials from manufacturing enterprises, the informal manufacturing enterprises in the Region seem to raise almost all the raw materials from the enterprises located in Nairobi and Mombasa, because there exist few formal enterprises in the Region which supply the raw materials to the informal manufacturing enterprises.

As to the remaining two subsectors, they raise the chemical and metal raw materials and highly processed foods from the same channels as the ones in the manufacturing subsector, and the other raw materials, mainly agricultural products, directly from the farmers in the Region.

#### Procurement of capital goods

In comparison with the formal sector industry, the capital goods procured by the informal sector enterprises are substantially small in kinds and value. However, they too seem to purchase their capital goods through the same kind of channels as the ones of the formal sector enterprises in the Region.

#### Market structure for the informal sector

In general, the goods and service provided by the informal enterprises are demanded by the following final consumers:

- Private consumers,
- Formal manufacturing enterprises, and
- Local governments.

The finished goods and service of the informal sector are provided to the formal manufacturing enterprises under the subcontract agreements. However, when considering the present situation of informal and formal sector industries in the Region, this type of sales do not seem so popular in the Region, except in case of finished products which are exported to foreign countries or demanded widely in the country.

The purchase by local government is also judged to be very small in the Region.

The market of the informal sector is considered to be very small due to the following characteristics of the informal sector:

- The sector produces the goods and service demanded by residents in the vicinity; and

- The sector enterprises scatter widely in the districts and the Region.

Even the largest market of certain informal sector enterprises does not cover an entire district.

### **(3) Problems with markets**

There are three kinds of problems related to the market in the Region. They are:

- Small market,
- Lack of market information and of enterprises' efforts to acquire such, and
- Severe competition in the informal market.

The first two problems are common not only to the informal and formal sectors in the Region but also to some enterprises in the country. The third one is common to the informal sector in the country.

The problem of small market is due to the following:

- Low income level in the Region,
- Lack of induced demand from the manufacturing industry in the Region, and
- Low quality of finished products.

The second factor above is related to the manufacturing industrial structure in the Region.

For both of informal and formal sector enterprises in the Region, the market information is in short supply. This phenomenon is brought about by the following facts:

- There is no public and private organizations which provide the market information, and
- The enterprises fail to make efforts to acquire such information.

Separation of production and marketing systems as widely adopted in many enterprises in the country seems to be the main cause of the second fact above.

It should be noted that the full provision of the market information to enterprises in the Region might not always induce an enlargement of their market. The market information would become useful when it is reflected in their finished goods and service. Therefore, the full provision of the information is a necessary but not satisfactory condition for the enlargement of their market.

Easy entry into the market for informal sector tends to make the competition among informal enterprises very severe. The informal enterprises have to compete also with formal sector industries, which supply the same kinds of goods and services, using more capital-intensive facilities. In fact, the formal industries sometimes take over the market developed by the informal sector.

#### **4.1.3 Related organizations**

##### **(1) Financial organizations**

Many kinds of national financial organizations have been established since the latter half of 1960's such as Kenya Industrial Estates Limited (KIE), Industrial Development Bank (IDB), Industrial and Commercial Development Corporation (ICDC), Development Financial Company of Kenya (DFCK) and Small Enterprise Financial Corporation (SEFC). These organizations contribute to the development of small scale establishments by providing medium and long term loans, advice and consultation on the management of the enterprises and training of enterprises.

However, the study at this time seems to confirm the report (World Bank 1982) that the contribution of the main financial public organizations for the development of the small scale enterprises is limited or relatively small due to the following problems and conditions:

- 1) High cost of administering small loans, making the financial assistance schemes unattractive for financial institutions;
- 2) High default rate of repayment by small scale establishments;
- 3) Obligation of collateral to advance loans to small scale establishments supported by financial institutions;
- 4) ICDC small loans program directed much more towards commerce and property than to small scale establishments;
- 5) Concentration of loans in big cities, enlarging regional disparities;
- 6) High threshold in terms of minimum monthly turnover established by ICDC which eliminates a great number of artisans from consideration; and
- 7) Considerably short loan repayment periods with rather high interest rates.

The industrial development policy up to the recent years which has a great emphasis on the development of import-substitution industries has been reflected in these problems and constraints. These problems and constraints have forced the small enterprises, apart from the enterprises located and supported by Kenya Industrial Estates (KIE), to turn to private and informal lending sector or self-financing for their initial investment and operating funds.

##### **(2) Technical education**

As regards the technical education for the potential and existing enterprises and workers, Kenya has established the following public organizations and institutions, focusing on a range of subjects and degree of skill, techniques and technology to be mastered.

- Youth polytechnics
- Technical secondary school

- Harambee technical college
- Labour industrial training college under Ministry of Labour
- Kenya polytechnics
- University

Besides the above, there exist Kenya Industrial Training Institute (KITI), Kenyan Institute of Business Training and KIE. The youth polytechnics are the most accessible to rural residents. Many youth polytechnics have been established in rural areas (7-8 polytechnics per district in the LBDA area). These are for graduates from primary schools, and offer many kinds of two year courses in such fields as carpentry, handcraft, repair and clerical education. They play very important roles in fostering the basic and demand-oriented techniques and have been recently highlighted in compliance with the rural industrial development policies stated in the Sessional Paper No. 1 of 1986.

However, according to the District Development Plans, about half of the polytechnics in the Region are not fully utilized due to lack of funds for the facilities and operation. Another problem is that all of the graduates cannot find jobs where they utilize their skills and knowledge mastered at the polytechnics.

### (3) Marketing

The information relating to marketing is collected and distributed by External Trade Office of Ministry of Commerce and Industry and Internal Trade Office of the same Ministry. The former office circulates the export marketing information through Kenya National Chamber of Commerce. The latter office collects but does not distribute the market information for the small scale industry. The information is used internally for guidance and evaluation of the small scale enterprises newly established. Along with the above offices of the central Government, there is Kenya External Trade Authority (KETA).

Beside the defect in the distribution of market information, the small enterprises do not join the Chamber, so they cannot enjoy the marketing information. The most of enterprises in the Region are judged to be in a position where they cannot extract clearly what they wish to know, making it impossible for them to access the existing systems.

### (4) Kenya Industrial Estates Limited

#### Services provided

Kenya Industrial Estates Limited (KIE) was established in 1967 with the aim to explore and assist the small enterprises. KIE is the most accessible government agencies for the potential small entrepreneurs both in rural and urban areas. KIE makes an endeavour to attain the aim through the following activities:

- 1) Construction of industrial Estates (IE) and Rural Industrial Development Centres (RIDC), and designation of Industrial Promotion Areas (IPA) in rural and urban areas,
- 2) Provision of loans, and
- 3) Seminars and consultation.

The number of IE's, RIDC's and IPA's are increasing steadily. KIE intends to reduce the initial capital requirements of potential small entrepreneurs as much as it can by providing IE's where factory buildings for rent, water and electricity, and a workshop are prepared.

KIE provides the potential entrepreneurs more than 70% of initial investment including the working capital, if required, on the following loan conditions:

Annual interest rate	13% up to KShs. 1 million loan 14% over KShs. 1 million loan
Term	5-10 years including grace period of 0.5 - 1.0 year.

Recently, KIE has extended its loan to small scale enterprises up to ten thousand shillings without security. According to KIE, the repayment is being made smoothly. Moreover, KIE has expressed very positively the intention of expanding loans to projects which satisfy the selection criteria (mainly financial).

The office of each IE holds seminars, two or three times per year, on the managerial and financial matters of firms and exploration of the potential small entrepreneurs, and opens also its door for irregular consultation on production technologies.

#### Financial situation

KIE adopts a self-supporting accounting system and it has been asked more strongly by the central Government to make the financial balance. However, the following problems are noted:

- 1) excessive investment on well equipped workshops in comparison with the capability of tenant enterprises for utilizing the workshop, and
- 2) relatively low occupancy of the industrial estates.

The interest rate of 13-14% per year on the loan is lower than the ones of the ICDC (the real interest rate is estimated to be 20-21% per year) and the private informal lending sector. Though the lower rates on the loans are requested from the standpoint of the development of the small scale enterprises, it seems impossible for KIE to provide the loans with lower rates due to the above financial situation. The situation seems also to be reflected in the response to the request from the District Development Committees (DDC) to construct new IE's. Managers of IE's complain that the enterprises in the IE's do not want to go out of the IE's even when they have acquired sufficient financial capability.

#### **(5) Evaluation of existing public organizations**

As discussed above, there already exist many kinds of public financial institutions and organizations, and they have problems especially from the standpoint of the small scale enterprises. However, judging from the development policy on the informal sector and

small scale industries as stated in SP1, it is expected that the access to public loans will be made easier in the sense of expanding eligible borrowers, increasing amount, upgrading quality of loans and diversifying lending institutions. Unfortunately at present, procedures for realizing this policy are not clear.

Based on the present situation on the technical public education institutions and organizations discussed before, it may be judged that the related public technical institutions are producing, not sufficiently but at satisfactory level, the services (technical education) sufficient for the industrial development in the Region in terms both of the quantity and quality.

