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THE REGENERATION OF KENYAN MANUFACTURING INDUSTRY WITH EMPHASIS ON SELECTED KEY INDUSTRIES

Special reports on industrial rehabilitation

No. 6

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PREFACE

As part of the programme of the Industrial Development Decade for Africa, UNIDO's Regional and Country Studies Branch is issuing a series of studies determining both the major problems of African manufacturing and the potential for regenerating the sector. The aim is to outline policies and measures that may result in overall improvements and to identify individual plants for assistance. While earlier documents in the series deal with key issues and continent-wide analysis, this report and similar studies on Zambia, Liberia, Morocco, Tanzania and Angola provides country-level diagnostic surveys of the rehabilitation needs of African manufacturing industries.

The surveys are economic and policy diagnoses of the industrial sector in selected countries. They provide estimates of resource requirements for selected industrial plant rehabilitation, as well as assessments of expected results from such rehabilitation. The surveys also provide contributions towards the formulation of sectoral, national and regional policy measures and institutional developments, and the identification of full feasibility studies and advisory services which may be required as part of the follow-up.

The present report is a diagnostic survey of rehabilitation needs in the agro- and mineral-based industries of Kenyan manufacturing industry. Specifically, the report focuses on the plants in the cotton-based, vegetable processing and ceramics industries. Apart from suggestions to improve the performance of these plants, the report also contains suggestions for improvements at the sectoral and general policy levels.

The report is structured as follows: Chapters 1 to 3 present an overview of the economic policy and institutional environment in which plants operate at the national, sectoral and sub-sectoral levels. Chapters 4 and 5 discuss the selection of plants and provide background information on the branches to which these plants belong. Chapters 6 to 8 are in-depth analyses of the rehabilitation needs of three specially selected plants and contain confidential material. General and plant-level findings and recommendations are then summarized in chapters 9 and 10 and the report concludes with a summary of project concepts, Chapter 11.

The report was prepared, at the request of the Kenyan Government, by a UNIDO field mission which visited Kenya from 5 January to 2 February 1990. The members of the team were Mr. George Assaf (team leader) and Mr. Masayoshi Matsushita of the Regional and Country Studies Branch, UNIDO and UNIDO consultants, Mr. Thomas Alberts, Mr. Björn Almquist, Mr. Jan Bjoerk, Mr. Peter Coughlin, Mr. John Litondo, Mr. Graham Smith and Mr. Maurice Thorne. As part of its work programme, the mission held meetings with senior officials in key ministries and Government agencies - in particular the Ministry of Industry which acted as the Government focal point for the mission - senior representatives, managers and technicians of private and parastatal enterprises and with resident representatives of Kenya's development assistance partners, including the European Community, JICA, JETRO, NORAD, World Bank and USAID. Consultations were also held with the UNDP Resident Representative and field officers. A list of institutions visited and persons met is to be found in Annex 2.

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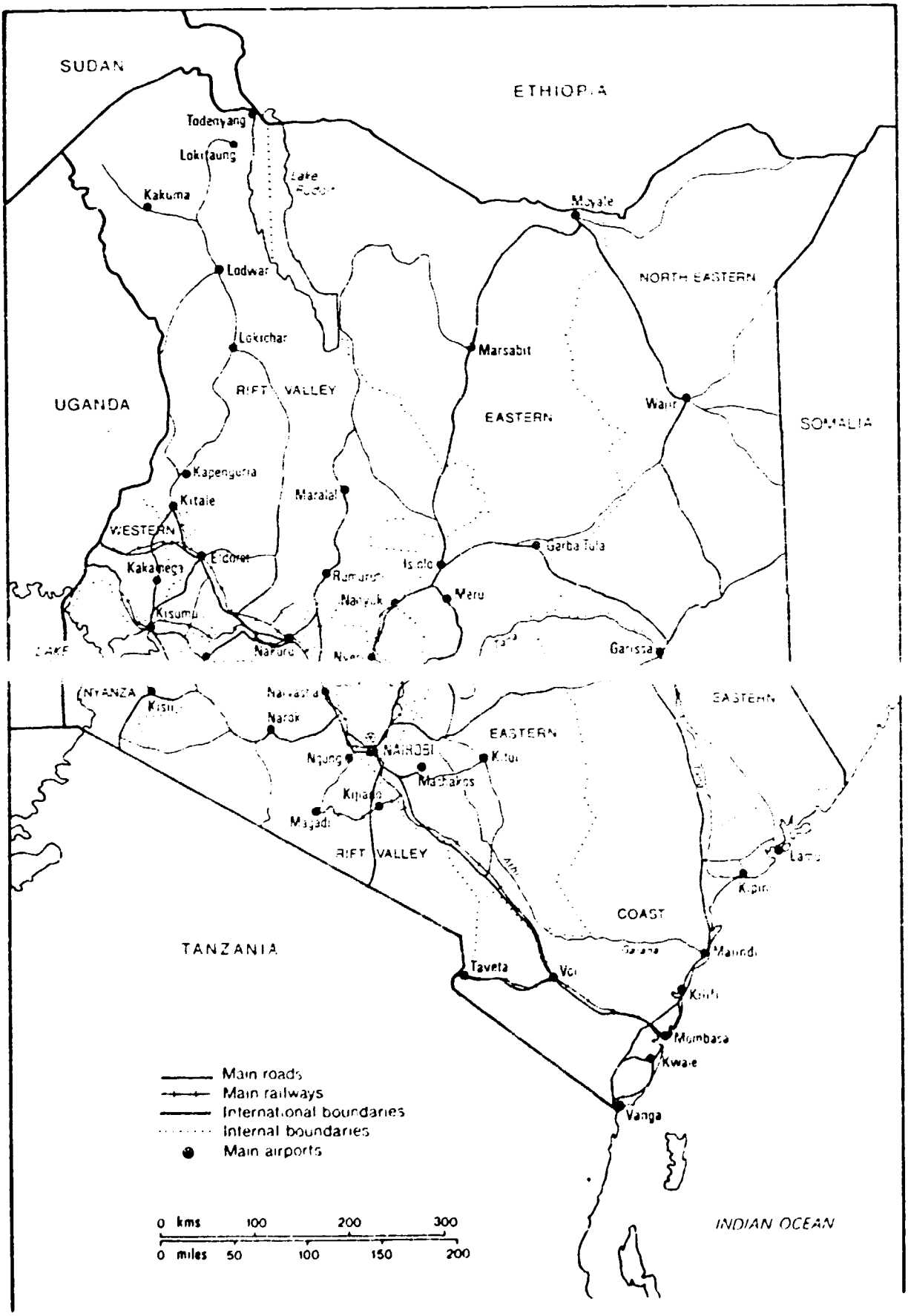
MAP OF KENYA



Source: The Economist Intelligence Unit, Country Profile, 1989-90.

GENERAL COUNTRY INFORMATION

SURFACE AREA:	582,646 sq km (including area of inland water)
POPULATION (total):*	21.8 million (1987), 22.7 million (1988)
(growth rate):	3.7 per cent per year (Government estimate, 1988)
MAIN URBAN AREAS:	Nairobi, Mombasa, Kisumu, Nakuru, Machakos, Meru
GDP (total):	$8.7 mn (1987)
(per capita):	$393 (1987)
(rate of growth):	4.8 per cent (1987), 5.2 per cent (1988)
(sector of origin):	agriculture/forestry/fishing 30.8% industry 19.0% (of which manufacturing 11.5%) services and other 50.1% (1988)
EXPORTS (total):*	$748 mn (1987), $785 mn (1988)
(composition):	coffee 31%, tea 27%, petroleum products 16% (1987)
(destinations):	European Community 42%, Uganda 9%, USA 5% (1987)
IMPORTS (total):*	$1,431 mn (1987), $1,495 mn (1988)
(composition):	industrial machinery 24%, petroleum and products 21%, motor vehicles and chassis 9% (1988)
(origins):	European Community 43%, Japan 11%, USA 9% (1987)
INFANT MORTALITY RATE:	91 per 1000 live births (1988)
LIFE EXPECTANCY:	54 years for males, 56 for females (1985)
LITERACY RATE:	59.2 per cent of persons 15 years of age or older
PRIMARY SCHOOL ENROLMENT:	94 per cent
LANGUAGES:	English is the main language of education, business and government. Kiswahili also serves a language of trade and government operations.
CURRENCY (denominations):	1 Kenya pound (K£) = 20 Kenya shillings (KSh) 1 Kenya shilling = 100 cents
(exchange rates):	$1 = KSh 17.75 (average for 1988) $1 = KSh 19.28 (as of 3 April 1989)

* Data for 1987 and 1988 are provisional in most cases.

LIST OF ABBREVIATIONS

ACP	Africa, Caribbean and Pacific Convention
ADB	African Development Bank
ADEC	Africa Development and Economic Consultants Ltd.
ART	African Retail Traders
CDC	Commonwealth Development Corporation
CDI	Centre for Industrial Development
CI	Ceramic Industries (E.A.) Ltd.
cif	Cost, insurance and freight
CLSMB	Cotton Lint and Seed Marketing Board
CTB	Central Tender Board
DAC	Development Assistance Committee, OECD
DEG	Deutsche Finanzierungs-gesellschaft für beteiligung in Entwicklungsländern GmbH
DFCK	Development and Finance Company of Kenya
DFI	Development Finance Institutions
DIT	Directorate of Industrial Training, MTTAT
EABC	The East African Bag and Cordage Company Ltd.
EAC	East African Community
EAFC	East Africa Finance Consultants Ltd.
EC	European Community
ECA	E.C. Arnold Ltd.
EPZ	Export Processing Zones
FAO	Food and Agriculture Organisation
FKE	Federation of Kenya Employers
fob	Free on board
GATT	General Agreement on Trade and Tariffs
GDP	Gross Domestic Product
GNP	Gross National Product
GOK	Government of Kenya
GPS	Generalised System of Preferences
GTI	Government Training Institute
HIT	Harambee Institutes of Technology
IBM	International Business Machines
ICA	International Coffee Agreement
ICDC	Industrial and Commercial Development Corporation
ICDCIC	ICDC Investment Company
IDB	Industrial Development Bank Ltd.
IFC	International Finance Organization
IGADD	Inter-Government Authority on Drought and Development
IMF	International Monetary Fund
ITC	Industrial Training Committee
K£	Kenya pound
KAM	Kenya Association of Manufactures
KANU	Kenya African National Union
KENYAC	Kenya National Capital Corporation, Ltd. (or KNCC)
KGGCU	Kenya Grain Growers Co-operative Union

LIST OF ABBREVIATIONS

(continued)

KIA	Kenya Institute of Administration
KIE	Kenya Industrial Estates
KIM	Kenya Institute of Management
KIRDI	Kenya Inudstrial Research and Development Institute
KITS	Kenya Integrated Training System
KNCCI	Kenya National Chamber of Commerce and Industry
KPCU	Kenya Planters Co-operative Union
KPLC	Kenya Power and Lighting Company Ltd.
KPTC	Kenya Posts and Telecommunication Corporation
KSh	Kenya shilling(s)
KTA	Kenya Trainers Association
KTDA	Kenya Tea Development Authority
KTTI	Kenya Textile Training Institute, DIT
LDCs	Less Developed Countries
LPG	Liquified Petroleum Gas
Mountex	Mount Kenya Textile
MTTAT	Ministry of Technical Training and Applied Technology
MUB	Manufacturing-under-bond scheme
MVA	Manufacturing value-added
NCPB	National Cereal and Produce Board
NGO	Non-governmental Organization
NITC	National Industrial Training Council
NORAD	Norwegian Agency for International Development
NSSF	National Social Security Fund
NYS	National Youth Service
ODA	Official Development Assistance
OECD	Organization for Economic Co-operation and Development
PROT	Problem Oriented Training
PTA	Preferential Trade Area for Eastern and Southern Africa
PVP	Pan Vegetable Processors Ltd.
RAS	Rehabilitation Advisory Services Ltd.
RONA	Return on net assets
ROS	Return on sales
SADCC	Southern African Development Co-ordination Conference
SDR	Special Drawing Rights
SITC	Standard International Trade Classification (revised)
SMEs	Small- and medium-scale enterprises
UNDP	United Nations Development Programme
UNIDO	United Nations Industrial Development Organization
USAID	United States Agency for International Development
VAT	Value-added tax

INTRODUCTION

The issue

Manufacturing is a leading growth sector in the Kenyan economy. Of late, the sector has accounted for about 12 per cent of GDP, but in recent years it has experienced a period of significant decline. Available data suggest annual gross investment in the manufacturing sector has been declining since 1978.[1] In 1985, gross investment was 40 per cent of its 1978 level in real terms. This severe drop in gross investment suggests that disinvestment has occurred. This explanation is also corroborated by informal observation. The growth of manufacturing has been stymied in recent years by variable economic conditions and uncertainties in the business environment.

The stagnation in manufacturing is also reflected in the fact that there has been very little structural change in the sector. The leading branches have been, and continue to be, food products, tobacco, textiles, electrical machinery, fabricated metal products, chemicals, paper and paper products. The consumer goods branches - largely food, beverage and tobacco products - account for over 50 per cent of manufacturing value added (MVA). The branches producing intermediate products account for an insignificant share of manufacturing MVA in comparison.