Increased service levels, though desirable, may not be expected in the future for the following reasons:

- 1) As pointed out in SP1, the central Government will seek the budget to be balanced, mainly being conscious of the effectiveness of the budget and the evaluation from the lending foreign countries and international institutions on the Kenya's repaying capability of foreign loans, and will also ask local governments to raise the regional development and maintenance funds as much as they can.
- 2) It usually takes some twenty years or even longer before the effect of technical education is largely enjoyed.

Thus the only way is to search ways of utilizing efficiently existing technical education institutions.

As regards the market information, the present system is insufficient to the potential and existing small scale enterprises in the Region in the quality of information and its distribution channel.

#### 4.1.4 National industrial policy

##### (1) Outline of the policy

The national industrial policy may be summarized from the Sessional Paper No. 1 of 1986.

##### General

The manufacturing industry in Kenya is expected to be restructured in the following directions.

- 1) Enhancement of the export capability of Kenya industry by diversification of the exporting commodities and services;
- 2) Increase of employment opportunities in small scale industries, and especially in the informal manufacturing subsector, which is planned to be

much developed, and in the modern industry which is expected to adopt labour-intensive production methods;

- 3) Development of the manufacturing industry based on a strategy of higher productivity than found in other sector industries;
- 4) Development of the manufacturing industry which attracts and generates indigenous Kenya entrepreneurs and managers; and
- 5) Industrial growth to support and promote the development of agriculture and of the rural areas.

### Emphasis

More emphasis is placed on developing private sector enterprises, since the Government enterprises have proved to be less efficient and also the central Government will have few financial options for investment or support of these enterprises. Of the private sector, the informal sector industry is expected to play a role in the following aspects:

- Increase in employment opportunities,
- High investment efficiency or low investment requirement, and
- Fosterage of basic production skills.

### Strategies

The Sessional Paper proposes strategies of adopting the following systems:

- Market-based incentive system instead of the existing highly protective incentive system; and
- Incentive system for dispersion of the industry into the rural areas.

The market-based incentive system aims at fostering private enterprises in all industrial sectors (formal and informal) which can gain a reasonable profit and contribute to the development of Kenya's economy. The elements of the system are as follows:

- 1) Elastic foreign exchange policy, which will have a favourable effect on promotion of export and import-substitution;
- 2) Guidance to the seasonal prices of agricultural products, which will lead to an improvement in the farmers' income and will contribute to the enhancement of the national food security;
- 3) Adoption of more uniform import duties and more liberal import licensing;
- 4) Wage guideline aiming to avoid inflation, increase employment opportunities, and correct the disparity in wages between modern and informal sector workers;



- 5) Effective interest rate policy which would help to promote high return investment opportunities;
- 6) Pricing policy reflecting the scarcity of resources, and resulting in conservation of petroleum and woodfuel; and
- 7) Removal of the monopolistic situation to encourage competitive environment and secure the entry of the small enterprises.

As a part of the incentive system for dispersion of the industry into the local or rural areas, the 1985/86 Finance Act raised the investment deduction from 20 to 50 per cent for new facilities to be located outside Nairobi and Mombasa. The enterprises can enjoy a once-for-all deduction equal to 50 per cent of the cost of plant and equipment. This will also reduce the income taxes in the early years of the project. It is estimated that this allowance, discounted over the life of the investment, is equivalent to a subsidy of about 10 per cent of the initial cost of the investment under normal circumstances.

## **(2) Evaluation of the policy**

The national industrial policy outlined above is evaluated from the points of view of the national economy and industrial development of the Region.

### **Point of departure**

Industrial policies in the past may be characterized by highly protective system of import substitution industries and piecemeal measures for individual enterprises taken through negotiations between the enterprises and related Ministries. Highly protected enterprises tend to abuse the concessions for the sake of gaining excessive profits without re-investing them into the economy to induce the export-oriented enterprises. The new policy stated in the Sessional Paper pursues the fairness and uniformity through the adoption of uniform import duties and the abolition of special concessions.

### **Market-based incentive system**

Adoption of market-based incentive system was strongly recommended by the World Bank in its 1982 report on the small scale industry in Kenya. This is considered the only method which can lead the Kenya's industry to a new phase of industrial development.

### **African entrepreneurs**

The concept of the African entrepreneurs, as expressed in the Sessional Paper by the words "African" or indigenous, is not clear. It is difficult to find out the basis for the assertion of the "African", as more than 90% of the population in Kenya are the Kenyans, according to the Statistical Abstract. The present situation, however, is such that a small group of people dominate not only the service industry but also the manufacturing industry. If non-African entrepreneurs corresponds to the above group of people, the emphasis seems to be reasonable because a true and broad industrialization and an improvement in the level of

income of all the people could be realized when the large part of the residents participate in the industrialization.

#### Rural-urban balance

The strategy for balanced development stated in the Sessional Paper is:

- To promote the urban system which supports the growth of agriculture and the development of rural areas; and
- To create employment opportunities in the non-farm activities for the residents in the rural areas.

This strategy is expected to contribute to:

- 1) Avoidance of an excess population in the large cities;
- 2) Promotion of the development of secondary towns and urban settlements through development of agriculture;
- 3) Fosterage of a linkage between agriculture and other sectors in the rural areas, such as local service centres, urban centres, municipal towns and secondary cities; and
- 4) Promotion of the regional economy all over the country.

The Sessional Paper also points out clearly that an increase in the income in the rural areas is the starting point for the development of industry. Thus the regional development policy can be appreciated from the following two points: first, a clear recognition of the agricultural development in the rural areas as the basis for all kinds of development, and second a clear recognition of the increase in the income level in the rural areas as the starting point for the development of industry.

#### Roles of the central Government

Roles of the central Government will be limited to facilitative measures to promote the private sector activities: typically the public investment for improved provision of infrastructure. Thus the central Government is going to be a "small government".

#### **(3) Implication to industrial development in the Region**

The present situation of the manufacturing industry in the Region is characterized by the following:

- 1) The output share of the Region to the nation's total is small (13.2% in 1985);
- 2) Agro-based industries dominate the sector (96% of the output in 1985), and most chemical and metal products are imported from other regions; and

- 3) The main constraints to industrial development in the Region are the small market, lack of capital, technology, market information, infrastructure and entrepreneurship.

Most districts in the Region do not have any significant industrial development projects earmarked in respective five-year plans. Among all the districts, however, divergence is observed in the level of industrial development and planning.

Thus the national industrial policy should not be uniformly adopted in all the districts. With this reservation, each element of the national industrial policy may be evaluated for its effects on the Region. Elements of the national industrial policy may be classified as follows.

Elements having equal effects to all the regions:

- Elastic foreign exchange policy
- Streamlining the import duty and licensing
- Wage guideline
- Removal of monopolistic situation
- Incentive system for dispersion of the industry into the local rural areas

Elements having more favourable effects to the LBDA region:

- Guideline to more reasonable pricing of agricultural products
- Adoption of the population as the criterion for the central Government investment on the basic infrastructure
- Emphasis on the development of agriculture

Elements having unfavourable effects on the LBDA region:

- Interest rate policy

The ultimate aim of the market-based incentive system is to foster private enterprises in all the different industrial sectors. It must be pointed out, however, the aim is rather high in comparison with the present situation of the manufacturing industry in the Region as summarized above. The capability of existing and potential entrepreneurs/enterprises in the Region is judged far below the expected level. Thus this basic policy has to be complemented by facilitative measures such as public investment in infrastructure and utilities, credit schemes for small enterprises and measures to encourage the expansion of trade among the Preferential Trade Area, where the Region is favourably located.

## 4.2 Constraints to Development and Countermeasures

### 4.2.1 Classification and meanings of constraints

From interviews with the existing entrepreneurs and managers of KIE's, papers relating to this issue and analysis on the expected future manufacturing industrial structure, constraints to the manufacturing industrial development in the Region have been identified and classified as follows.

<u>Field</u>	<u>Constraints</u>
Market	- Small market
Production	- Lack of capital, technology, market information, infrastructure and entrepreneurship
Growth	- Limit due to the industrial structure dominated by agro-based industries

The constraint related to growth is selected from the standpoint of the long term development of the whole manufacturing sector in the Region. Among the constraints of production and market, there exist causal relationships which will be discussed later.

The above constraints may be re-classified by the following criteria.

<u>Criterion</u>	<u>Constraints</u>
Solvable by entrepreneurs themselves	- Lack of capital, technology, market information and entrepreneurship
Not solvable by entrepreneurs themselves	- Lack of infrastructure - Small market - Limit due to the industrial structure dominated by agro-based industries

The lack of infrastructure and small market can be alleviated by entrepreneurs to a limited extent. In fact, an enterprise located in a rural area of the Region which cannot utilize the public facilities of electricity and industrial water attempts to overcome the inconvenience by installing an electric generator and a water supply facility of its own, although this will result in an increase in the production cost. In industrialized countries, there are examples of enterprises exploring their market at their own cost by providing to their market new types of goods with higher quality and/or different functions. The present situation is that the potential and existing entrepreneurs in the Region do not have sufficient capability to cope with even the "problems" classified into the category of "solvable by entrepreneurs themselves".