Recent surveys[1] of Kenya's manufacturing sector have concluded that many firms are producing at less than optimal capacity - 50 per cent or less. Thus, although manufacturing industry in Kenya could play a leading role for economic growth, in recent years it has failed to do so. Manufacturing has therefore not generated a dynamic growth process and has not satisfied domestic demand or achieved its significant export potential.

Under-utilization of industrial production facilities is one of the major factors hindering the renewal of economic growth in Kenya. If this trend could be reversed, greater utilization of installed capacity and improved productivity would be the most economical means of restoring dynamism to the manufacturing sector and overall economic growth in Kenya.

Kenya has now reached a stage in its economic development at which manufacturing industry will have to assume a more substantial role. Manufacturing, especially the public sector, needs to be regenerated to be able to increase domestic value added and essential inputs for primary sectors such as agriculture. This enhanced role for manufacturing industry requires revitalization, rehabilitation and restructuring of Kenya's current manufacturing capabilities. Particular attention should be paid to the parastatals sector which accounts for a significant number of Kenya's ailing industries. This regeneration of Kenya's manufacturing capabilities must be supported by an effective institutional infrastructure, human resource development and an appropriate policy framework.

1/ Kenya: Sustaining industrial growth through restructuring and integration, UNIDO, Regional and Country Studies Branch, PPD.85, 22 June 1988; Kenya: Industrial Sector Policies for Investment and Export Growth, Volume 1, June 30, 1987, World Bank Report No. 6711-KE, pp. 9-11.

Sessional Paper No. 1 of 1986 and recent budget speeches by the Vice President and Finance Minister, the Hon. Professor George Saitoti,[1] have stressed the need to re-orientate more of the country's productive capacity towards export production, and the essential need to raise productive capacity to stimulate growth. In this connection, it has also been stressed that there is a large scope for raising efficiency in manufacturing industry, particularly in the parastatal sector.

The Government of Kenya is clearly well aware of the problems of manufacturing industry and its needs for rehabilitation and regeneration. It is for this reason that the Government has decided to launch a process of regeneration of industry by diagnosis and rehabilitation of ailing firms. The aim of the Government's regeneration efforts is to induce much-needed dynamism to industry and thereby to break the vicious circle of increasingly poor performance. UNIDO has, therefore, been requested to assist and support the Government's regeneration efforts by undertaking this diagnostic survey of the rehabilitation needs of Kenya's manufacturing industry with special emphasis on the parastatal sector.

Structure of the diagnostic survey: Top-down/Bottom-up approach

The main objective of this report prepared by UNIDO is to provide a diagnostic survey of plant rehabilitation needs in a few economically strategic firms in key industrial branches of the Kenyan manufacturing sector. The approach used in this survey provides for an analysis of industrial rehabilitation requirements which integrates the policy, economic, technological, managerial, human resources development, financial and marketing dimensions, thereby focussing on plant-level rehabilitation within the context of the overall macro-economic environment.

The methodology employed in this survey consists of a Top-down/Bottom-up approach to rehabilitation.[2]

From a Top-down perspective, the approach moves the analysis of rehabilitation needs successively from the macroeconomic level down to the plant level. Thus Kenya's recent economic development is first reviewed in its international context. This macro-economic or country level analysis includes an assessment of the evolution of key elements of the country's macro-economic, policy and institutional framework.

At the sectoral level, manufacturing is reviewed in terms of overall characteristics, major problems and constraints, trade, and assessment of policies and institutions relating to the sector. The relationship of manufacturing to agriculture and other primary sectors is given special consideration. This is to fully explore the possibilities of production based on locally available raw materials and the development of rural areas.

1/ See, in particular, Budget Speech for Fiscal Year 1989-1990 presented to the National Assembly on 15 June 1989 by the Hon. Prof. George Saitoti, Vice President and Minister for Finance, Republic of Kenya.

2/ This approach is described in detail in Annex 6.

The same type of analysis of key characteristics, constraints, potentials, policies and institutions is made at the subsector and branch levels.

Finally, at the plant level, a detailed analysis is made of a few especially selected, economically strategic firms. This analysis makes a comprehensive assessment of plant level rehabilitation needs in terms of management and organization, human resources development, financial structure, marketing, technological, economic and policy aspects. The analysis also pays particular attention to issues of maintenance and repair, quality control and raw material supply.

In order to assure that rehabilitation is not impeded by environmental factors, the Top-down analysis is complemented by an assessment of each firm in terms of its working environment, from the Bottom-up. In this Bottom-up perspective, an effort is made to assess what changes in the economic and institutional environment - government tariff and duties, macro-economic policy, company taxation, and so on - constitute preconditions to successful plant level rehabilitation.

An important element of the approach is a concentration on a few important firms in key subsectors with good backwards and forwards linkages to other firms, industries and sectors, especially primary sectors such as agriculture and other natural resource sectors.

Emphasis on a few economically strategic firms with good linkages in key subsectors concentrates resources where they can have most impact. It also maximizes the multiplier effects of any given investment in that, should these firms be successfully rehabilitated, they will exert a significant "pull-effect" on other similarly placed firms. They thus become the motors to start the regeneration process going and provide the dynamism for more widespread economic growth.

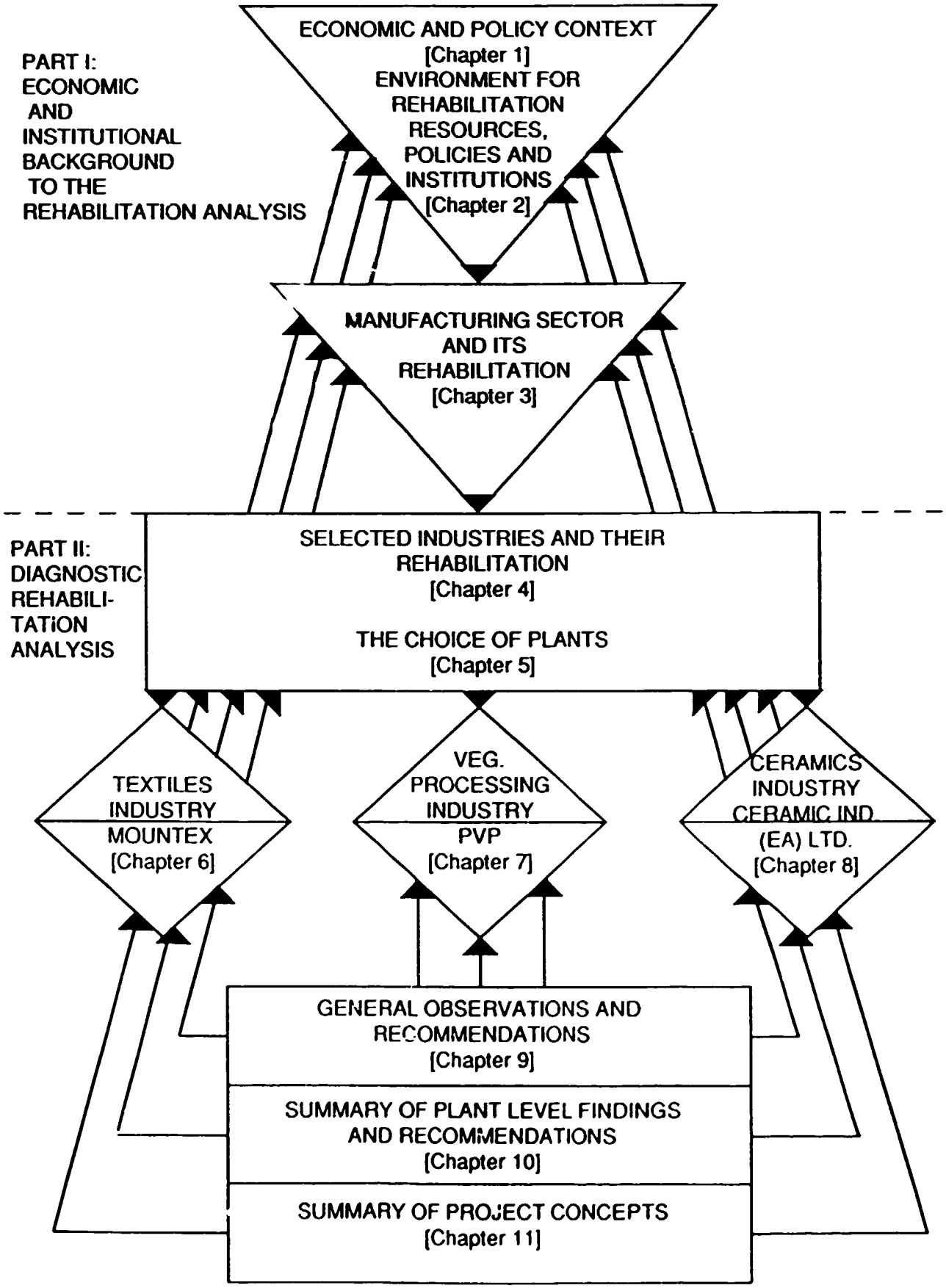
In summary, by examining a few economically strategic firms in key subsectors in their total working environment by taking a Top-down/Bottom-up perspective, UNIDO believes it can identify the means for key firms to achieve long-term economic viability and at the same time to galvanize other similarly situated firms into rejuvenation.

In line with this approach, as shown in Figure A, the report is divided into two parts. Part I provides essential background information for the actual detailed integrated rehabilitation analysis in Part II. It is only against this background information that it is possible to appropriately assess the rehabilitation needs and regeneration issues at the plant level so as to provide appropriate diagnosis and workable solutions.

This means that the analysis in Part I covers both macro-economic, industrial sector policy and institutional issues and draws out implications for the plant level.

UNIDO firmly believes that before a serious effort can be made to carry out detailed rehabilitation of industry in Kenya, it is necessary to diagnose the precise reasons for, and the nature of, the problems/constraints now faced by industry. This is in order to identify the exact measures, investment or market studies, policy and institutional issues, that need to be examined in

Figure A: Structure of the report: Top-down/bottom-up approach



greater detail as part of the subsequent detailed rehabilitation analysis at the subsector, branch and plant levels. In other words, it is only by broad classification of current problems and their causes can an appropriate approach to rehabilitation technical assistance be designed.

The material in Part I, thus, constitutes essential preparation for an appropriate focus to the rehabilitation analysis in Part II.

Part I also serves as a guidance to potential foreign investors/ partners. It provides useful information on the prospects for Kenya's manufacturing industry in the form of a review of current industrial developments in the context of established national resources and in the light of changes in the macro- and industrial economic framework, and also in the international, institutional and policy environments.

Part II contains the actual rehabilitation analysis. It consists of 5 chapters - Chapters 4 to 11 - and constitutes the core of the report.

Chapters 4 and 5 discuss the selection of key candidate plants and provides a concise analysis of the branches to which they belong.

Chapters 6 to 8 are devoted to in-depth analyses of three specially selected industrial plants in key subsectors - ceramics, textiles and vegetable processing - with good linkages to primary sectors such as agriculture and other natural resource sectors. In these chapters a detailed analysis is made of the rehabilitation needs of the three key firms, focussing on aspects such as management and organization, financial structure, human resource development, marketing, plant and economic performance, state of physical plant and capacity utilization, and maintenance and spare parts.

The study concludes with chapters 9, 10 and 11 which present a summary of general and plant level findings and recommendations, and project concepts, respectively. The recommendations made are of both a short and long-term nature. They address, in addition to plant specific problems, issues of a more general nature related to the macro and industrial economic policy framework in the context of required changes for successful plant-level rehabilitation.

It is important to point out the limitations of this report. The report is based on a detailed examination of only three economically strategic firms in key subsectors. These firms have been chosen to be representative of the branches of industry to which they belong. This means they have to be important firms and typify the kinds of problems, constraints and potential of firms in the respective branches. In essence, they must serve as models from which lessons can be learned that have applicability to the branch of industry as a whole.

In the particular case of this survey, three firms were selected in three major branches of manufacturing industry in Kenya - ceramics, textiles and vegetable processing. Each of the firms chosen are economically important and are representative of the problems, constraints and potential of firms in the particular branches of industry to which they belong. They are also major firms in the branches they represent especially in terms of volume of sales, market share and number of employees. Thus, an in-depth examination of these three firms will have important implications for the branch of industry of which they are part and probably for manufacturing in general.

However, given the limited nature and scope of this UNIDO diagnostic survey - it was only possible to make an in-depth survey of a small number of firms, it is important not to infer too much from this analysis. Clearly, an examination of the problems and potential of a few economically strategic firms in key branches is only relevant to manufacturing as a whole in as far as the branches of industry chosen are representative of manufacturing industry in general. Though, as is detailed in the text, the ceramics, textile and vegetable processing branches are representative and important to manufacturing, other major branches of industry - for example, paper and paper products and chemicals - need to be examined to give more balance and perspective to the findings and recommendations. This survey, then, should be seen as a first round of analysis. Subsequent more detailed and comprehensive analysis with a broader coverage of important firms and branches of industry will certainly need to be undertaken by the Government and supported by the various bilateral and multilateral agencies. On the other hand, this survey does identify the main areas in which future investigations should be focused.

This report, therefore, must be seen as only providing the basis for more detailed follow-up work and policy analysis both at the overall economic and industry sector levels and at the branch and plant levels. Thus the various recommendations made in the report regarding the rehabilitation of particular firms should not be regarded as comprehensive project proposals. They must be complemented by more detailed technical and economic analyses in order to provide effective practical guidelines for subsequent implementation.

PART I

ECONOMIC AND INSTITUTIONAL BACKGROUND TO THE REHABILITATION ANALYSIS

Part I consists of three chapters - Chapters 1 to 3. These chapters provide essential background information against which the actual rehabilitation analysis in Part II can be properly understood and carried out.

Part I also serves as a guidance to potential foreign investors/ partners. It provides useful information on the prospects for Kenya's manufacturing industry in the form of a review of current industrial developments in the context of established national resources and in the light of changes in the macro- and industrial economic framework, and also in the international, institutional and policy environments.

CHAPTER 1
REGENERATING KENYAN MANUFACTURING: THE ECONOMIC AND POLICY CONTEXT

1.1 The current economic situation - factors and trends

1.1.1 Production

Since independence in 1963, compared to most other Sub-Saharan countries, Kenya's economic performance has been impressive. In 1986, the country's per capita income was US$ 300 which is in the upper end for the low income developing countries. Kenya has also developed better in terms of social indicators than other African countries belonging to the same income level.

Kenya's economic development, however, depends to a large extent on external factors, the most important being its terms-of-trade. Changes in, for example, export prices send ripples through the economy and generate disequilibria which the Government has had difficulties in counteracting. Another salient feature in Kenyan development is its high population growth rate, about 4 per cent per year, which has been a limitation to growth in per capita income.

In 1986 the Government noted that:

> "Kenya has come through a series of economic crises: the oil price rises of the 1970s and the decline in Kenya's terms of trade, domestic inflation of the early 1980s, the world recession of the same period, and the devastating drought of 1984. Kenya has coped successfully with these crises, which can be counted as a major accomplishment. But the cost has been high: economic growth has slowed to the point where average incomes have barely risen in the late 1970s. But because the short-term problems have been brought under control, while progress has been made on re-orienting the economy, 1986 presents a ripe opportunity to look much further ahead, towards the end of the century, to determine what kind of an economy Kenya is going to have then and how it is going to get there."[1]

The regeneration of Kenyan manufacturing must be looked at within the context of changing the country's economic structure and policies as well as the international context.

Overall performance

The rate of economic growth in Kenya, as measured by GDP, shows substantial fluctuations as can be seen from Table 1.1.1. The country's experience can be broken down into six periods.

- the "Kenya miracle" of 1964-1973, with an average growth rate of around 6.5 per cent per year;

1/ Economic Management for Renewed Economic Growth, Preamble, Nairobi, 1986.

- the years 1974-1976, in which the annual GDP growth rate averaged 3.5 per cent (less than the rate of population growth), due to rising oil prices, international recession and widespread drought in Kenya;

- the coffee and tea price boom of 1976-1977, resulting largely from a severe frost which disrupted Brazil's coffee exports. As a result, GDP growth rates were 8.2 and 7.9 per cent per year in the period 1977-1978;

- the period from 1979-1984, with a reduced rate of growth attributable to several distinct causes: the collapse of the East African Community (EAC) in 1977, the oil crisis of 1980-1981, renewed world recession in the early 1980s and another drought in 1984;

- a period of renewed growth since 1985, partly attributable to the return of favourable weather conditions, a general improvement in Kenya's terms-of-trade, and the effects of the restructuring programme in Kenya.

Performance of major economic sectors

Agricultural sector

Agriculture is particularly important to the economy insofar that it employs about 80 per cent of the labour force and accounts for about two thirds of the value of Kenya's exports. However, in terms of value added, its contribution to GDP is only about 30 per cent.

During the period 1974-1988, there have been great variations in the growth of the agricultural sector ranging from -3.9 per cent in 1984 to 11.2 in 1982 (Table 1.1.2). Such large variations in performance have taxed the government's ability to maintain economic equilibria. Overall performance has been quite good as can be seen from Table 1.1.1.

The agricultural sector has top priority in the government's long-term planning, with particular emphasis on high value, labour intensive crops. Food self-sufficiency is emphasized, although the lack of new lands suitable for cultivation means that increased production will have to come from improved yields.

Over half of the cultivated land area is still devoted to subsistence crops, although there has been a steady increase in the area devoted to higher value cash crops. However, the importance of traditional estate crops such as coffee and tea, representing over fifty per cent of total exports, has not diminished. It is the vulnerability of these crops to shifts in international commodity prices, and climatic variations, which accounts for the relatively greater variability in agriculture's share in GDP. Moreover, because of the large share of agricultural exports in total exports, changes in international prices rapidly affect the economy as a whole.

Industrial sector

The manufacturing sector, which will be covered in detail in chapter 3, provided 13.2 per cent of GDP in 1987. This amounts to over 70 per cent of the contribution of the industrial sector to GDP. (See Table 1.1.1 for details). Compared to other Sub-Saharan countries Kenya's industrial sector is large. There are 560 medium- to large-scale, 720 small-scale and 1,600 micro-enterprises. (Some sources claim that the number of microenterprises are more than 10,000). As can be seen from Table 1.1.2, apart from government services, manufacturing has been the fastest growing sector of the economy.

Kenya's manufacturing sector has been oriented to meeting domestic needs, having been established to cater to the domestic market through a policy of import substitution. High levels of protection were provided for key manufacturing sub-sectors such as metal products, wood products, paper, non-electrical machinery and fertilizers.

Agro-industry is the most important sub-sector. Food, beverage and tobacco products accounted for about 44 per cent of Kenya's manufacturing value added (MVA) in 1987. Other major branches of agro-industry (textiles and garments, leather products, wood and paper products) accounted for, on average, another 12 per cent of MVA. The remaining 44 per cent is accounted for by a relatively wide range of other branches such as petroleum, rubber, plastic, chemical, metal, cement, glass and ceramic products.[1/]

Table 1.1.1: GDP by industrial origin, 1980-1987

(current KE)

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Traditional Economy	149.39	155.79	159.59	164.58	170.48	178.40	192.90	191.15	197.34	204.27
Forestry and fishing	20.33	21.05	21.83	22.74	23.80	24.50	25.00	26.33	27.20	28.09
Building and construction	45.37	48.05	48.02	48.96	50.58	54.01	64.11	56.80	58.01	59.60
Water collection	18.41	18.71	19.00	19.29	19.58	20.34	21.14	21.95	22.80	23.69
Ownership of dwellings	65.28	67.98	70.74	73.59	76.52	79.55	82.65	86.07	89.33	92.89
Monetary Economy	2446.64	2542.66	2700.57	2833.66	2896.16	2969.53	3109.84	3293.01	3452.42	3634.18
Agriculture	810.05	817.66	867.33	964.06	979.07	941.05	975.59	1023.39	1062.57	1109.26
Forestry and fishing	26.63	27.55	28.37	30.91	33.52	32.89	33.12	33.63	37.11	41.64
Mining and quarrying	7.95	8.75	5.45	6.61	6.69	7.41	8.11	8.40	9.12	10.15
Manufacturing	333.97	351.47	364.13	372.32	389.07	405.84	424.07	448.67	474.34	502.80
Construction	118.29	126.61	136.73	120.58	109.96	105.72	110.19	114.72	120.26	126.51
Electricity and water	40.10	39.26	45.30	43.71	49.45	26.21	26.16	28.37	31.18	33.88
Trade, rest. & hotels	303.33	318.38	322.52	299.40	307.78	332.60	355.22	389.98	412.53	436.27
Transport, storage & com.	140.87	148.85	151.71	195.87	201.51	202.29	206.54	215.42	224.90	234.02
Finance & business serv.	170.13	169.24	221.34	206.92	223.58	222.50	244.51	261.02	274.52	291.27
Ownership of dwellings	118.16	124.14	135.84	140.69	135.18	187.98	193.20	199.25	205.63	212.20
Domestic services	24.06	28.33	30.69	32.75	34.88	37.16	39.74	43.32	47.82	52.11
Government services	382.39	403.84	425.20	441.35	459.89	473.13	497.26	528.73	554.13	586.16
Other services	51.85	56.99	59.32	62.68	68.46	94.20	99.10	104.05	111.74	119.72
Less: Imputed bank services & charges	-81.14	-78.41	-93.36	-84.19	-102.88	-99.40	-102.97	-105.94	-113.43	-121.81
Total GDP at Factor Cost	2596.03	2698.45	2860.16	2998.24	3066.64	3147.98	3302.74	3484.16	3649.76	3838.45

Source: IBRD and Economic Survey 1989, p. 15.

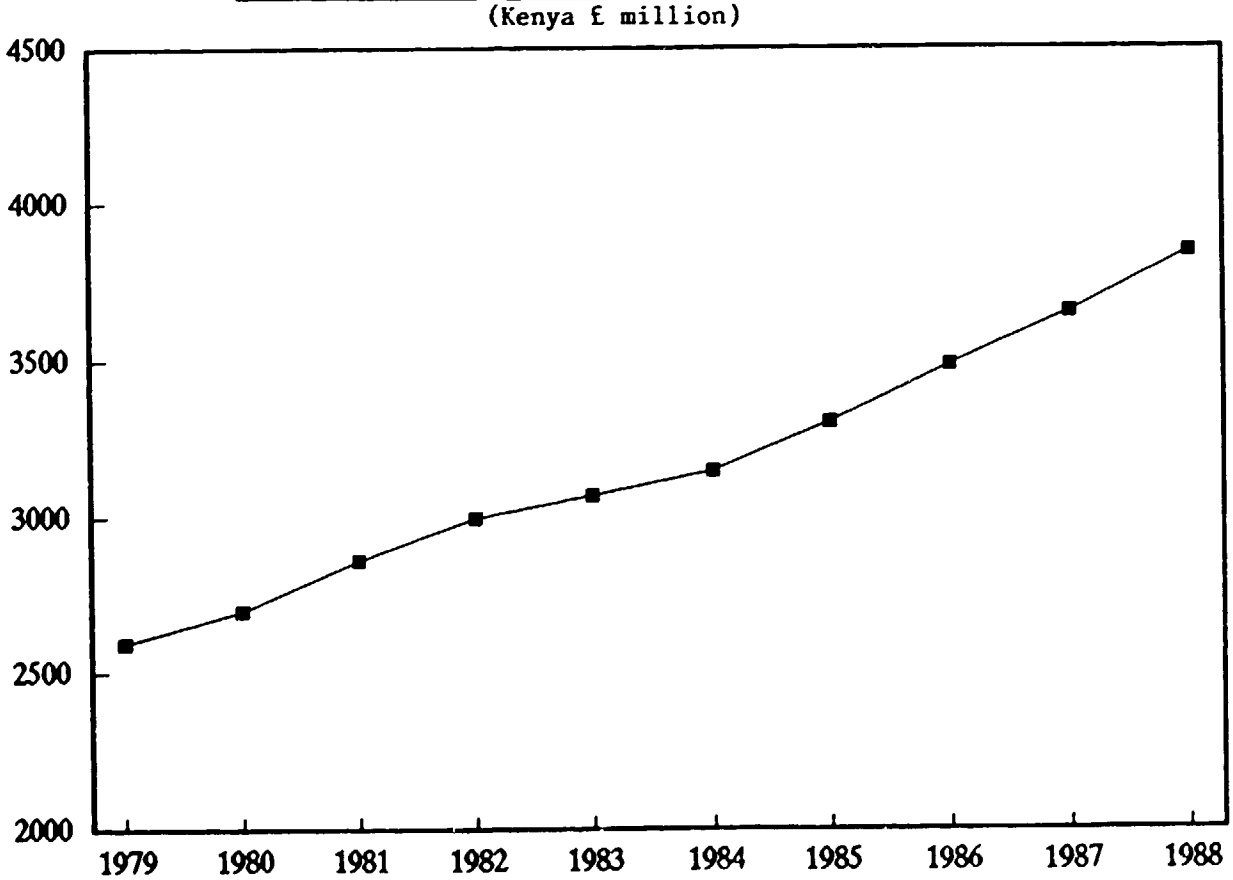
1/ Central Bureau of Statistics, Statistics Abstract 1989, Nairobi, p. 126

Table 1.1.2: Growth rates of real GDP by industrial origin, 1980-1987
(percentage change in constant 1982 prices)

	1980	1981	1982	1983	1984	1985	1986	1987	1988
Agriculture	0.9	6.1	11.2	1.6	-3.9	3.7	4.9	3.8	4.4
Forestry and fishing	3.5	3.3	6.9	6.8	0.1	1.3	3.2	7.3	8.4
Mining and quarrying	10.1	-37.7	21.3	1.2	10.8	9.4	3.6	8.6	11.3
Manufacturing	5.2	3.6	2.2	4.5	4.3	4.5	5.8	5.7	6.0
Construction	6.7	5.8	-8.2	-5.3	-0.5	9.1	-1.6	3.9	4.4
Electricity and water	-0.9	10.9	-2.0	9.6	-32.6	1.6	6.4	7.3	6.7
Trade, rest. & hotels	5.0	1.3	-7.2	2.8	8.1	6.8	9.8	5.8	5.8
Transport, storage & com.	5.7	1.9	29.1	2.9	0.4	2.1	4.3	4.4	4.1
Finance & business serv.	-0.5	30.8	-6.5	8.1	-0.5	9.9	6.8	5.2	6.1
Ownership of dwellings	4.7	7.5	3.7	-1.2	26.4	3.1	3.4	3.4	3.4
Domestic services	17.7	8.3	6.7	6.5	6.5	6.9	9.0	10.4	9.0
Government services	5.6	5.3	3.8	4.2	2.9	5.1	6.3	4.8	5.8
Other services	9.9	4.1	5.7	9.2	37.6	5.2	5.0	7.4	7.1
Less: Imputed bank services & charges	-3.4	19.1	-9.8	22.2	-3.4	3.6	2.9	7.1	7.4
Total GDP at Factor Cost	3.9	6.0	4.8	2.3	2.7	4.9	5.5	4.8	5.2

Source: Table 1.1.1.