In addition to those in the formal sector, the constraints specific to the informal sector include:

- Constraints related to their daily business environment such as municipal harassment and weather;
- Severe competition with the formal manufacturing sector as well as among themselves; and
- Insufficient, though increasing, attention by the Government.

#### 4.2.2 Basic constraints and their countermeasures

##### (1) Small market

###### General solution

About 80% of the manufactured goods demanded in the Region is "imported" mainly from Nairobi. This means that the market in the Region is not large enough to induce the potential entrepreneurs in the Region to start business, except in cases where they are benefitted from enterprises already operating in Nairobi. The per capita income in the Region estimated to be K£120, fairly below the national average of K£204 in 1985, is primarily responsible for this situation.

As stated in the Sessional Paper No. 1 of 1986, the market for manufactured goods will expand as farmers' income increases. Export-oriented subsector industries based on the agricultural products would directly contribute to the expansion of the market through its foreign-currency earnings.

###### Countermeasures for the informal sector

Along with the improvement of access to public fund, improvement/development of the technology, provision of market information and provision of the infrastructure (see sub-section 4.2.3), the following countermeasures are recommended.

##### 1) Cooperative purchase of raw materials

When informal sector enterprises purchase their raw or intermediate materials from the formal or large scale enterprises, a system of cooperative purchase is recommended to avoid unfair transactions.

##### 2) Increase in public purchase

The authority for raising the materials for the public use in each district has already been delegated to the District. "Public purchase" (i.e purchase of goods and services by the public funds voted to a District) should increase the portion of purchasing from informal sector enterprises. The kind and volume of the goods and services purchased may be dependent on a balance between an inefficient use of the funds and benefit to the informal sector in sustaining the market for development in future.

When a district authority purchases the goods and services from the informal sector, it is very important that the buyer tells the seller the points to be improved in the goods and

services and asks tenaciously for the improvement to the informal sector enterprises. This is one meaningful public education to the sector.

### 3) Promotion of subcontracts

Some informal manufacturing sector enterprises raise their raw or intermediate materials from the formal/large scale enterprises and in turn sell their finished goods to the formal sector enterprises as intermediate materials. The informal service subsector enterprises purchase the finished goods of the latter. The informal sector enterprises are in a subcontracting relationship with the formal/large scale enterprises. According to the "Nairobi's Informal Sector Survey", 23% of the respondents had obtained the subcontracts. Those who obtained subcontracts in the informal sector earned more than enterprises without access to subcontracts. Thus subcontracting is recommendable. There is a criticism that the informal sector is incapable of expanding in an evolutionary manner, i.e. with raising labour productivity and income, because it is exploited by the formal sector which buys from it at very low prices and sells to it at high prices. Therefore, when this recommendation is realized, a great attention must be paid to whether or not there exists such an undesirable fact.

### (2) Lack of entrepreneurship

#### General recognition of the problem

Figure 4.1 shows the relationship between the lack of entrepreneurship and other constraints.

The constraints and related elements which lead to the lack of entrepreneurship can be classified into the following three categories:

Category 1	Elements which affect directly the entrepreneurship such as small market, and lack of capital, technology, market information and infrastructure.
Category 2	Elements which discourage the entrepreneurship such as fear of business risk.
Category 3	Social and mental elements which also discourage the entrepreneurship such as social systems and conservative attitude of the residents.

The elements classified in Category 1 directly discourage the indigenous entrepreneurship, and indirectly affect the entrepreneurship through an increased fear of their business risks.

The fear of their business risks is thought to be generated not only by the elements classified in Category 1 but also by lack of entrepreneurs' adaptability facing the constraints such as cultivation of market, raising of capital, upgrading of technology and collection of market information.

The elements classified in Category 3 may be traced back to the past development of the Region. The Region has been able to supply enough goods to the residents to keep their traditional life style. This tends to lead the residents to take a conservative attitude toward exploitation or development. The residents seem not to feel that there is a need to struggle with uncertain and risky business for an increase in their standard of living as long as they live in such a favorable situation. As is common to many peoples in the world, the residents wish that the present favourable situation continues. However, this would cause the lack of recognition of the oncoming crisis in the society.

To make the residents recognize widely the future situation and to lead the residents to improve the expected unfavourable situation by themselves is one of the most important roles which LBDA and/or KIE are expected to play in the development of the Region. Along with the residents' conservative attitude, it might also be true to say that the existing social systems discourage the entrepreneurship. Distribution of income from successful persons among the members of the families, which is appreciated as a beautiful case of mutual aid, weakens the capability of accumulation and/or raising of capital which results directly or indirectly in discouragement to entrepreneurship. As pointed out by many papers on development, development may destroy the existing peaceful and beautiful social systems when the residents in the Region select such a progressive economic development as this manufacturing industry development plan suggests. Whichever direction will be selected i.e. a progressive economic development or a continuation of the present economic activities, the future fully depends on the residents.

Small business entrepreneurs often underestimate the number of the risks they face and overestimate their ability to deal with them. Some examples of risks facing entrepreneurs are as shown below.

#### Examples of Risks for Entrepreneurs

<u>Category</u>	<u>Causes of Risks</u>
External risks	<ul style="list-style-type: none"> <li>- Power failure</li> <li>- Defective equipment</li> <li>- Theft</li> <li>- Breakdown in supplier firms</li> </ul>
Policy-created risks	<ul style="list-style-type: none"> <li>- Shortage of imported input</li> <li>- Illegal import dumping</li> <li>- Delayed public agency payments</li> <li>- Delayed KIE assistance</li> <li>- Harassment by municipality</li> </ul>

Source: Growth and Structure Change in Kenya: Basic Economic Report Annex III: The Industrialization Process: Growth and Structural Adjustment, 1982, World Bank

#### Basic direction of alleviating the constraint

As indicated in Figure 4.1, the direct causes of the lack of entrepreneurship are thought to be the small market and lack of capital and technology, and the fear of business risks. The conservative attitude and the social systems tend to amplify the lack of entrepreneurship.



The direct causes and the fear of business risk can be relatively easily alleviated or overcome by the entrepreneurs' own efforts and the public services because the causes are evident and easier to approach. The improvement in the conservative attitude and the social systems would be rather difficult and take much time because they belong to a matter of value judgement, or matters in psychological realm of the residents.

The following are two possible directions of alleviating the lack of entrepreneurship:

- 1) To wait until there is a natural emergence of vigorous entrepreneurs from the Region, or
- 2) To complement the lack of entrepreneurship by introducing vigorous entrepreneurs from other regions (metropolitan areas) and/or by fostering indigenous entrepreneurs in the Region as early as possible.

By taking the first direction, the Region would stay behind in industrialization as compared with other regions. The Region should not adopt this direction in future.

Many papers on the geographical dispersion of manufacturing industry from the two metropolitan areas have pointed out that the direct benefit, which the transferred enterprises (most of them financially sponsored by the Government) bring to a region in employment and income, is less than the direct and indirect costs which the governments (both central and local) have to pay in the forms of giving incentives and privileges to the transferred enterprises. The Government also pays indirectly for subsidizing for remedy of distortion in the regional economy brought about by the enterprises. Considering that the Government will not be able to afford these costs in future and that location of enterprises is decided on the basis of market mechanism and not by regulations, it is quite unlikely that vigorous entrepreneurs who will overcome all the constraints will be introduced from other regions, except in the cases where the market in the Region will become attractive to the enterprises. Along with the above surrounding atmosphere, the residents should remember the dictum that where one searches a way and endeavors to go through the way there exists the way. The industries in developed countries have not developed only after the infrastructure necessary for the development had fully been provided. The provision of the infrastructure has been typically a little behind the development of the industries.

From the above context, it may be concluded that the only direction left for the Region is to foster indigenous entrepreneurs in the Region as early as possible.

#### Method for fostering entrepreneurship

Potential entrepreneurs' own efforts are always essential for fostering the entrepreneurship in the Region, and various measures taken by the public entities are only to support them. Such an excess service as to the extent that the entrepreneurs fully enjoy the service and lose their challenging mind should be avoided. With this reservation, a range of measures should be taken by the public to reduce the business risks, to inform the potential entrepreneurs of the future situation and to provide financial and other services.

These facilitative measures, however, may not take as much effects as expected, given the existing level of entrepreneurship in the Region. Thus the following more direct approach may be taken, which would bring about more certain results.

- LBDA/KIE selects a group or small number of promising potential/existing entrepreneurs;
- LBDA/KIE supports fully the group and makes it a success with as much cost as necessary; and
- LBDA/KIE uses the successful case as a good sample to foster other potential/existing entrepreneurs.

This method of a strategic group fosterage has the following advantages and disadvantages.

**Advantages:**

- LBDA/KIE can utilize effectively the limited resources.
- Capability of indigenous entrepreneurs can be clarified to the society to enlighten other potential entrepreneurs and to encourage cooperation among them for reducing business risks.