Figure 1.1: GDP at constant 1982 prices, 1979-1988
(Kenya £ million)



Sources: Central Bureau of Statistics, Statistical Abstracts 1989 and Mission estimates.

Electricity consumption increased by 5.6 per cent per year between 1981-1985. The Government has announced ambitious plans to develop Kenya's hydroelectric and geothermal potential, in order to decrease its reliance upon imported oil, increasingly scarce firewood and imported electricity from Uganda.

Kenya remains totally dependent upon oil imports to meet its domestic requirements, although renewed exploration led in March 1988 to the discovery of oil deposits which are as yet of undetermined commerical viability.

Kenya's mining industry is still relatively small, and concentrated in quarrying and in non-metallic or chemical minerals. The main products are soda ash (220,000 tonnes in 1989) and fluorspar (67,000 tonnes). Mining of gold has resumed in recent years. Salt (12,000 tonnes) and limestone products (37,000 tonnes) also yield significant export revenues, although they involve little further processing in Kenya.

The service sector

The service sector accounts for the largest share of GDP, with the most notable growth occurring in subsectors benefitting from Kenya's thriving tourist industry (trade, restaurants and hotels; transport, storage and communication; finance and business services). In recent years tourism has become the largest single foreign exchange earner for Kenya.

Government services have grown at a rate slightly above that of GDP. As a result, their contribution to GDP has slowly risen from 14.7 per cent in 1979, to 15.6 per cent in 1987.

1.1.2 Commodity trade

The main sources of foreign exchange earnings, apart from petroleum products based on processed imported oil, are coffee and tea, which together accounted for about 60 per cent of total exports of goods and services during 1987-88[1/].

The international terms-of-trade have varied significantly for Kenya since Independence. According to information contained in the Economic Survey for various years, in the period 1979-1988, the terms-of-trade have alternated from being unfavourable for the first 5 years to favourable for next five years. Apart from great variability in the terms-of-trade, no definite conclusions can be drawn from this data.

Exports are important to the Kenyan economy. In 1964, exports represented 34 per cent of GNP. Since then the share of exports in GNP has decreased to 26 per cent in 1982 and to 22 per cent in 1987.[2/] This development is common to many other countries pursuing an import substitution policy. It seems exceedingly difficult to maintain a rapid export growth, while protected industries are being established. Another consequence of this trend is balance of payments deficits. This will be discussed later.

1/ Economic Survey 1989, p. 81.

2/ Development Plan 1989-1993, p. 15.

According to the World Bank[1/], the share of manufactured goods in total exports has fluctuated around 11 per cent.

As is shown in Table 1.1.3, the main destination for Kenya's exports is the European Community (EC), with the UK alone accounting for 20 per cent of total exports. The next largest regional destination is Africa, headed by PTA members Uganda and Tanzania. As a result of the breaking up of Preferential Trade Area (PTA), there has been a pronounced decline in the share of manufacturing exports going to Uganda and Tanzania which has dropped from 35 to 28 per cent (1975 and 1983 respectively). EC countries also supply the largest proportion of imports, followed by Japan, a major supplier of motor vehicles and electronic equipment, and United Arab Emirates, Kenya's main source of crude petroleum. Imports from PTA member countries are insignificant.

1.1.3 Public finance

Ambitious development plans have in the past necessitated an increasing role for the Government in Kenyan development. As a result government expenditures as a percentage of GDP have increased rapidly and in 1988-1989 were over 39 per cent. In order to finance this expansion, for many years the Government has incurred an overall budget deficit. Different measures of the deficit can be found in Table 1.1.4 below. However, there has been an increasing concern among policy makers about the deficit with the result that the Government is now committed to decrease it substantially in the future. The "Sessional Paper No. 1 from 1986" sets the target to reduce this deficit to 2.5 per cent of the GDP by the year 2000. The Development Plan projected this deficit to be 4.5 per cent in 1988/1989 and as can be seen from the table, the target was almost reached in that year. By 1992-1993, it is planned that this deficit will be reduced further to 3.1 per cent.

Table 1.1.3: Kenya's main trading partners, 1988
(US$ million)

Export destinations			Source of imports		
United Kingdom	186.9	(20)	United Kingdom	333.7	(19)
F.R. of Germany	114.7	(12)	Japan	216.6	(12)
Uganda	83.7	(9)	UAE	201.4	(11)
Netherlands	48.8	(5)	F.R. of Germany	167.3	(10)
USA	46.2	(5)	France	108.9	(6)
Italy	32.8	(4)	USA	88.3	(5)
Tanzania	24.3	(3)	Netherlands	86.2	(5)
France	17.5	(2)	Italy	63.9	(4)
Japan	13.7	(1)	India	28.8	(2)
All others	383.3	(40)	All others	470.1	(26)
Total	951.9	(100)	Total	1,765.2	(100)

Source: Central Bureau of Statistics, Economic Survey 1989, pp. 84-85.

Note: In parentheses, percentage share of total.

1/ Kenya: Industrial Sector Policies for Investment and Export Growth, p. 32.

Table 1.1.4: Analysis of key fiscal indicators 1984/85-1988/89

Overall Deficit as % of	1984/85	1985/86	1986/87	1987/88	1988/89
Total expenditure	-16.7	-13.0	-21.0	-11.4	-11.7
GDP at current market prices	-5.8	-4.3	-7.5	-3.9	-4.6
Total government expenditures as % of GDP at current market prices	34.5	33.0	35.6	33.8	39.4

Source: Central Bureau of Statistics, Economic Survey 1989, p. 63
Note: 1987/88 and 1988/89 figures are provisional.

As can be seen from Table 1.1.5, to finance total debt the Government has increased its borrowing mainly by a rapid increase in the foreign debt and, to a lesser extent, by borrowing on the domestic market.

Table 1.1.5: Central government public debt, 1964-1988 a/

	1964	1972	1974	1978	1982	1987	1988
Value (K£ Mn) b/							
Debt (D)							
Domestic	18.0	88.5	129.1	283.6	454.2	716.9	706.4
Foreign	68.1	105.8	136.3	242.3	859.3	2280.7	2717.4
Total	86.1	194.3	265.4	525.9	1313.5	2297.6	3423.8
Debt service (DS)							
Domestic	3.2	9.5	9.4	29.4	77.2	206.4	254.3
Foreign	3.0	7.2	8.6	31.2	102.6	257.4	284.3
Total	5.2	16.7	18.0	60.6	179.8	463.8	538.6
GNP	348.9	731.3	1016.0	2049.8	3363.9	6363.2	7324.0
Exports (XGS) c/	119.7	200.1	357.2	593.1	877.6	1400.4	1664.9
Debt ratios							
D/XGS	56.9	52.8	38.2	40.9	97.9	162.9	205.6
DS/XGS	1.7	3.6	2.4	5.3	11.7	18.4	17.1
D/GNP	19.5	14.5	13.4	12.4	25.5	35.8	46.7

Sources: Republic of Kenya, Development Plan 1989-1993, p. 15, and Central Bureau of Statistics, Economic Survey 1989, pp. 21, 22, 70 and 72.

a/ Calendar year totals, derived by averaging two financial years. Exports exclude factor incomes.

b/ The Kenya pound (K£) is equal to 20 Kenya shillings (KSh). The Kenya pound has been tied since October 1975 to Special Drawing Rights (SDRs), rather than to the US dollar. The U. N. exchange rate as of 14 December 1989 stood at KSh 21.5 (K£ 1.075) to the dollar.
Although the exchange rate is pegged, it is subject to frequent adjustments. Two adjustments amounting to over 20 per cent were made in 1981, and other significant adjustments made in December 1982, when there was a 12 per cent devaluation against the SDR. After December 1982, a "crawling peg" system was adopted, with the exchange rate tied to a basket of Kenya's main trading currencies.

c/ Exports of goods and services.

1.1.4 External debt and the balance of payments

The burden on the Kenyan economy caused by its debt service charges has grown enormously in the 1980s. Government statistics presented in Table 1.1.5 show that while the ratio of external debt to GNP increased 2.4 times, the ratio of debt service to exports increased 10.1 times. The Government thus considers that reducing the level of debt servicing is of critical importance.

In addition to the external public debt there is also a significant external private debt, the servicing of which probably represented about an additional 5 per cent of export earnings in 1987 (mission estimate).

Like many other developing countries, Kenya needs to import most capital goods, certain intermediate goods and many raw materials, especially oil. But exports have not grown enough to finance these imports. While in the period 1965-1969 exports financed 73 per cent of imports this ratio had dropped to 57 per cent in the 1980-1984 period.[1/]

Although the data in Table 1.1.6 are not directly comparable, they suggest that there has been a significant contraction in exports in the 1980s as well as for imports, although the latter to a lesser extent.

The budget deficit as well as the stagnant growth in exports explain the growing foreign debt. Its repayment will further aggravate Kenya's economic difficulties.

1.2 Recent policy changes and their impact

Radical changes in economic policies are rare in Kenya. Fundamental changes in economic policies are implemented over several years. Kenya is in the process of introducing such fundamental changes in the economy. The process was inititiated many years ago. Since the beginning of the 1980s there has been a growing concern over the negative effects of import substitution policies and of the stifling influence of the state in the economy. Among these negative effects can be mentioned:

- the slowing down of overall growth
- the sluggish performance of exports
- the rapidly growing foreign public debt and service payments strangling needed imports and hence threatening future growth
- the persistent budget deficit and the squeezing of the private sector of needed capital

The Government has received support from the World Bank since the early 1980s to support structural changes with a view to facilitate more efficient use of resources in both the public and private sectors.

Sessional Paper No. 1 of 1986 established the basis for a reorientation of policies towards a more market oriented economy. The Development Plan 1989-1993 states: "First, the Plan pioneers the incorporation of the structural adjustment process."[2] The Plan outlines the following objectives:

1/ Republic of Kenya, Sessional Paper No. 1 of 1986 on Economic Management for Renewed Growth, Nairobi, Kenya, 1986, p. 21.

2/ Republic of Kenya, Development Plan, 1989-1993, Nairobi, 1989, p. 33.

Table 1.1.6: Summary balance of payments
(US$ million)

	1980	1981	1982	1983	1984	1985	1986	1987	1988
CURRENT ACCOUNT									
Trade									
Exports(fob)	1261	1081	936	937	1034	943	1170	909	790
Imports(fob)	2378	1834	1468	1198	1348	1273	1457	1623	1399
Net trade	-1117	-753	-532	-271	-314	-330	-287	-714	-609
Exports as per cent of imports	53.0	58.9	63.8	77.4	76.7	74.1	80.3	56.0	56.5
Services									
Receipts	823	718	708	608	635	652	736	831	673
Payments	740	741	601	554	618	611	701	828	685
Net services	83	-23	107	54	17	41	35	3	-12
Transfers									
Receipts	167	248	164	215	214	220	242	257	300
Payments	19	32	31	35	37	29	35	43	31
Net transfers	148	216	133	180	177	191	207	214	269
Current account balance	-886	-560	-292	-37	-120	-98	-45	-497	-352
CAPITAL ACCOUNT									
Private long-term	149	3	11	-5	9	5	29	12	-15
Government long-term	395	258	66	101	138	-25	5	197	224
Government corporations	4	51	7	23	-15	-31	69	75	34
Short-term	134	17	29	-14	41	46	32	109	42
Capital account net	682	329	113	105	173	-5	135	393	285
Errors and omissions	10	31	-19	20	-10	-12	-1	11	8
OVERALL BALANCE	-194	-200	-198	88	43	-115	89	-93	-59
MONETARY MOVEMENTS									
Changes in reserves	47	120	-30	-200	-60	50	14	198	-46
Transactions with IMF	148	71	198	116	-2	56	-106	-109	96
Changes in other liabilities	0	8	30	-2	17	9	2	3	10
Total, monetary movements	195	199	198	-86	-45	115	-90	92	60

Sources: World Bank, Kenya: Recent Economic Developments and Selected Policy Issues, 26 September 1988, p. 82; and Central Bureau of Statistics, Economic Survey 1989.

- A growth rate target of 5.4 per cent
- An orientation of industry towards the export market
- An enhancement of the investment climate for both local and foreign entrepreneurs

The budget speeches presented each year by the Finance Minister further elaborate on the reorientation of policies.

A series of measures have been taken to implement Government policies during the last few years:

- The tax system has been streamlined, including a reduction in corporate taxes from 45 to 40 per cent. As of 1990 a value added tax (VAT) was introduced which replaced the previous sales tax. A VAT is more conducive to an efficient use of resources.

- The import licensing system has been modified and the number of goods which can be imported more or less automatically has been increased. There will be further liberalizations of imports in the future.

- The Government is streamlining and simplifying the tariff system. Protection of domestic industry will depend less on import licensing and more on the tariff system.

One area of conflict among policy makers, has been the role of parastatals and the private sector. A review of policy statements and documents reveal that there has been a gradual shift towards government divestiture and privatization of parastatals. While Sessional Paper No. 1 of 1986 reiterates the continuity of past policies and one element of which has been "... concentration of Government on the provision of economic infrastructure and social services ..."[1/], the Development Plan elaborates further on this issue. According to the Plan, in the past the policy " ... emphasized the Government's role and involvement in commercial activities even where the private sector would be more efficient and failed to effectively grapple with the unemployment problem".[2/] In the last budget speech (1989-1990) by the Finance Minister and Vice-President of Kenya, there was an explicit reference to government divestiture and privatization of parastatals.

Some senior government officials also expressed their opinion to the UNIDO mission that unprofitable parastatals should be closed down and that the Government would consider privatizing them.

A series of actions have been taken to improve the investment climate. The procedures for investment approvals have been simplified by the establishment of the "one-stop office" in the Investment Promotion Centre to simplify procedures for foreign investors to establish themselves in Kenya. The restrictions on foreign companies to borrow in the domestic capital market have been somewhat relaxed.

The Government is studying the roles of Development Finance Institutions (DFIs) and the results of the studies should pave the way for decisions on the restructuring of these institutions. The scope of price controls has been reduced and further liberalizations are expected in the future.

1/ Sessional Paper No. 1 of 1986, p. 3.

2/ Ibid. p. 33.

The successive liberalization of markets could well result in growing income- and wealth-inequalities to such an extent that the present strategy may become non-viable. The objective of the Government of Kenya (GOK) to channel resources to the informal sectors, for economic growth and employment creation, may be difficult to attain without concerted efforts by the Government.

In summary, the enabling environment for industrial rehabilitation has improved significantly in the last few years. Further improvements in the environment can be expected within the next few years. In the past there has been a reduction in foreign private investment in Kenya. Whether these policy changes will be enough to attract a significant inflow of foreign private capital remains an open question. Still, the need to strengthen the role of Kenyan investors and entrepreneurs will remain for many years to come.

1.3 The international and regional contexts

1.3.1 Development assistance

Accelerated economic growth in Kenya will necessitate an increasing flow of capital to the country. In the past, externally funded development assistance has grown slowly (1981-1986) as can be seen from Table 1.3 below. These flows have been of approximately the same magnitude as GOK's development budgets.

Table 1.3: Externally funded development assistance a/
(US$ million)

	1981	1982	1983	1984	1985	1986	1987
United States	78.0	54.0	78.0	43.0	76.0	31.0	44.0
United Kingdom	71.9	56.2	46.0	47.2	40.5	46.3	43.2
F.R. of Germany	42.3	31.3	44.2	39.0	36.4	46.2	57.2
Japan	27.1	21.3	54.8	32.2	33.4	54.9	69.6
Other bilateral	161.0	192.8	137.3	161.4	186.4	238.5	257.6
Total bilateral	380.3	355.6	360.3	342.2	372.7	416.9	471.6
IDA	14.8	83.6	19.8	35.6	34.9	30.0	72.1
European Community	46.0	28.7	16.6	16.6	15.8	11.2	29.3
World Food Progr.	3.9	5.9	2.2	14.9	15.1	3.7	1.6
UNDP	8.1	8.4	5.9	5.2	5.6	6.3	5.9
Other multilateral	12.5	20.6	15.2	7.8	18.2	19.2	18.4
Total multilateral	85.3	147.2	59.7	88.1	89.6	70.4	127.3
Total ODA a/	465.5	502.7	420.3	430.3	462.4	487.3	598.9
Bilateral as per cent of total assistance	81.7	70.7	85.8	79.5	80.6	85.6	78.7

Source: OECD Development Assistance Committe, Geographical Distribution of Financial Flows to Developing Countries, Paris, 1989, pp. 166-167.

Note: a/ Gross official development assistance (ODA).

In 1987, there was a significant increase in assistance to Kenya. This may well be a reflection of a growing confidence in Kenya's restructuring programme and in the new liberalization policies.

Bilateral aid accounts for the largest share, about 80 per cent, while multilateral aid for only some 20 per cent. During the same period the USA, UK, Germany and Japan were the main co-operation partners.

Kenya's serious balance of payments situation has led to a series of foreign exchange crises. The country has resorted to IMF stand-by arrangements on seven occasions since 1978, to the World Bank for two structural adjustment loans, and to the high-interest Euro-dollar market for loans of several hundred million dollars. The most recent IMF package (February 1988) features a stand-by agreement worth US$ 85 million and a credit of US$ 90 million under its low-interest structural adjustment facility.

1.3.2 Regional economic co-operation

The breaking up of the East African Community in 1977, caused strains in the Kenyan economy, because Kenyan manufacturing had invested with a view to exporting to the Community.

Since then, Kenya has been an active promotor of the Preferential Trade Area Treaty (PTA). The PTA became operational in 1983 and has 16 members.[1] The treaty is to encourage trade by reducing, and eventually eliminating, tariff and nontariff barriers on selected commodities. These are included in a Common List.

Since most members suffer from shortages of foreign exchange, a Clearing House was established to permit the use of national currencies. The balance due for members is paid in convertible currencies.

However, the share of intra-PTA trade in total PTA trade was only 8 per cent in 1980 and fell to 6.2 in 1987. Still, the share of intra-PTA trade going through the Clearing House has increased from 9 per cent in 1987 to 73 per cent during the first 10 months in 1989. Almost 60 per cent of the trade was settled in local currencies. Hence, member states saved needed foreign exchange.

Important discussions are underway to make PTA more effective. Proposals include the making of PTA members' currencies convertible, and to create a monetary union as first step towards creating a common market. The need for intensified regional co-operation is considered a priority area of action by the Kenyan Government.

1/ The PTA members are: Burundi, Comoros, Djibouti, Ethiopia, Kenya, Lesotho, Malawi, Mauritius, Mozambique, Rwanda, Somalia, Swaziland, Uganda, Zambia and Zimbabwe.

CHAPTER 2

THE ENVIRONMENT FOR REHABILITATION RESOURCES, POLICIES AND INSTITUTIONS

2.1 The natural resource base and its renewal as they relate to the current diagnostic survey

The following discussion is focused on conditions that have a direct influence on the industries examined in this survey - namely, the ceramics industry and the textiles and vegetable processing industries.

Kenya has a total land area of 571,416 km^2, a comparatively long coast and a number of lakes covering a total area of some 10,700 km^2.

Kenya is also endowed with a range of natural resources, particularly rich farm land, favourable climatic conditions in large areas, and natural forests which unfortunately are facing serious problems as a result of excessive cutting and encroachment by agriculture. Industrial forest plantations cover 165,000 hectares producing raw material mainly for sawmills and the pulp and paper industry.

The country's mineral resources are limited to non-metallic minerals including felspar, kaolin, wollastonite, flourspar, gypsum and vermiculite, all of which are essential for manufacture of crockery, tiles and sanitary ware. Mining of these minerals was very erratic and with substantial variations in quantity during the period 1977-1986. Detailed knowledge of locations and extent of deposits appear to be limited.

Kenya has rivers and geo-thermal energy sources which are used for generating electrical power. In 1987, these energy sources had a combined capacity of about 400 megawatts. Further development of these resources is continuing.

Out of its total agricultural land of 52.05 million hectares, about 0.8 million hectares are classified as high potential farm land and 3.1 million hectares as medium potential land. The mission did not have access to detailed land-use plans but concludes that the availability of land per se is not a restricting factor for increased production of cotton and/or vegetables.

Cotton is the major raw material in the textile industry and is, according to available figures[1/] currently grown on about 140,000 hectares. Thus cotton is grown on only 7 per cent of the total area of 1.8 million hectares which are classified as suitable for cotton production in 18 districts of Kenya.

During the late 1970s there was a substantial increase in overall cotton output leading to a record output of 62,179 bales, or 11,500 tonnes in 1979. Due to various reasons, there has been a constant decline in the output of cotton during the 1980s and by 1987-1988, total cotton lint production in Kenya was only 36,632 bales or about 5,700 tonnes.[2/]

1/ Ministry of Agriculture, Kenya Agriculture Research Institute, World Bank/CAMP Assisted Research Project, report of October 1988.

2/ Statistics obtained from the Cotton Lint and Seed Marketing Board.

Major constraints for increased cotton production include severe delays of payment to the producers, sometimes more than one year. As a result, many farmers have abandoned cotton production and turned to other competing cash crops such as sugar cane and horticultural crops. A new legislation, the Cotton Act, 1988, which introduces a modified marketing system for cotton seed is intended to improve the situation and increase farmers interest in growing cotton. However, the average yield of cotton lint is low in Kenya, about 100 kg/hectare.

But results from various trials in different parts of the country show that the yield per hectare can be increased to between 450 kg and 900 kg of lint per hectare if improved varieties and production technology are adopted. Considering the price of cotton, which also reflects the world market situation, it is doubtful whether cotton production can in fact gain any greater popularity if the crop yields and hence the income per hectare are not improved.

Increased cotton production in Kenya is dependent largely on the resources to improve the varieties of cotton, develop better production techniques, and substantially improve the extension services to the farmers.

In addition to deterioration of the crop yields the turn-out from the ginneries have degraded with an impact also on the quality of the lint. This, in association with sometimes inadequate storage facilities at the farm and co-operative society level, results in cotton lint of low quality which the cotton mills have no alternative but to accept.

Although the potential for increased cotton production in Kenya appears to be quite considerable there is a long way to go to satisfy the demands of the ginning materiai cotton industry for cotton fibre.

Vegetables are grown on about 70,000 hectares with a concentration in the Central and Rift Provinces. Table 2.1.1 shows the hectarage of vegetables grown in all provinces.

Table 2.1.1: Area used for vegetables, 1988

Province	Hectares
Rift	11,932
Central	32,597
Western	7,348
Nyanza	6,299
Eastern	8,055
North Eastern	127
Coast	2,914
Total	69,272

Source: Horticultural Crops Development Authority

Tomatoes and onions are grown in every province and, as with most of other types of vegetables are more or less concentrated to areas where they grow best. For instance, carrots are mostly grown in the Central Province, beans are grown in the Central Province but also in the Western and Rift Valley Provinces, and different types of Asian vegetables in the Eastern Province.

Table 2.1.2: Production of vegetables 1963-1988, selected crops

Crop	Hectare Year 1963	Hectare Year 1988	1,000 tonnes Year 1963	1,000 tonnes Year 1988	Tonnes/Hectare Year 1963	Tonnes/Hectare Year 1988
Cabbage	945	33,200	4.77	591.6	5.1	17.0
Carrot	600	3,040	1.85	27.4	3.2	9.0
Cauliflower	102 a/	490	1.04 a/	9.8	10.2 a/	20.1
Chili	3,069	2,300	2.80	7.1	0.9	3.1
French bean	354	6,530	0.39	16.3	1.1	2.5
Garlic	131 b/	150	0.20 b/	0.9	1.5 b/	5.9
Kale	566	18,550	0.79	157.7	1.4	8.5
Onion	330	7,300	1.53	80.3	4.6	11.0
Sweet pepper	60	780	0.23	6.3	3.9	8.1
Tomato	531	15,500	4.79	314.0	8.9	20.1

Source: Annual reports for 1963 and 1988, Ministry of Agriculture.
a/ 1970 figure
b/ 1976 figure

Table 2.1.2 shows that vegetable production has developed significantly since independence. The creation of the Horticultural Crops Development Authority in the 1960s has contributed to this development through the launching of several projects important to the vegetable industry.

The future availability of raw material for the textiles and vegetable processing industries is largely dependent on agricultural policies and the prices paid to producers.

Efficiency and an adequate technological structure of Kenyan manufacturing industry is essential, and a prerequisite for industry to be able to offer attractive prices for raw materials. If farmers are paid sufficiently attractive prices for high quality raw material, the future raw material base is not expected to be a constraint for further expansion of either the textiles or the vegetable processing industry.