**Disadvantages:**

- This method discriminates most of potential entrepreneurs in favour of the selected one.

**(3) Limit due to the industrial structure**

In general, the agro-based manufacturing subsector industry is weak in inducing its backward and forward subsector industries. If the Region is solely dependent on the agro-based as its leading industry, it would become a pure consumption area of production goods and capital goods. Employment opportunities would not be created in sufficient number and inequitable income distribution would remain in the Region. Therefore, the introduction or enhancement of the machinery subsector which has a great inducing capability of the backward and forward subsector industries is indispensable.

**4.2.3 Individual countermeasures for production side**

**(1) Lack of capital**

**Availability of capital**

As already pointed out, both the formal and informal sectors have enumerated the lack of capital as one of major constraints to inauguration and expansion of their business. There are two ways of raising capital for potential and existing entrepreneurs: self-raising and provision from public institutions.

The upper class of entrepreneurs in the informal sector raises the initial fund by themselves, re-invest from their profit and expand their business. This is a normal attitude for entrepreneurs.

Judging from the level of income in the Region, the total amount of private capital available to the development of manufacturing industry seems to be small. Even so, certain subsectors can be developed with the private capital.

The reasons why the potential private capital is not utilized for development seem to be as follows.

- Indigenous residents who are relatively wealthy do not want to take a risk, as discussed already.
- Even if some of the residents have such a risk taking mind, they do not want to cooperate among themselves; therefore, the minimum threshold amount of the capital for investment cannot be raised by pooling.

Public financial institutions provide also the capital to potential/existing entrepreneurs in the forms of loans and shareholdings. However, they have not provided the entrepreneurs, especially small-scale entrepreneurs with sufficient capital for the following reasons.

- The Government has put great emphasis on the development of import-substitution industry.
- Reflecting this policy, the lending conditions have been severe for the small scale entrepreneurs (see sub-section 4.1.3).

Fortunately, as will be discussed below, the future provision of the public capital is expected to be improved in terms of its total amount for lending, lending conditions and access to the institutions.

The public financial institutions which have been established since the latter half of 1960's are:

Industrial Development Bank (IDB),  
Industrial and Commercial Development Corporation,  
Development Financial Company of Kenya (DFCK), and  
Kenya Industrial Estates Limited (KIE).

Judging from the development policy on the informal sector and small scale industries as stated in the Sessional Paper, it is expected that the access to public loans will be made easier in the sense of the expansion of eligible borrowers, increase of amount, upgrading the quality of the loan and diversifying of lending institutions. Therefore, the constraint on the capital is expected to be alleviated.

#### Problem from the viewpoint of industrial development

From the point of view of industrial development, the most important issue is whether the profit earned is used for re-investment to upgrade and maintain their facilities. If re-

investment is not done, as often observed in many developing countries, the competitiveness is undermined as the initial facilities are degraded and finally the enterprises are put in a situation where they cease the operation.

#### Actions on the public side

As pointed out above, the future conditions of the acquisition of public capital by potential/existing entrepreneurs in the Region is expected to be improved. However, to utilize more effectively the private and public potential capitals, the following immediate measures are recommended to be taken by the public institutions/organizations in the Region, especially LBDA and KIE.

- 1) There may be many potential entrepreneurs who do not know even the existence of the public loans. It will, therefore, be very important for them to be made aware of the existence through publications and seminars at every district headquarters and secondary towns.
- 2) LBDA/KIE and other institutes should search for the potential entrepreneurs and lead them to be cooperative in co-financing.
- 3) LBDA/KIE should lead existing entrepreneurs to plough back profits, by showing them the unfavourable situation which would result from the absence of re-investment and by promoting the market structure for competition.
- 4) In the case of development of strategic manufacturing subsectors to be discussed later and shortage of private capital due to the relatively large threshold amount of the investment, LBDA/KIE should establish the new business by direct investment of its fund with potential entrepreneurs. This method will supplement not only the shortage of the private capital but also the lack of the management technology on the private side.

#### **(2) Lack of technology**

In general, it is very difficult to discuss clearly contents and level of technology required for a certain region or country and the technology development policies. Even in the field of production techniques, they are fully dependent on quality and quantity of a particular product. However, an attempt is made to clarify issues on the technology which the Region requires for further discussion.

"Technology" here is reviewed from the enterprises' viewpoint which utilize existing production techniques, not creating new production techniques.

#### Definition of and analysis on the "technology"

##### **(a) Classification and characteristics of the technology**

"Technology" comprises skill, production technique and management technology. "Skill" is know-how which is accumulated mainly in persons engaged and is applied to production of

goods and information processing. It may be scientifically analyzed and transferred into a computer. "Production technique" is an assembly of know-how and wide range of scientific knowledge which is embodied into machinery or equipment for production and information processing. Production technique has recently made prominent progress in developed countries, contributing to reduction of production cost and quality of products. "Management technology" is capability for making management strategy for a long term, improving functions in an entity such as marketing, production, procurement of raw materials, financing and personnel to the direction which the strategy aims, and giving daily instruction to the functions (sub-organizations of the entity). The objects to which the capability is applied are the functions which an entity should have as a going concern or sub-organizations with the functions, and are not its facilities nor materials.

**(b) Method of fostering technology**

Determining factors of contents and levels of the technology required in the Region are:

- Market in the Region and degree of competition among markets,
- Possibility of realizing the required technology, which is affected by the degree of the related technological accumulation and the quality of labour in the Region, and
- The nation's and the Region's industrial development policies.

Own technology is indispensable for industrial development in the Region. It may appear that an industry or enterprise with higher technology may be introduced into the Region and contribute to increasing production technology in the Region. However, as can be seen in the examples of export processing zones in developing countries, the host region would not probably be able to digest the technology due to the shortage in the region's digestion capability (the degree of technological accumulation in that region) and inadequate transfer of technology by the coming industry or enterprise. Therefore, the coming enterprise would not necessarily contribute to fostering the industrial development capability and production technology of the receiving region.

The discussion above indicates that in order for the Region to upgrade its own technology, the best and surest way is the self-fostering, although a high cost may be incurred for it. The Region has to find out small business opportunities scattered in the Region and improve the existing low level of the technology step by step. In the process, the Region's own technology will be accumulated.

(c) Process of the technology formation

The process of and key elements in technology formation are summarized below.

<u>Process</u>	<u>Key elements</u>
Acquisition of basic knowledge of skill	<ul style="list-style-type: none"><li>- Participation of related public institutions</li><li>- Preparation of curriculum for public technical education</li><li>- Acquisition of basic subjects (mathematics, physics, chemistry, etc.)</li><li>- Acquisition of skill</li><li>- Acquisition of high and applied subjects (mechanical, electrical, construction, civil and other engineering)</li></ul>
Application of the basic knowledge of skill acquired and improvement on existing technology	<ul style="list-style-type: none"><li>- Incessant application and improvement seizing all the opportunities</li><li>- Related in-house training system at enterprises.</li></ul>

An orthodox process of the technology formation which is widely recognized is to go through the two processes above one by one. There is an opinion that at first, the region concerned should increase the related public institutes and revise the curricula to a direction of enhancement on the subjects relating to the technology such as mathematics, physics and chemistry in order to provide workers to be technicians and managers in sufficient number to meet a request from the industry in that region, and that then, the problems at the above second process had better be taken into account.

This opinion is evaluated to be normal from a long term viewpoint. This opinion, however, also includes in itself the following three defects. Firstly, this method is time-consuming and costly. The fruit of such basic education may be enjoyed only after 50 years. Therefore, this method is not applicable if a region urgently requires competent technicians and managers but cannot afford to finance the education for such a long term. Secondly, this method ignores the following fact. The contents and level of the knowledge and skill which are mastered at the related public institutions are not so sufficient and satisfactory as to be immediately applied to actual activities and management. The capability applicable to the actual activities can be fostered only through on-the-job training, if one has already had a certain level of the basic knowledge or skill and if one has an intention of self enlightenment. Thirdly, this method overlooks also the following relationship. That is, the progress or improvement on technology actually applied in the region leads naturally to an improvement also in the first process, i.e. basic knowledge or skill acquirement process. Therefore, this opinion had better be checked from the standpoint of an economical technical education scheme.

An alternative fostering method for the technology which is recommended to the LBDA region will be discussed hereafter.

### Problems of fostering technology

#### **(a) Contents and level of the technology required**

As will be discussed in detail later, the following manufacturing subsector industries are proposed to be introduced or enhanced in the Region during the plan period 1985 - 2005 according to this Master Plan.

- Agro-based manufacturing subsectors
- Strategic manufacturing subsectors (mainly machinery)

Export market is assumed for some of the agro-based subsectors, and the intra-regional market and any other domestic market for the remaining agro-based subsectors and the strategic subsector.

Export-oriented agro-based subsectors can keep the comparative advantage due to the favourable world market foreseen. Other agro-based subsectors may be able to retain the comparative advantage in the domestic market due to the availability of raw materials in the Region, as long as they continue to operate effectively. The strategic subsectors will be in a severe competition within the Region from the beginning. Introduction or enhancement of basic metal, chemicals and durable consumer's goods subsectors are not planned in this manufacturing development plan. Accordingly, those finished goods will continue to be "imported" from other regions in this country and abroad.

All the subsectors should endeavour to satisfy commonly the following requirements.

- Improvement on the quality of their finished goods or development of new type of products, and
- Efficient production.

The existing and potential enterprises in the Region should have the following technology to satisfy the above requirements:

- Stable and homogeneous skill (within a subsector),
- Improved management technology,
- Thorough knowledge on production technique, and
- Mastery of machine operation and maintenance skill.

The last two requirements are particularly important for the strategic subsectors.

#### **(b) Conditions to be satisfied in technology development**

In making the plan of technology development and accumulation in the Region, basic conditions to be satisfied are:

- Effective utilization of public expenditure for technical education, and
- Application-oriented public education.

As stated in the Sessional Paper, the central Government is going to ask the local governments and the residents to provide the funds which would be utilized for development of the regions or districts concerned to the maximum extent through the Harambee and other self-help efforts. Thus, they are not supposed to request the central Government for vast amount of fund and must therefore look for ways of effective utilization of limited public funds.

It is an matter of urgency for the Region to develop the industry, and thus, there is no other way for the development and accumulation of the technology in the Region but to utilize effectively the existing public technical education system.

#### **(c) Evaluation of existing technical education system**

The existing public technical education institutions are providing, not sufficiently but at satisfactory level, the service (technical education) needed for development of the Region in terms of both quantity and quality. Kenya has already put in force a series of technical education system at several levels starting from primary school and youth polytechnics at the low level and ending at technical colleges at the highest level. It is very difficult to find such a complete technical education system in other developing countries. Many district development plans and our interviews have revealed that about half of the youth polytechnics in the Region work normally and the graduates go out of the Region to acquire jobs.

The conclusion above does not imply that improvement on the curricula at the existing institutions and revision of the geographical distribution of the institutions are not needed. This subject will be discussed later.

Problems with the technology development in the Region are found mainly in the second process of the development i.e. "application of the basic knowledge or skill and improvement on existing technology", as revealed by the following facts:

- The level of the manufacturing industry's activities (in terms of outputs) is far below the national average;
- Lack of entrepreneurship is the most crucial issue in the Region; and
- The graduates from the polytechnics are mostly going out of the Region.

#### **(d) Crucial problems retarding technology**

As shown clearly in Figure 4.2, the most crucial problem which has retarded the technology development in the Region is the lack of consciousness of application and improvement on products, technology and internal organization of the enterprise at entrepreneurs' and managers' levels.

This lack of consciousness brings about a shortage in capable entrepreneurs, managers and technicians. First, it brings about the lack of adequate in-house training system, which further creates a similar lack of consciousness at technicians' and workers' levels. Secondly, insufficient improvement on the curricula at the public institutes is caused mainly by insufficient request for improvement from the industrial side.



As already discussed, it is clear that the shortage in capable entrepreneurs, managers and technicians constitutes one of the crucial causes of the lack of entrepreneurship. There are three factors which induce the lack of consciousness at entrepreneurs' and managers' levels:

- Lack of entrepreneurship,
- Abuse of the industrial policies, and
- Shortage of information on market and technology.

The national industrial policies have secured import-substitution enterprises a sure domestic market, building high walls to new entry for protection of vested rights of the existing enterprises and given enterprises excessive financial and other incentives. However, as clearly stated in the Sessional Paper, the industrial policies will be improved to the direction of industrial liberalization. Therefore, severe competition is expected in future and it will be a major question how many indigenous entrepreneurs can survive in this situation.

Originally, entrepreneurs and managers are responsible for collection of information on their markets and available technology. However, in reality, the information is in short supply. Two reasons can be thought of, apart from the responsibility of top management:

- Organizations offering the information to enterprises are not adequately functioning; and
- The industrial policies have not put enterprises in a position which will force them to collect the information.

#### (e) Social background of shortage in in-house training

The social background of the shortage in in-house training is illustrated in Figure 4.3, which should be elaborated in future.

The most private enterprises in Kenya adopt basically a "top-down" type management, by which daily instructions and/or information flows one way from management to workers. This type of management is normal and adopted widely in many other types of organizations. The following defects indwell in the top-down type management:

- Difficulty in absorbing ideas on improvement etc. from workers, and
- Difficulty in fostering worker's consciousness of participation to daily activities and management.

"Bottom-up" channels are recommended to be built in within this type of management in order to overcome the above difficulties. "Bottom-up" channels are a useful and inexpensive countermeasure of raising labour-productivity as stated in the Sessional Paper No. 1 of 1986.

From the standpoint of increased efficiency, the following are directions for the solution or alleviation of the effects of problems which stem from the social background illustrated in Figure 4.3. Managerial problems which lie between divisions/departments would be coped with by the higher levels of managers in proportion to the scope of the problems. This method is deduced from top management's way of thinking; i.e. theory of sets provides the

managers many kinds of problems and demands the managers to have various kinds of capability and vast amount of information in order to solve the problems. In reality, however, there exist only a limited number of capable managers, hence the above situation result in taking a long time to cope with the problems. This kind of managerial problems should be solved at the division/department level (not by the higher management) by decentralization of power and by utilizing the potential capability of the staff in the division/department.

Most employees seem to perceive their place of work as a place for earnings only. However, in fact, the place of work is not only a place for earnings but also for the education. If the management is successful in making employees recognize the latter function, creative actions would be expected from the employees which would contribute to raising total efficiency.

In a relationship between manager and employees, the personality of the employee is thought little of. The work efficiency is greatly dependent on whether or not the personality is recognized in the management.

Frequent moves of capable managers and technicians in and out of the enterprise give the damages to the enterprise in the forms of discontinuity in management, and removal of useful information and technology, resulting in an inefficient management. Therefore, some countermeasures for keeping the capable managers and technicians for long periods in the same enterprise need to be taken.

The following elements in the social backgrounds should be improved through suitable countermeasures, to give favourable effects on improvements/enhancement of the in-house training:

- Worker's business custom and general capability to cope with,
- Employee's recognition of place of work,
- Evaluation criterion,
- Clear distinction in recognition of managerial and worker's sides, and
- Management type.

#### Measures for development/improvement of the technology

##### (a) Basic conditions

The basic conditions for measures to be taken to develop/improve the technology are summarized as follows. First, the objective of technology development in the Region is to develop the Region's own technology and improve on the existing one. Targets are upgrading the Region's technology level up to the national average in Phase 1, fostering the Region's own technology to the level at which it can digest introduced/transferred technology and cope with the industrial liberalization policy in Phase 2, and further upgrading the technology level so as to become a model region among all the regions and neighbouring countries in Phase 3.

To satisfy the objective and attain the targets, limited public fund for technical education has to be efficiently utilized and the public education has to be made more application-oriented.

**(b) Paths for the technology development**

The following two methods are conceivable :

- Full dependency on efforts made separately by the related public institutes and private/public enterprises, and
- Active contribution by LBDA/KIE to the development.

By the second method, LBDA/KIE, in cooperation with the potential/existing entrepreneurs, can establish the third sector enterprises in the new business field which will be managed mainly by LBDA/KIE. In several years, LBDA/KIE should transfer gradually the management technology to the partner entrepreneurs through on-the-job training.

Advantages and disadvantages of the alternative methods may be summarized as follows.

<u>Method</u>	<u>Advantages and disadvantages</u>
Dependency on all the related organizations	<ul style="list-style-type: none"><li>- Complementary aspects of functions of different organizations are naturally utilized.</li><li>- It usually takes much longer for any measures to take effect.</li><li>- It involves minimum cost.</li><li>- Overall effects are uncertain.</li></ul>
Active contribution of LBDA/KIE	<ul style="list-style-type: none"><li>- It will be more costly.</li><li>- It will take effect in shorter time.</li><li>- Overall effects can be more easily ensured.</li></ul>

Considering that the early development and improvement of the technology in the Region are eagerly expected, and both methods should be adopted complementarily.

**(d) Individual countermeasures**

**Public institutes side**

The following courses should be added in the curricula of the existing technical education institutes:

- Skills and management technology which are actually used, inviting section heads and skilled workers of acting enterprises;
- Case studies on management of both successful and failed enterprises; and
- Lectures on the future trend of production technique (domestic and foreign).

The addition of the courses aims not only at making the curricula more application-oriented but also at offering managers and workers such information that would make them realize the lack of consciousness for improving their products, technology and internal organizations.

As for youth polytechnics and secondary technical schools, the following should be considered:

- Rectification of the geographical imbalance in the location; and
- Upgrading of the facilities in the institutes and an increase in the number of teachers.

LBDA/KIE should build and maintain a market information system; and provide the information to potential and existing entrepreneurs and enterprises. The market information not only plays the same important role as the above improvement on the curricula but also offers new business opportunities to the entrepreneurs. Details will be discussed later.