In the 1960s and 1970s there was an "Export Marketing Development Project" assisted by FAO/ITC. A "Horticultural Nursery Project" and a "Horticultural Extension and Training Project" took off in the 1970s followed by a scheme for establishing "Horticultural Production Centres" in the 1980s. This project is designed to organize farmers and train them in growing horticultural crops, advance credits, supervise the production and market the products on behalf of the farmers and pay them after the recovery of advanced credits.

Although the project still continues, only a few centres have been fully developed due to lack of finance. The developed centres have reportedly been very successful.

The mission concludes that policies and socio-economic conditions affecting the farmer's choice of crops is the dominating factor influencing the future availability of raw material for both the textiles and vegetable processing industries.

Very limited statistical information is available to show the amount of mineral resources locally available for processing, especially for ceramic manufacturing. The minerals of economic significance, not necessarily for ceramic manufacturing, include soda ash, flourspar and salt.[1/] Other minerals, such as diatomite, carbon dioxide, gypsum, kaolin and others used as industrial and construction materials are currently being exploited for domestic use. In general, as shown in Table 2.1.3, mineral production has risen in recent years.

Table 2.1.3: Quantity and value of mineral production, 1984-1988

Mineral	1984	1985	1986	1987	1988[a]
Quantity (tonnes):					
Mineral					
Soda ash	226,000	227,760	230,000	228,000	220,000
Flouspar	50,883	57,949	50,851	46,568	67,351
Salt	58,352	67,213	61,980	72,269	94,682
Limestone products [b/]	20,855	30,479	35,000	37,460	28,601 [d]
Other	35,818	37,202	39,276	37,705	38,459 [d]
Total	391,908	420,603	417,107	422,002	449,093
Value (KE'000):					
Soda ash [c]	11,836	13,180	16,514	17,442	17,477
Fluorspar [c]	2,951	3,761	3,129	2,802	3,399
Salt	2,744	2,662	2,763	2,317	3,043
Limestone poducts	662	1,126	1,150	1,173	924 [d]
Other	1,500	1,558	1,563	1,779	1,783 [d]
Total	19,693	22,287	25,219	25,513	26,626

Source: Central Bureau of Statistics, Economic Survey 1989, Nairobi, May 1989, p. 108.

Notes: a/ Provisional.
b/ Excluding limestone used as input into cement product.
c/ Export value only.
d/ Rough estimates only.

As Table 2.1.3 shows, except for flourspar, there is not much detailed information on the production of minerals used for ceramic manufacturing. Although some raw materials for ceramic manufacturing are available locally such as feldspar and wollastonite, the mission found that a significant amount of inputs were imported (for example, plaster-of-Paris and glaze inputs). However, in recent years, ceramic manufacturing firms have had to make use of substitutes for these imported inputs because of financial difficulties. For example, imported kaolin has been substituted with soapstone from Kiisi and imported clay balls with Ngumba clay. The substitution of imported raw materials has created problems with product quality, and necessitated the use of a mixture of local and imported materials to maintain reasonable quality standards.

The mission suggests that the exploration of minerals be continued to ensure that there is adequate raw materials for the mineral processing industries and to reduce the dependence of the industries on imported inputs.

1/ Republic of Kenya, Development Plan, 1989-1993, p. 173.

2.2 Transport, communications and energy

2.2.1 Transportation

Air transportation

Kenya has a very good international and domestic air transport infrastructure with a main international airport in Nairobi (Jomo Kenyatta) served by more than 25 scheduled international airlines. This makes Nairobi the major hub in the region and one of the most important air transport centres in Africa. Commercial traffic at Nairobi in 1987 amounted to 1.9 million passengers and 49,700 tonnes of freight. Domestic flights from Nairobi are all centred on Wilson airport.

A medium-sized airport is located at Mombasa, which also handles some international flights. The airport handled 520,000 passengers in 1987 and 10,500 tonnes of freight. In addition the country is serviced by more than 150 airstrips located throughout the country.

Sea transportation

Mombasa is the principal seaport of Kenya and is one of the most modern in Africa. It serves all of Kenya and also provides vital sea transport services for Uganda, Tanzania, eastern Zaire, Sudan, Rwanda and Burundi. The port is dredged to a depth of 11 metres and has 16 deepwater berths, 2 bulk oil jetties, 2 bulk dry wharves, 1 cased oil jetty, 2 lighterage quays and an explosives handling jetty. The port is equipped with 17, 40-tonne gantry cranes and 53 portable cranes capable of handling 20 tonne loads. In addition the port has cold storage facilities and warehousing. Its container facility is the largest and most well equipped in the region. Container shipments have been further facilitated by the installation of a new inland depot near Nairobi, thereby allowing easy movement of containers to and from Mombasa by rail.

Road transportation

Kenya has an extensive road network connecting most parts of the country and linking up with the road networks of neighbouring countries. The national road network comprised of 54,200 km in 1986, of which 6,700 km was paved. Of all roads, approximately 12 per cent are classified as international and trunk roads, 14 per cent as primary roads and 67 per cent as minor roads. The secondary and minor roads are generally passable all year, except in abnormally heavy rains. Rates for road transport are negotiable and vary from one transporter to another. The cost of a 12 tonne lorry from Nairobi to Mombasa would be KSh 3,000-5,000.

Rail transportation

Kenya is served by a single-track railway system connecting Mombasa, Nairobi and Kampala in Uganda. There are branches to Kisumu, Nanyuki and Tanzania. The system operated by Kenya Railways carried 3 million tonnes of freight and 3.8 million passengers in 1987. Approximate freight costs from Mombasa to Nairobi are KSh 190/tonne, Mombasa to Nakuru KSh 240/tonne and Mombasa to Kisumu KSh 300/tonne.

2.2.2 Communications

Post and telecommunication services are provided by Kenya Posts and Telecommunications Corporation (KPTC). The services are operated efficiently and communication with the major cities of the world are excellent. KPTC recently installed an international subscriber dialling system, allowing direct dialling worldwide.

Overseas calls to Europe and the United States cost approximately KSh 58/minute and to the Far East KSh 78/minute. Local calls cost KSh 1.15/unit and the telephone rental costs KSh 840 per line per year. A communication tax of 15 per cent is also charged. In 1987 there were a total of 145,000 telephone exchange connections in the country.

International telex services are available and telex rental services are provided by major hotels. There are approximately 2,400 telex subscribers in Kenya. Costs range from KSh 30 per minute to the U.K. to KSh 43 per minute to the USA plus a 15 per cent tax. Other services such as telegraph and facsimile service are also available from the KPTC.

2.2.3 Energy

Electrical energy

Expansion of electrical capacity has kept pace with growth in demand. In 1987 the hydroelectric capacity in the country was 353.5 megawatts; thermal (oil-fired) capacity of 176.2 megawatts and geothermal capacity of 45 megawatts, a total of 574.7 megawatts. Further development in hydro and geothermal power continues. Most electricity is supplied by Kenya Power and Lighting Company Ltd. (KPLC) and its associated companies, the Kenya Power Company and Athi River Development Authority.

Kenya Power and Lighting monthly charges[1/] are:

- For users of less than 7,000 units (KWH), the fixed charge is KSh 30 and additional unit charges are KSh 0.37 for the first 50 units; KSh 0.87 for the next 50 units; KSh 1.07 for the next 50 units and KSh 1.33 per unit up to 7,000.

- For users of between 7,000 and 100,000 units (at 240 volts single phase or at 415 volts three phase) the fixed charge is KSh 120, the unit charge is KSh 0.97 and a KVA demand charge is KSh 50 per KVA of demand per month.

- For users of more than 100,000 units the charges are the same as for the previous group except that the unit charge is KSh 0.51.

1/ Investment Promotion Centre, Investor's Guide to Kenya, May 1989.

Industrial Fuel

Supplies of industrial diesel fuel, liquified petroleum gas (LPG) and kerosene are all available from the refinery in Mombasa. However, the refinery is old and breakdowns are quite frequent with the result that supplies of oil are sometimes in short supply. Supplies of LPG from the refinery are not sufficient for the domestic demand, so that industries relying on this fuel for their operations suffer disruptions to their production.

Current prices of fuels are approximately:

Industrial diesel: KSh 3,250/tonne[1/]
Kerosene: KSh 5,210/tonne (KSh 4,273/1,000 litres wholesale[2/])
LPG: KSh 8,341.5/tonne (KSh 4,817/1,000 litres[3/])

2.3 Management training and human resource development

2.3.1 Management training

At present, Kenya has a large number of institutions which cater for managerial training needs at all levels. In the capital itself there are no less than 45 institutions listed with the Kenya Trainers Association.

The most important organizations for this purpose are, apart from the universities, the Kenya Institute of Management (KIM), the Kenya Association of Manufacturers (KAM), the Kenya Institute of Administration (KIA), the Federation of Kenya Employers (FKE), and the Government Training Institute (GTI). All these training facilities are organized under one umbrella organization called the Kenya Trainers Association.

Big companies usually have their own training programme for management training. Training is also offered by major suppliers of equipment such as International Business Machines (IBM) for computer systems or suppliers of services like Price Waterhouse and others.

KIM is the biggest of these training institutes. It is a private organization started in 1954 by a number of private companies to improve the standard of managers in the country's business enterprises. Special emphasis is put on training people at middle manager levels, a category of managers which needs urgent improvement in Kenya.

Courses are held for all levels of managers and supervisors in a company. A new point of departure is training for entrepreneurs for the small-scale business sector; this training is intended to give assistance to people who have started a small business or who are about to start up a business. KIM can also provide financing for training as well as loans for starting up a small business. KIM has a particularly interesting training programme for small business. The programme is called PROT which stands for Problem Oriented Training. This facility can be used for small companies that have wound up in trouble. This is a sort of advisory service. KIM has access to approximately 2,000 managers within different fields and specialities who can act as teachers and advisers.

1/ Investment Promotion Centre, Investors Guide to Kenya, May 1989.
2/ Caltex 12 January 1990.
3/ Ceramic Industries (E.A) Limited, 12 January 1990.

The management training usually consists of evening courses where three levels of examinations can be obtained. This particular section of the institute is intended to be the core of a future business school.

KIM is also collaborating with foreign training organizations such as GOPA-Consultants in the Federal Republic of Germany. GOPA-Consultants has one representative, Dr. Ralph Engelmann, working on a full time basis with the small business training programme at KIM. From the UK, Kim has obtained an aid package intended for training purposes.

Training in the use of computers within the various sections of a business such as Management Information Systems, will soon be available in the institute when the necessary computer systems have been acquired.

The training offered at the institute is mainly for KIM's own members while for instance, public or governmental companies have their own training facilities for their managerial staff (see below).

Kenya Association of Manufacturers collaborates with the Kenya National Chamber of Commerce for training that is mainly geared towards problems concerning export, shipping, customs tariffs and so on. That training is mainly intended for members of KAM and the Kenya National Chamber of Commerce.

Kenya Institute of Administration is giving courses mainly to senior government officers and employees of parastatal companies. The Government Training Institute in Mombasa is providing the same type of training as KIA but for lower level managers. Both of these organizations are co-ordinated under the Directorate of the Personnel Management Department of the Office of the President.

The Federation of Kenya Employees is an organization offering management training in collaboration with ILO, from which they obtain funds.

All mentioned training organizations co-operate when necessary and when their training programmes complement each other.

The training offered by the various institutions mentioned above appears, in the mission's opinion, to be of a high standard and performed by professional staff. However, there are certain deficiencies with regard to training in Management Information System. This is now given highest priority within KIM and computers and associated software are being purchased.

2.3.2 Human resource development 1/

Kenya's formal industrial training system has steadily developed since its inception in the early 1970s. The Industrial Training Act was enacted by the Kenyan government in 1970 "to make provisions for the regulation of the training of persons engaged in industries". The Act was to establish training schemes under the Directorate of Industrial Training (DIT) which was established in 1971. In the same year the National Industrial Training Council (NITC) was created under the Act and an Industrial Training Levy was established.

DIT and NITC are the two basic establishments under the Industrial Training Act. NITC is the body which implements policy and makes final decisions and approvals. It has authority to approve new Training Schemes and Levy Orders. DIT is responsible for: 1) the provision of training programmes and facilities for industry in both the private and public sectors, 2) the administration of the Levy Fund, and 3) the Curriculum Development, National Co-ordination and Technical Support System.

The objective of government training policy is to improve the quantity as well as the quality of industrial training, and also to ensure that firms share training costs equally and to promote training in the private sector. There are two main bodies within the training system responsible for implementing government policy towards industrial training: the NITC and the Industrial Training Levy Fund.

NITC, which is a legislative body, has divided the country's training needs into 11 industrial sectors,2/ and with an Industrial Training Committee (ITC) for each sector. Each ITC has a technical sub-committee which is supposed to identify the training needs of industry. In addition, another ITC is established specially to develop management training. Each of these three bodies in the hierarchy has tripartite representation from DIT, Trade Unions and Federation of Kenya Employers.