#### Enterprise/entrepreneur side

As already discussed, the most important issue in the development and improvement of the technology in the Region is that the entrepreneurs and managers keep, at first, the consciousness of application and improvement on products, technology and internal organizations. Without such consciousness, the effort and improvement at the public institutes would become almost useless because the opportunities would not be offered for realization of the potential technology mastered at the public institutes. Furthermore the improvement of the in-house training system would not even be put on the agenda.

To develop and improve the technology, entrepreneurs should perform the following within the enterprise:

- The managerial side should point out to the employees the areas of technology to be developed/improved,
- The managerial side has to set up an environment where the employees can devise and propose on their jobs; and
- Internal organizations should be revised for easier daily on-the-job training.

A specific measure for the second above is to give employees incentives, such as special rewards for their advise and proposals on development and improvement on the technology, share-distribution to the employees and provision of higher positions in compliance with the length of their services or the importance of their advise/proposals. It should be noted that this measure is also very useful for keeping the capable hired managers and technicians in the enterprises as discussed previously.

### **(3) Lack of market information**

#### **Introduction**

Without the market information, entrepreneurs/managers would not be able to measure the present position of their enterprise within the subsector industry to which it belongs nor in the world, domestic and regional market. The market information may be provided for new business opportunities, directions of diversification of their finished goods, and recognition and directions of development and improvement on the technology.

The lack of information may be due to the following:

- Lack of sufficient efforts on the managerial side, brought about mainly by the overly-protective industrial policy, and
- Lack of information collection capability of the managerial side in terms of the collection cost and existence of capable staff. The second factor is not attributed to the managerial side. There exists the need for establishing a public market information system.

#### **Public market information system**

The proposed public market information system comprises the following two subsystems:

- Inventory of enterprises subsystem, and
- Market information subsystem.

As stated before, the related public institutes or organizations such as the district and Provincial offices in the Region and the Central Bureau of Statistics (CBS) do not have an inventory of enterprises submitted to daily usage. Along with the general merits pointed out above, the inventory is very useful for the informal sector enterprises for finding out the subcontractors.

The inventory should cover all industries and formal and informal sectors. For each enterprise, name, location, industrial classification, beginning year of operation, capital by owner, main products, output (in monetary term), input by kinds and employment should be recorded with the retrieval system on a computer. The information may be reviewed and updated every two years.

Market information is collected and distributed by the External Trade Office and Internal Trade Office of Ministry of Commerce and Industry. Along with a defect in the distribution channel, there is a basic problem, i.e. a big difference in the capabilities of utilizing the information between the potential and small scale enterprises in the Region and the existing large scale enterprises to which the public system aims to offer the information. Most of the enterprises in the Region are considered to be in a position where they cannot extract what they wish to know. This makes it impossible for them to access the existing system.

To meet the level of the requirement of the information and the fields of interest for the enterprises in the Region, a market information subsystem is recommended with the following functions:

- 1) Collection and arrangement of information on demand and supply of the agricultural products and their processed products that can be produced in the Region. At present, these kinds of information are scattered among the related corporations, Ministry of Agriculture, and other public institutions.
- 2) Collection and arrangement of information on the foreign and domestic markets on demand and supply of the manufactured products that can be produced in the Region in a form applicable to the potential and small scale enterprises. At present, this information is also scattered among the institutions described above.
- 3) Distribution/dissemination of the compiled marketing information to the enterprises.

A minimum charge for using the public market information system should be imposed on the users. The charge will make the users consider in advance what kinds of information they really wish to know and how to utilize the information from the system. Such an attitude is indispensable to the entrepreneurs and managers in the Region and will probably lead to the request for extension of the system in future.

#### (4) Lack of infrastructure

##### Introduction

The heads of the enterprises interviewed by the team pointed out that the most fundamental cause of the less development status of industries in the Region is a lack of infrastructure. This is only half true and the half is a misunderstanding. The industries in the developed countries have not developed only after provision of the infrastructure necessary for the development. The provision of infrastructure has been typically a little behind the development of the industries.

As stated in the Sessional Paper No. 1 of 1986, the Government has requested the people not only in the Region but in the whole country to build the infrastructure to the maximum they can. This means that it will become very difficult to ask the Government to provide all kinds of infrastructure necessary for the industrial development of the Region.

##### Method of raising funds

The only way for the provision of new infrastructure and maintenance of the existing ones, given the severe financial situation, is that the Region be successful in increasing the farmer's income and developing industries to increase tax revenue. Such tax to be collected from farmers and enterprises will be the revenue to finance the infrastructure with additional financial assistance from the central Government.

### Countermeasures for informal manufacturing subsector

As stated in the Sessional Paper No. 1 of 1986, an early expansion of the informal sector is required mainly from the following standpoints:

- To satisfy the basic needs of residents in rural areas; and
- To absorb the expected surplus labour force.

The method of raising fund proposed above is time-consuming, whereas the informal sector cannot wait for a long time. Therefore, the public facilities will have to be prepared as soon as possible in cooperation with the informal sector, the local governments and the central Government.

At present, three Industrial Estates (IE) have been established in the Region at Kisumu, Kakamega and Eldoret (excluding the one at Nakuru), and one Rural Industrial Development Centre (RIDC) at Kisii. They are well-furnished with factory buildings, workshops with tools and machinery as well as infrastructure and utilities (electricity, industrial water, sewerage and telecommunication). Establishment of the mini IE's, which need not to be furnished so well as the existing IE's and RIDC, at the district capitals, secondary towns and trade centres would be effective for expanding the informal sector.

When the mini IE's are established, the enterprises in the informal sector could enjoy the economy of agglomeration in the fields of development of production technique, procurement of raw material, and sales of their finished goods.

However, to ask KIE (Kenya Industrial Estate) to establish such kinds of facilities would involve a problem because more than ten facilities in the Region will be listed up and this will impose too much financial and human resources' burden on KIE. Therefore, it is proposed that the facilities be built mainly through the Harambee effort with minimal Government assistance. This proposal would bring about two kinds of benefit.

First, it would raise a degree of participation and concern for the residents/entrepreneurs, as they share the construction costs. Secondly, through increased participation, machinery and equipment to be installed in the facilities would be appropriately selected as to match the needs as well as the skills to be developed. This would lead to the construction of efficient facilities at a minimum cost.

Establishing a cooperative for informal sector enterprises is recommended. This aims at:

- Discussing the mini IE and rallying opinions to the right direction; and
- Facilitating the cooperation in the procurement of raw materials and sales of the finished goods.

### 4.3 Policy for the Manufacturing Development Plan

#### 4.3.1 Basic stance

The proposed manufacturing development plan for the Region aims at giving directions for production of goods which the residents in the Region demand, alleviating or solving the existing constraints on the industrial development. The agricultural, natural and human resources endowed in the Region are to be fully utilized with assistance of the skill, production technique and management technology which should be developed and fostered by the residents' own effort. The industrial development will contribute to the following:

- Increase in the income and employment opportunities;
- Provision of the conditions for self-sustaining industrial development, resulting in the upgrading of the industrial structure; and ultimately
- Regional economic independence.

#### 4.3.2 Industrial development targets

It will generally take more than thirty years to foster and develop all kinds of industries as planned in any region. Therefore, the industrial structure which is expected to be realized after the year 2005 should also be reflected in the industrial development plan for this plan period of twenty years, from 1985 to 2005.

##### Industrial development targets for two plan periods.

The manufacturing industry development targets in the Region for the two plan periods are as follows:

<u>Plan Period</u>	<u>Development Targets</u>
This Plan period (1985 - 2005)	<ul style="list-style-type: none"><li>- Full utilization of the agricultural, natural and human resources endowed in the Region.</li><li>- Fosterage of machinery and metal subsectors as strategic subsectors for the second stage industrial development.</li><li>- Provision of the conditions for the industrial development or fosterage of a mechanism of self-development.</li></ul>
After this Plan period (after 2005)	<ul style="list-style-type: none"><li>- Development into a model area of a grass-rooted industrial development in the PTA countries and in this country and contribute to the area, Nation and neighbouring countries.</li><li>- Perfect build-in mechanism of self-sustained development.</li></ul>



There may be a criticism that the targets for this period are far too ambitious. However, as has been pointed out, it should be remembered that the Region would remain economically far behind the other regions in this country unless these targets are attained.

On the other hand, there is a room for further discussion on the targets for the after-plan period. Behind the targets are imaged a developed industrial society similar to ones seen in the developed countries. A highly developed industrial society brings about not only a physical and economic prosperity to the residents but also unfavourable effects on the natural environment and the minds of the residents. Therefore, the residents, not the statement, should finally decide whether or not they should in future take the direction of highly developed industrial society. It is one of very important roles of the related public organizations to lead the residents to make a consensus on the direction to be taken.

#### 4.3.3 Necessary conditions for industrial development

There are basically three kinds of the motive power or necessary conditions for the manufacturing industry development in the Region i.e. development of agriculture, self-reliance, and involvement of the public sector.

##### (1) Development of agriculture

As discussed already, the development of agriculture in the Region would contribute to the industrial development in the following ways:

- Furnishing the market for industrial goods produced in the Region, through increase in the income and the agricultural production; and
- Providing raw materials for the agro-based manufacturing industry.