1/ This section draws heavily on information provided in Irmgard Nubler, "The Formal Industrial Training System and Policy in Kenya", Working paper No. 444, Institute for Development Studies, University of Nairobi, September 1986.

2/ Eleven industrial sectors identified by the Industrial Training Act are as follows: Motor Engineering, Transport and Allied Industrial; Banks and other Financial Institutions; Textile and other Allied Industries; Saw Milling, Timber, Furniture and Allied Industries; Food Processing and Allied Industries; Printing, Publishing, Paper Manufacturing and Allied Industries; Engineering and Allied Industries; Chemical Manufacturing, General Processing and Allied Industries; Commercial, Distributive and Allied Trades and Industies; Plantation, Agriculture and Allied Industries, Building, Construction, Civil Engineering and Allied Industries.

An important instrument of the government's training policy is the Training Levy Fund. This Fund was set up for each of the 11 industrial sectors and ITCs. Each firm registered in the Fund is obliged to pay a levy according to a formula specific to the industry of which it is a part. Reimbursement for some of the training costs is given for approved in-plant and in-centre training programmes. The Industrial Training Levy covers systematic and formal training within the modern formal sector. The levy system intends to promote the training in firms and to give firms more responsibility for the development of skilled manpower. Therefore, all trainees in the approved training programmes have to be sponsored by employers.

In 1979 with the assistance of UNDP/ILO, the Kenya Integrated Training System (KITS) was developed. KITS embraces all industrial training, the principal components of which are:

- the Indentured learner system (operatives)
- the Craft Apprentice system (skilled workers)
- the Technician Apprentice system (technicians and supervisor)
- the system of National Trade Tests
- institutional training (national training centres, technical schools, Polytechnics, Kenya Textile Training Institute (KTTI))
- KITS training materials
- other learning materials

An important recent study has examined the quantity and quality of training by the number of companies and of trainees in seven selected industrial sectors.1/ Of 2,889 companies registered at DIT in the seven sectors, a mere 474 companies have been involved in formal industrial training in the period of 1979-1985. This implies that the training levy fund is not giving most of the companies an incentive to train their employees. Many companies consider the levy simply as a tax. Small-scale companies which sent their employees for training were disturbed by the delay of refund due to the shortage of funds. As many large-scale firms have their own training system, they do not have to use the government facilities.

In the period of 1979-1985, the number of trainees in the seven sectors was 12,158, out of which only 3,432 (28 per cent) received technical training at the craft and technician levels, the original target group for the training system. During the period 1983-1985, most of the training given was for management training. Since management costs are very high, companies took advantage of the levy fund.

The distribution of the levy fund also has a problem in that only a handful of large-scale companies have received significant refunds, while small-scale companies with less than 50 employees received, an average, only 5.4 per cent of the refund.

In sum, the nature and scope of industrial training in Kenya needs to be examined to streamline operations, speed-up reimbursement of training costs, and to give additional incentives for firms to offer appropriate industrial training.

1/ Irmgard Nuber, op. cit. 1986.

2.4 Industrial policy

The sluggish rate of growth in the exports of manufactured products has been of major concern to the Government. In recent years investments in the industrial sector appear to have been negative. Kenya's industrial policy seeks to increase foreign and domestic investments in industry. During the last decade, there has been a successive shift in emphasis towards relying more on private as opposed to public investments in industrial development. The strengthened role of the private sector in Kenyan development is further discussed in section 2.5.

Policy changes have been introduced to provide incentives to increase exports of manufactured products. In this regard, a package of policy measures have been implemented and new measures will be introduced within the next few years (see section 2.7). A review of some of the major policy changes would suggest that a significant improvement in the enabling environment is taking place.

A cumbersome import licensing system is still in effect in Kenya. Depending on the availability of foreign exchange, import licenses have been granted according to a pre-determined list of priorities. The declared policy is to rely less on quantitative restrictions and more on the exchange rate and tariffs. As a first step, the list of goods which can be imported with few restrictions has been increased (from 803 to 1,121 items between 1984 and 1987).

Often, the Government has, however, relied on quantitative import restrictions when foreign exchange reserves have dwindled. Policy alternatives such as using the exchange rate, reducing domestic demand and absorbing liquidity in the economy have not yet been fully explored. One of the key tests for the credibility of the new policies will be the successful liberalization of imports.

There are uneven and high levels of protection. Inefficient producers are shielded from competition and efficient producers can charge undue high prices to consumers. Measures have been taken to rationalize tariffs so that similar goods bear similar tariffs. The number of tariffs has been reduced from 25 to 12. A further step will be to reduce the rate of protection. The latter policy change is subject to discussion among policy makers. Although the official policy is to reduce protection to foster competition, others claim that potentially efficient companies will be liquidated.

There has been little, if any growth, in exports in manufactured products. The high protection provided through the import licensing system, and through the tariff structure has made production for the domestic market more profitable than exporting. Moreover, high tariffs on imported inputs and an over-valued exchange rate made many Kenyan products uncompetitive in world markets. In 1974, the Government established the Export Compensation Scheme by which eligible exporters receive a compensation. In 1984, this compensation was raised from 10 to 20 per cent of the export value. At present, the Government of Kenya is introducing a system by which import duties will be reimbursed for exports. Plans are well advanced to establish Export Processing Zones (EPZ). A manufacture under bond scheme for the export market allows duty free imports as well as exemption from the sales tax.

Prices for a wide range of manufactured products are controlled by the Government. In 1987, the prices of 11 basic foods and beverages and of 40 manufactured goods were subject to price control. Since then, the range of price controls has been reduced and further liberalizations have been announced.

Taken together, these policy changes should greatly improve the enabling environment for future industrial growth. However, there is still a certain ambiguity in industrial development policy. Too often the implementation of policies bear little resemblance with stated intentions. This ambiguity has to be removed, since potential private investors carefully assess the investment climate. Liberalization of capital flows in the world market also has repercussions in Kenya. Today, international capital moves freely in the world market, and stated policy intentions must be substantiated. The development problems of Kenya have been eloquently stated in government plans and documents. The Government has recognized the need for a significant increase in the flow of capital to Kenya. Important steps have been taken towards implementing this objective and should pave the way for a continuation along this reorientation of development strategy.

2.5 Strengthening the role of the private sector

Since Independence, policy planners have sought to keep Kenya a mixed economy, wherein Government and the private sector play specific and complementary roles.[1/] Although the private sector has played an important role in the Kenyan economy, the government predominates, through direct participation, as well as indirectly, in productive enterprises and marketing channels.

Through the International and Commercial Development Corporation (ICDC), Development Finance Company of Kenya (DFCK), The Kenya National Chamber of Commerce and Industry (KNCC), Industrial Development Bank, Ltd. (IDB) and other Development Finance Institutions (DFIs), the Government holds controlling or dominant ownership shares in a large number of enterprises. The Government's portfolio includes more than a hundred industrial companies - 38 parastatals and minority holdings in 66 industrial enterprises. Most of the majority holdings are in textiles, sugar refineries, and cement production.[2/]

1/ Sessional Paper No. 10 of 1965 on African Socialism and Its Application to Planning in Kenya.

2/ UNIDO, Regional and Country Studies Branch, Kenya: Sustaining industrial growth through restructuring and integration, Industrial Development Review Series, Vienna: United Nations Industrial Development Organization, June 1988, pp. 22-23.

The Government exerts strong influences on many enterprises, especially food manufacturing and textile industries, directly through numerous marketing boards, which buy commodities from primary producers and distribute to manufacturers, and on terms of purchase and sale that are set by the boards. The many complaints by managers of enterprises about supplies and prices demonstrate that the terms are not efficiently determined. The marketing boards include: the Coffee Board, Tea Board, Sisal Board, Pyrethrum Board, National Cereals and Produce Board, National Irrigation Board, and the Cotton Board. Besides control from these marketing channels, the structure and performance of the manufacturing sector is shaped by the Government's administration of the Kenya Railways, Kenya Post and Telecommunications Corporation, and the Harbours Authority.

Although the financial rate of return of 7 surveyed parastatal enterprises was good (at 15 per cent) in a 1986 World Bank survey, private sector enterprises showed rates of return that were significantly better (at 20 per cent). It should be pointed out that the rate of return on parastatal enterprises is more easily attainable because they are operated behind a higher protective barrier - an effective rate of protection of 184 per cent versus 60 per cent for the private sector firms. Moreover, negative rates of return have been recorded for the parastatals, which dominate the sugar and textiles industries.1/

A number of firms in the public sector are in a poor financial state. They are operating at low levels, due to insufficient working capital, and they have contracted heavy debts, which are beyond their means to service out of operating profits. Some are allowed to default for long periods on their debts because closure of the firms would create difficult problems of unemployment. Several enterprises have been kept in operation under receivership for a long period in order to avoid the consequences of closure.

Because of poor performance of the parastatal investments in manufacturing, the portfolios of the DFIs are under review for evaluation of the strategic importance and classification of each parastatal. The enterprises are classified according to need for rehabilitation or restructuring, the need for diverstiture, as well as the need for retention. Clearly, though not yet explicitly, the decision-makers are moving toward a lower degree of government involvement in manufacturing primarily through privatization and through promotion of private sector investment by African-Kenyans and foreign investors.

The recommendations and assistance given by the World Bank in Kenya's structural adjustment programme support privatization of industry. In the same direction, the government will limit its initiatives to those activities that cannot be fulfilled by the private sector.

The direction of these changes to reduce the role of government and to leave more of the market economy to the private sector is not new. Past development plans, especially the fourth plan, emphasize the government's intention to strengthen the private sector. The steps taken to liberalize

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1/ Ibid.

imports by rationalizing custom duties and import classifications within three schedules are evidence of the Government's commitment to strengthen the private sector. For similar reasons the Government has introduced the Foreign Investment Protection Act, the Investment Promotion Centre, the Kenya External Trade Authority, and recently the Restrictive Trade Practices, Monopolies and Price Control Act.

These actions and policies are driven by the urgent need to reduce the increasing numbers of unemployed in the labour force and to reduce the deficit in the merchandise trade balance. These problems have been nurtured in the environment of parastatals and government controls. Employment and export earnings are not growing fast enough. Consequently, the Government is moving to improve the enabling environment for the private sector to grow, creating more jobs and exporting more.

The current development plan, for 1989-1993, departs from previous plans that have been oriented towards sectors and projects. This plan presents a strategy to return to a stable growth path along which real income per head increases, employment grows, production diversifies, and everyone participates in the development.

The first priority is to create productive employment for nearly two million new entrants to the labour force between now and the year 2000. This growth will be generated by agriculture and industry, including small-scale enterprises. The next priority is greater foreign exchange earnings, followed by increased expenditure from the private sector on basic needs services. In these efforts, the government will provide policy and operational support to the private sector, while looking after the natural environment. The private sector will be given a greater role in the economy, as well as being given access to the necessary technical and financial resources.

The major pattern of development objectives for the economy from the present to the end of the century, shows modest contraction of public sector participation in production and great expansion of the private sector, measured in terms of capital investment, employment, output, and exports.

For this pattern of objectives to be achieved, the government must not crowd out the private sector from access to financial resources for investment. Domestic financing of the government budget must be reduced. Private sector savings are about 20 per cent of GDP, while private sector investment is about 12 per cent of GDP. The private sector is contributing to financing public investment and part of government consumption. The government deficit, and possibly investment, must be reduced, releasing funds for investment by the private sector, in order for the private sector to fulfilled its new mandate to create jobs and exports.

2.5.1 Support to small- and medium-scale enterprises (SMEs)

The current Development Plan recognizes that small-scale enterprises and the very small economic activities (jua kali enterprises) have been insufficiently exploited in the past. The neglect is to be redressed so that they can make a crucial contribution to meeting the national targets for employment and income generation, as established in Sessional Paper No. 1 of 1986.

The Government intends to support smaller enterprises by establishing an appropriate enabling environment. The environment will be "firmly rooted in policy restructuring and liberalisation covering the pricing structure, trade regime liberalisation, foreign exchange management, wages and investment policies and financial restructuring."[1]

The Plan states that the Government intends to encourage the sector by amending rules and regulations in order to reduce constraints that are presently proportionally heavier on smaller firms. These constraints include administrative procedures for obtaining various business, trade, and import licences, and other constraining requirements, such as compliance to building codes.

The Government intends to support and promote the dissemination of information, upon which rational business decisions must be made. The Ministries of Foreign Affairs, Technology and Research, Labour, Manpower Planning and Development, and Information and Broadcasting will be channels for bringing new knowledge to this sector of entrepreneurs. The information will be related to markets for materials, products, and technology.

Besides review and amendments to rules and regulations, as already mentioned, the Government intends to set up Small-Scale and Jua Kali Business Allocation Boards at the level of districts for the allocation of land. Financing will be a focus in review of the network of NGOs that assist the jua kali or micro- enterprise sector. ICDC and Kenya Industrial Estates (KIE) will continue to support medium size businesses in their financial needs. The Co-operative Bank will be expected to take a greater interest and provide more help.