There would be no industrial development without the development of agriculture in the Region.

##### (2) Self-reliance

As pointed out previously, the manufacturing industry in the Region is fairly lagging behind the national average level and it suffers from many kinds of constraints.

Furthermore, it does not appear to be easy to introduce vital manufacturing enterprises from other regions and even if successfully introduced, the contribution of the enterprises on the industrial development in the Region is judged to be small. Thus, the only way for the Region to foster the manufacturing industry is by the Region's own effort. The first step to the industrial development is that the residents in the Region recognize clearly the above situation. As the second step, the residents should take actions for the industrial development even without any assistance from outside. The lack of entrepreneurship which is the most crucial constraint among all the existing constraints could then be overcome and the Regions' own skill and technology could also be fostered. If this fails, then this manufacturing industry development plan itself would be in vain.

### (3) Involvement of public organizations

It is clear that the industrial development in the Region is very difficult without the involvement of the related public organizations in the following fields:

<u>Ways of involvement</u>	<u>Specific actions</u>
Through provision of the services	<ul style="list-style-type: none"><li>- Provision of loans to the potential/existing entrepreneurs</li><li>- Provision of extension service to the potential/existing entrepreneurs.</li><li>- Provision of market information to the potential/existing entrepreneurs.</li><li>- Easy operation of licensing and export.</li></ul>
Through establishment of new third sector enterprises	<ul style="list-style-type: none"><li>- Establishing new third sector enterprises with the potential/existing entrepreneurs in the manufacturing subsectors to be introduced/enhanced and managing or operating the enterprises.</li></ul>
Through negotiation with the central Government	<ul style="list-style-type: none"><li>- Acquiring the funds and personnel to realize the above involvements through negotiation with the central Government.</li></ul>

#### 4.3.4 Industrial development process

Based on the basic stance of the manufacturing development plan and the industrial development targets, the development process of the manufacturing industry in the Region for this plan period can be outlined as follows:

- Step 1 : Enhancement and upgrading of the existing agro-based manufacturing subsectors. These will be realized through the increase in the production and development/diversification of the export goods.
- Step 2 : Development of the manufacturing subsectors which use the agricultural and natural resources endowed in the Region but not utilized yet, including the waste materials.

**Step 3 :**        **Fosterage of the machinery and metal subsectors as strategic subsectors of the second stage of the industrial development in the Region.**

#### **4.3.5 Market to be developed**

In this development plan, free trade between the Region and other regions in the country and foreign countries is assumed. Protected market for the manufacturing industry in the Region may be requested on the ground that the industry, especially the machinery and metal subsectors, is an infant one. However, the request is against the national liberalization policy of the industry. Consequently, enterprises which are based in other regions may enter the Region when the market here becomes attractive. The manufacturing industry in the Region has to grow and become so powerful as to compete with the enterprises which wish to enter into the market in the Region.

### **4.4 Industrial Development Process and Mechanism**

#### **4.4.1 Factors to be considered**

##### **(1) Factors affecting development process and mechanism**

The development process refers to the future course of the manufacturing industry in the Region to be drawn on the basis of the present situation of the industry and constraints. It serves to clarify how the industry will develop from the standpoints of the factors related to the development. It does not only relate to existing manufacturing subsectors discussed in Section 4.1 and the subsectors to be introduced/enhanced in future to be discussed later, but the relationship among the factors including the strategic ones and the degree of the relationships are also reflected in the development process and mechanism in a complicated manner.

There exist three kinds of the factors which must be considered in the supposition of the process and mechanism:

- Factors which set the scope or offer the base of process and mechanism: i.e. the basic stance of the industrial development plan and the development targets discussed in Section 4.3,
- Constraints to the development and the countermeasures discussed in Section 4.2, and
- Subsectors to be introduced or enhanced in future and factors related to the timing.

Another important factor which should not be neglected in planning the industrial development is environmental pollution. This will be discussed in Section 4.5 in connection with specific industries to be introduced or enhanced.

## **(2) Roles of subsectors to be introduced/enhanced**

Roles and functions of existing subsectors, including the informal manufacturing subsector and the subsectors to be introduced/enhanced are clarified. Both subsectors are expected to contribute to the increase in manufacturing production, employment and income, alleviating or solving the constraints on the development and complying with the basic stance of the development plan. However, the existing subsectors are expected to contribute mainly to the quantitative increase, whereas the subsectors to be introduced/enhanced are designed to bring about the qualitative change into the manufacturing industrial structure in the Region by its strategic introduction or enhancement.

The criteria of selection and the selected subsectors to be introduced/enhanced reflect the basic stance, development targets and countermeasures to the constraints. The criteria are: increase of income, high utilization of the locally available materials, self-sufficiency of manufacturing goods in the Region, and fostering of Region's own technology or technical independence from other regions.

Factors related to the timing of introduction or enhancement are present and potential market size by subsector, possibility of raising the raw materials by subsector, and lead time required for each project.

The agricultural development plan of this Master Plan is reflected in the planning, as the agricultural sector provides the main raw materials for the manufacturing sector in the Region.

The lead time for each project are determined based on feasibility studies, financial requirements for initial investment and national consensus on the project, as well as present level of "skill" and "technology" in the Region.

## **4.4.2 Development process and mechanism**

### **(1) Outline of the industrial development process**

The industrial development process can be divided into two phases and four stages which are shown in Table 4.10.

- 1) The development phase, phase 1 (or stage 1) beginning at 1985 and ending at around 2000, is characterized as follows. Under a firm leadership of the related public organizations, the bases for industrial development in the Region will be laid in the forms of basic infrastructure and streamlined institutions, and manufacturing subsectors utilizing the agricultural and natural resources endowed in the Region will be introduced or much expanded. At the same time, the provision will be made for fosterage of strategic subsectors which will become the core of the second stage of the whole manufacturing industrial development.

- 2) The phase 2 can be further divided into three stages. The first half growth stage, stage 2, expected to start at around year 2000 and to end around year 2015, is characterized as follows. The subsectors which have been introduced or enhanced in the phase 1 will thrust into a stable growth stage or the growth conditions will be satisfied, and a self-fosterage capability of the bases for the industrial development will be upgraded, resulting in the mechanism of independent/self-growing industrial development in the Region.
- 3) The second half growth stage, stage 3, expected to start at around year 2015, is characterized as follows. First, the strategic subsectors which have been fostered in stages 1 and 2 will go into the development stage, resulting in a gradual change in the manufacturing industrial structure from one of the agro-based subsectors to a more complicated one with the agricultural and natural resources process subsectors as well as machinery and metal process subsectors. Second, the bases for the industrial development will be further expanded with Region's own technology, and own mechanism of providing infrastructure in the Region.
- 4) The development mature stage, stage 4, is characterized as follows. The complicated manufacturing industrial structure will be perfected through the diversification of the strategic subsectors, and inducement of chemical, basic metal, electric appliance, transport equipment and electronic subsectors.

## (2) Development mechanism of phase 1

The development mechanism of phase 1 (or stage 1), depicted in Figure 4.4 is outlined as follows. The agricultural production in the Region will be increased as planned (the first indispensable factor for the industrial development in the Region). This increase will bring about increases in demand for the daily necessities and materials for housing through the increase of farmer's income and direct demand for agricultural inputs.

Together with the increases in demand, an increase in supply of agricultural raw materials produced in the agricultural sector will lead to a growth of the agro-based subsector and informal sector.

With a strong support of the related public organizations, the basic infrastructure for the industrial development should be provided at the early stage possible (the second indispensable factor). Reformation of consciousness of the entrepreneurs and workers in the Region, provision of market information, provision of fund and technology and improvement on the technical education system are the components of the bases at this stage.

With these supports, subsectors utilizing the agricultural and natural resources endowed in the Region should be introduced or enhanced (the third indispensable factor). Around 1990, the hide and skin products subsector which is an export oriented subsector, the fish fillet process which aims at increasing value-added in the Region, and the animal and fish feed which utilizes the waste materials will join in the development at full scale. Around

1995, export-oriented subsectors such as canned fruit and instant coffee and subsectors capitalizing on the agricultural and natural resources such as pulp and paper products, ceramic products and cement, and power alcohol subsector will contribute to the development.

At the same time, the subsectors induced from the subsectors enumerated above such as packing and printing materials subsectors will accelerate the development. Those subsectors in turn will contribute to development of the agricultural sector by the provision of a stable market to the latter.

A favourable circumstance for fosterage of the machinery and metal process subsector, called a strategic subsector, will be cultivated through the following surrounding circumstances:

- Provision of the bases for the industrial development;
- Increase in demand for agricultural inputs;
- Growth of the existing subsectors; and
- Introduction of new subsectors.

These surrounding circumstances will provide the strategic subsectors with a potential market and the strategic subsector should utilize this opportunity and foster (the fourth indispensable factor).

The expansion of the existing subsectors, the subsectors to be introduced/enhanced and the strategic subsectors will bring about an increase of employment in the Region directly or through the industrial inducement of related manufacturing and service subsectors, resulting in turn in an increase of the Region's income.

### **(3) Development mechanism of phase 2**

The development mechanism of the phase 2, depicted in Figure 4.5 is summarized as follows. The phase 2 is characterized by the stable growth of the agro-based and unutilized-raw-materials-processing subsectors, and the stabilization of the growth conditions for the strategic subsectors will be interrelated not fully but partially with the provision of the bases for the industrial development.

The following will become more important bases for industrial development in this phase:

- Improvement on self-funding capability;
- Development and accumulation of the Region's own technology;
- Generation of vigorous entrepreneurs from the Region;
- Improvement on self-installation capability of the infrastructures as needed in the Region; and
- Enhancement of the technical education system.

The related public organizations should be fully involved in the construction/supply of the infrastructure with the participation of the residents and with the financial assistance from the central Government (the fifth indispensable factor for the industrial development).

The need for the technical education will become stronger in quality and quantity as the manufacturing industry develops. As already discussed, the improvements on the in-house training system of the enterprises and on the curriculum of the existing public technical education institutions/organizations are the basic measures to be taken as the first step. However, these measures are not thought to provide the education sufficient to cope with the need. Thus the related public organization should be involved in the enhancement of the technical education system (the sixth indispensable factor).

The stable growth of the agro-based and unutilized-raw-materials-processing subsectors will be surely attained in this phase.

The stabilization of the growth conditions for the strategic subsector will also be attained with the following supports:

- Increase and upgrading of the demand for the products of strategic subsector's which will come from the agro-based and unutilized-raw-materials-process subsectors; and
- Provision of the bases for the industrial development explained above.

Directly from the two broadly categorized subsectors or through development of the induced subsectors, the employments in the manufacturing industry will increase significantly, and so will the regional income and consequently finally an increase in the demand for the manufactured goods produced in the Region.

## **4.5 Development of Manufacturing Industry**

### **4.5.1 Introduction**

#### **(1) General**

This section enumerates the manufacturing industry in the Region and projects production and impacts. The projection takes into account the present situation of the industry in the Region (Section 4.1), the constraints to development and countermeasures (Section 4.2), and the development mechanism and process (Section 4.4).

The manufacturing industry in this projection is divided into three subsectors viz. existing manufacturing subsector, introduced/enhanced subsector and informal subsector. This division is based on:

- Constraints on the basic data;
- Characteristics of each subsector;
- Utilization of the resources endowed in the Region; and
- Consolidation of structure of the manufacturing industry in the Region.

The subsectors to be introduced are those new enterprises that will not only utilize the endowed resources but also contribute to upgrading the industrial structure in the Region. The estimates of the initial investment of each introduced/enhanced subsector are based on information and quotations of such industries in Japan. The optimal investment in these industries in the Region is affected by:

- quality of the finished products,
- planned production capacity,
- incorporation of labour intensive operations in the production process, and
- quality of raw materials and labour.

#### **(2) Selection criteria for new or enhanced industries**

The criteria for selecting those manufacturing industries to be newly introduced or much enhanced have been discussed in the previous section and summarized as follows.

##### **Criterion 1 : Increase of income in the Region**

In accordance with the Sessional Paper No. 1, the farmers income should be raised so as to improve their standard of living and also to foster the industry (informal and modern sectors) in the Region.

##### **Criterion 2 : High utilization of the raw materials**

These materials are waste materials (from fish process, slaughter-houses and cereal milling), raw materials having potential to increase the value added, and natural resources which have not yet been utilized.



**Criterion 3: Self-sufficiency in manufactured goods of the Region**

Those manufacturing subsectors which will supply the consumers with final goods or intermediate goods to other industries in the Region are recommended to be introduced e.g. chemical, basic metal and fertilizer manufacturing subsectors.

**Criterion 4: Fostering of own technology and technical independence**

**(3) Subsector industries to be introduced or enhanced**

Thirteen subsector industries have been selected by the four criteria, which should be newly introduced or much enhanced in the Region. They are listed in Table 4.11.

**(4) Projection method**

For each of three kinds of industries, i.e. introduced/enhanced, existing and informal, output, value-added and employment are projected respectively by the method outlined below.

**Introduced/enhanced industries**

The output of each industry is projected, taking account of the following:

- present and potential market size,
- manufacturing industry development plan for the Region as discussed in the previous section,
- future economic growth in the Region,
- possibility of raising raw materials, and
- lead time of the project.

The proposed year of implementation of the new project is decided on the following considerations:

- lead time for raising the initial capital,
- present level of the skills and technology available in the Region, and
- the skills required for the new projects.

The value-added by subsectors are projected by multiplying the outputs projected above by the value added ratios of the subsectors which are shown in Table 4.14.

Employments by subsectors are forecasted by dividing the output of the subsector by the output per worker based on the information extracted from the Statistical Abstract (Table 4.16).

### Existing industries

It is assumed that the existing manufacturing subsector will grow basically in proportion to the increase in agricultural production and the level of income in the Region, taking into account the present manufacturing industrial structure in the Region.

### Informal sector

Value added in the informal sector is arrived at using the following formula.

$$V_t = V_{1985} \times (1 + r \times E)^t - 1985$$

$V_t, V_{1985}$ : Value added of the manufacturing subsector in the Region in year t and 1985

$r$ : Assumed growth rate of GRDP in the Region (6.7% per year assumed)

$E$ : Assumed elasticity of demand for goods and service produced by the informal sector to the increase of income in the Region (1.20 assumed).

The output is projected by multiplying the projected value added by the reciprocal number of the value added ratio (68% assumed).

Employment is projected using the following formula.

$$E_t = E_{1985} \times \{(1 + r)/(1 + P)\}^t - 1985$$

$E_t, E_{1985}$ : Employment of the informal manufacturing subsector in the Region in year t and 1985

$r$ : Growth rate of output of the informal manufacturing subsector in the Region (8.1% per year assumed)

$P$ : Improvement on the labour productivity (1% per year assumed)

### (5) Industrial location

#### Introduced/enhanced subsectors

The following factors are taken into consideration in distributing the introduced/enhanced subsector industries:

- transportation cost of raw materials, and
- scale of the initial investment.

### Existing formal and informal subsector industries

The development of the existing formal and informal manufacturing subsectors are dependant on the increase in the agricultural production, and on the level of income in the Region. This subsector is expected to grow or expand at their present location.

#### **4.5.2 Industries to be introduced/enhanced**

The following manufacturing industries have been identified as the most viable and essential for industrial development in the Region.

##### **(1) Edible oil manufacturing**

#### Market

Kenya imports large quantities of edible oil. The domestic demand is expected to increase according to the increase in income. The world demand for edible oil had been growing and average annual grown rate was 11.3% between 1960 and 1980. This manufacturing sector has therefore tremendous export market.

#### Raw materials

The raw materials for edible oil are mainly groundnuts, cotton seed, maize and sunflower. Production of raw materials up to year 2005 is projected as follows.

	Cotton & Seed		Sunflower		Maize		Groundnuts	
	1985	2005	1985	2005	1985	2005	1985	2005
Siaya	1.6	4.8	-	-	47	149	0.5	0.8
South Nyanza	4.5	13.1	-	-	126	442	10.8	16.2
Bungoma	0.9	2.4	0.5	0.8	228	365	0.1	0.2
Busia	0.5	1.9	5.0	7.5	16	91	1.7	2.6
Trans Nzoia	-	-	4.8	7.2	179	498	-	-
Others	1.5	4.8	1.1	1.6	908	2,533	1.1	1.5
Total	9.0	27.0	11.4	17.1	1,504	4,078	14.2	21.3

(Source : Chapter 1, Sector Report)

At present only sunflower and cotton seed are used in manufacturing edible oil, maize and groundnuts being food crops. At maximum, about 400,000 tons of maize can be used for manufacture of edible oil from the balance of the demand and supply in the Region.

#### Initial investment

Initial investment cost including building and land is roughly estimated as follows:

<u>Capacity</u> (metric tons/day on raw material base)	<u>Initial investment</u> (billion Japanese yen)
100	2.0-3.0
2,500	22.0-23.0

### Location

The industry can be most readily established where there is a large surplus of maize at present. Matete market in Kakamega district is a good candidate. Somewhere along the trunk road B1 between Kisii and Migori is another candidate. It is possible to split the initial investment cost by establishing a few small factories in stages.

### Projected production

Production is projected as follows:

<u>Year</u>	<u>Production</u>
1990	8,330 tons
2005	64,840 tons

### (2) Instant coffee

#### Market

Kenya imports instant coffee. Production of Robusta coffee is planned to be expanded and hence the establishment of an instant coffee factory. The export market is expected to be in the OECD countries.

#### Raw materials

Production of the Robusta coffee to the year 2005 will be distributed over the districts of Kisumu, Siaya, South Nyanza, Bungama, Busia and Kakamega. Projected production is 5 thousand tons by 1995 and 22 thousand tons by 2005 (Chapter 1, Sector Report ).

#### Production process and initial investment

The production process is illustrated below.