The Plan also calls for the Capital Markets Development Authority to formulate and implement means to assist the smaller enterprises to expand their capital bases. Complementary to this effort will be new initiatives by the government to bring together Kenyan and non-Kenyan entrepreneurs in partnerships. Efforts will be made to see that skills are transferred in such partnerships in the normal procedures of business. In-service training, workshops, and seminars will be be encouraged.

While most of the details for government support to the small- and medium-scale sector are yet to be devised, the current development plan shows the Government's concern for the sector and intentions for renewed efforts to support it. For the present, the various financial institutions, training institutes, and NGOs will be the dominant support.

1/ Republic of Kenya, Development Plan 1989-1993, Nairobi, p. 165.

2.6 Strengthening the role of the institutions involved in industrial development and regeneration

A great number of public institutions as well as private organizations are involved in the promotion and regeneration of industrial development in Kenya.

From the point of view of industrial development, government institutions involved in promoting industrial development suffer from a number of shortcomings.

There is insufficient co-ordination, and sometimes outright competition between Ministries and agencies that are partners in a project or in the execution of a policy.

Both foreign and private investors have complained about the time delays in obtaining necessary official approvals and also about the arbitrariness of decisions. The Government is conscious of these deficiencies and important steps have been taken to change this state of affairs. For example, the liberalization of imports is one such important step.

Besides establishing policies and regulating the industrial sector, the Government through its agencies is directly allocating investment funds and credits for the sector's development. A number of DFIs exist and the public sector has ownership in a large number of enterprises. These institutions affect Kenyan development in various ways. Scarce resources are channelled through them to promote development and it is in the country's interest that the companies are operated efficiently. The DFI's have been criticized for having low returns on their investments due to the poor portfolios. Because of lack of clear objectives, the roles of these institutions need to be better defined.

Parastatals have been criticized because of weak management. The ultimate responsibility falls on the Board of Directors which designates the managing director. A board of directors of a company should reflect the interests of the owners. In case of public enterprises, the owner is the State of Kenya and the Directors have to make sure that the companies are operated in a commercially efficient way. Moreover, at times, social, as different to commercial considerations have to be taken into account as well when making decisions. For example, in setting prices a state monopoly should not use its market position to reduce output to increase profits, or social reasons may be so compelling that a low rate of return can be accepted.

However, too often, company objectives are not clear, with the result that company management cannot define the business strategy of the company or even present yearly business plans. Appointments of Boards of Directors, and subsequently General Managers, have not always been guided by the principle of finding competent personnel to secure efficient and profitable production in the companies.

The role of the public sector in industrial development needs further clarification. As was mentioned in Chapter 1, the present trend is that the Government will let the private sector perform most productive functions. However, in the case of industrial development, the Government needs to provide needed infrastructure, such as telecommunications, supply of water and

electricity. Although there is ample evidence of poor performance of parastatals in both developing and industrialized countries, there are also examples of efficiently operated companies. To the extent that the Government of Kenya wishes to retain ownership in strategic enterprises, their economic performance must be strengthened.

A major part of the industrial sector is related to agro-industries. Such industries are strategic to Kenyan development. Such industries involve not only the Ministry of Industry, Finance, Development but also the Ministry of Agriculture. Adequate infrastructure facilities are essential for agricultural development. Increases in Kenyan exports will largely be in the form of processed agricultural goods. A comprehensive approach to agro-industrial development is needed and complementary public institutions to support this development are also required.

2.7 Improving the macro-economic environment

2.7.1 Control of public finances

Three major issues emerge concerning the control of public finances: the size of the budget deficit; the increase in government employment while non-wage recurrent expenditures decrease; and how and whether deficits crowd out private investment in Kenya.

The Government's fiscal status deteriorated between fiscal years 1984 to 1987 and thereafter improved slightly (see section 1.1.3). "The overall cash deficit (including grants) increased from 3.9 per cent of GDP in FY84 ..... to 5.4 per cent in FY86" and 4.6 per cent in FY89.[1] Total government expenditures as a per cent of GDP also rose from 34.5 per cent in 1984-85 to 39.4 in 1988-89.[2] Though difficult, the Government has tried to increase its revenue by improving tax collections and imposing some cost-sharing upon beneficiaries of public health and education services.

Expenditures, especially for labour costs, have been hard to restrain. The share of labour costs including transfers to the Teachers' Service Commission increased steadily from 60.5 per cent of recurrent expenditures in 1980-81 to 70.6 per cent in 1986-87 and then fell to 66.3 per cent in 1987-88.[3] As a result, real non-wage recurrent expenditures per civil servant declined by nearly one-third (32.5 percent). This trend has quite worried the Government:

1/ Republic of Kenya (1989) Economic Survey 1989, Nairobi: Government Printer; World Bank, Country Operations Division, Eastern Africa Department, Africa Region Kenya: Recent Economic Developments and Selected Policy Issues, Washington, D.C.: World Bank, 1988.

2/ Republic of Kenya, op. cit., 1989, p. 63.

3/ World Bank, op. cit., 1988, p. 47.

> Unless a better balance between personnel costs and complementary outlays is achieved, the productivity of many branches of government will fall below acceptable levels. Eventually, many services may cease to be offered at all, while officers continue to draw salaries.[1]

Each Ministry now has an employment ceiling to help restrain personnel expenditures. Employment in the central government declined 1.4 per cent in 1988, though overall public-sector employment, including teachers, has been increasing by 5.0 per cent per annum between 1986 and 1988.

The pressures to expand educational opportunities have been especially insistent. Introduction of the 8-4-4 educational system and several yearly double in-takes of students into an increased number of universities "caused the share of education in the recurrent budget to rise to 38 percent."[2]

The Government and the World Bank have both been concerned lest the large loans to Government crowd out private investment.

Although the proposition about crowding out is still being hotly debated, there is some rather mixed evidence to support this conclusion. For example, the change in credit extended to the government soared from KE 42.5 million in 1984 to KE 265.9 million in 1985 - the worst year - while the change in credit to the private sector rose from KE 123.5 million to KE 163.5 million. Two years later, when lending to the government decreased by KE 86.4 million, credit to the private sector soared, growing by KE 251.3 million in 1988 as against KE 150.2 million in 1987. Though lending to the private sector and to the government may be correlated, the relationship is not unequivocable. For example, the World Bank's recent report on the manufacturing sector in Kenya states that "In addition to forced bank lending to the Government through the liquid assets ratio, there is evidence of a very small government crowding out effect on the supply of credit to the private enterprise sector [emphasis added].[3] Moreover, though fixed investment shrank to its nadir in 1985 - 17.4 per cent of GDP - it climbed back to 22.8 per cent in 1988 while gross investment equalled 29.8 percent.[4] These are not bad levels, although investment is funded increasingly by foreign savings (13.7 per cent in 1983, 31.2 per cent in 1988). To know the urgency and appropriateness of governmental policy reforms, clearer evidence is required to verify and measure crowding out. This evidence is not yet available but may be forthcoming.

A far less debatable proposition is that the Government should use its resources more efficiently, strategically focused to boost productivity throughout the economy, for example, through expenditures for research and development, needed training, export-market research, and communication and transport networks.

1/ Republic of Kenya, Economic Management for Renewed Growth. Sessional Paper No. 1 of 1986. Nairobi: Government Printer, p. 32.

2/ Republic of Kenya, Development Plan 1989-1993, Nairobi: Government Printer, 1989, p. 61.

3/ See World Bank, op. cit., 1987, p. 143.

4/ World Bank, op. cit., 1987, p. 101.

2.7.2 The currency and foreign-exchange-rate regime

The Kenyan Central Bank authorities maintain a managed peg of the Kenya shilling to the currencies behind the IMF's Special Drawing Rights by using weights reflecting Kenya's pattern of trade with those countries. In addition to the exchange rate, the Government also imposes import licensing procedures to ration foreign exchange according to priorities embedded in three schedules, ranging from nearly automatic to severely restrained imports. Though overpricing of imported inputs and underpricing of exports is a major conduit for illegal transfers of funds abroad, the Government merely relies on General Superintendence Corporation and Veritas to check the value and newness of most imports, but not exports. The Government has not tried to train and institute local capacity to check even high-value, fairly homogeneous imports.[1/]

Kenya's terms-of-trade and foreign-exchange earnings fluctuate widely, mostly due to big variations in international prices for coffee and tea. Instead of using strongly counter-cyclical monetary and fiscal policies, the Government allows most of the changes in international incomes, minus distribution costs, to be passed on to the farmers. Consumption, investment, and imports surge and later drop. When export earnings fall, the authorities tighten non-tariff import controls and only marginally increase the exchange rate.

These big swings in trade policy make long-term investment planning difficult and risky and may discourage export diversification. Especially since the Central Bank's premiums for forward foreign-exchange contracts is prohibitively expensive (about 2 per cent per month), investors cannot rely on the availability and price of foreign exchange and imported inputs and, hence, the relative profitability of different economic sectors.[2/] Even the existence of the export-compensation scheme is not assured. For example, early in 1983, the Government suddenly suspended the scheme for three months. Many Kenyan exporters lost big sums on contracts concluded long before. Stung, many were very reticent to resume importing. Years passed before they tried again. Having learned from this experience, the Government resisted pressure from the World Bank to change radically the export compensation scheme to a three-tier system in 1989. But in other ways, the large expansions and contractions due to export booms still whipsaw the domestic economy.

Though the Foreign Investment Act guarantees foreign investors the right to repatriate all their profits, they have often encountered long delays. Previously, investors had to deposit their profits in low interest frozen accounts while awaiting foreign exchange, sometimes for years; now, they are permitted to invest in deposit accounts at market interest rates. The Government is now trying to speed up the allocation of foreign exchange for this purpose.

1/ Coughlin, P. and Ikiara, G.K., Industrialization in Kenya: In Search of a Strategy, Nairobi: Heinemann; London: 1988 pp. 133, 142, 244, 246, 274, 280, 300.

2/ World Bank, Industrial Development and Finance Division, Eastern and Southern Africa Region Kenya: Industrial Sector Policies for Investment and Export Growth. Report No. 6711-KE. Washington, D.C., World Bank 1987, p. 125.

Since 1982, the Government has gradually, but increasingly devalued the shilling's real exchange rate. Despite a reversal in 1984, the real exchange rate had devalued nearly 22 per cent by 1987.[1/] The Government seems committed to continue this trend, making Kenya more attractive to tourists and promoting import substitution and exports.

2.7.3 Pricing policy

Government policy affects prices in many ways through direct price controls, value-added taxes (formerly, sales taxes), tariffs, non-tariff barriers, export compensation, inflation, and direct and indirect controls on real wages.

Price Controls

The Government has steadily decreased the number of price-controlled items. Even meat is no longer price controlled. Due to political exigencies, the Government does regulate the prices of a few popular necessities, for example, rice, maize meal, sugar, sodas, galvanized steel roofing sheets, and beer (except in high-class bars, restaurants and clubs).

The new Monopolies and Price Commission within the Ministry of Finance oversees prices and, as mandated, should curtail business practices that restrain trade and competition. However, the Monopolies and Price Commission is experiencing opposition from business circles. This opposition may reduce its future effectiveness.

Sales Taxes

In the past, many firms, especially small ones, wholly or partly evaded paying the 17 per cent sales tax. This gave them a big competitive edge if the large firms in their industry could not so easily escape paying taxes. Though, starting February 1990, the sales tax will be changed into a 17 per cent value-added tax, the implicit subsidy for certain dishonest or small firms continues.

Tariffs and non-tariff barriers

For various Structural Adjustment Programmes, the Government has promised to switch non-tariff barriers into their tariff equivalents, lower the level of protection, and make tariffs more uniform. Though this has occurred for many products, overall the pattern is less clear. Between 1978 and 1984, the average nominal tariff rate increased from 29.5 per cent to 41.0 per cent.[2/] But a World Bank study during the third quarter of 1986 found that the average nominal rate of protection was 34 percent; and the effective rate of protection averaged 89 percent, though with wide variations between industries.[3/]

1/ World Bank, op. cit., 1988, (Table 3.7), p. 87.

2/ Sharpley, J. and Lewis, S.R. Jr., "Kenya's industrialization, 1964-84." Discussion Paper No. 242, (Table 9), IDS (Sussex), 1988.

3/ World Bank, op. cit., 1987, p. 52.

Although the rate of effective protection in Kenya's industrial sector is not excessive by the standards of many developing countries that have followed an import-substitution development strategy, it is nonetheless high and the most serious distortion in the economy's incentive structure.[1/]

The Government is presently implementing a manufacturing-under-bond (MUB) scheme for investors willing exclusively to export their output. Such firms will get imported inputs tax free; and the import licensing will be quick. Using clout derived from an inter-ministerial cabinet-level subcommittee formed specifically to overcome the obstacles to foreign investment, the newly single-stop Industrial Promotion Centre expedites approvals for foreign investments, now within a month. By late January, the Centre had received 50 projects; of those nine, including four manufacturing-under-bond, were operating. Thirteen MUB projects had been approved. Appointed in mid 1989, the Centre's Director - formerly the executive director of the Kenya Association of Manufacturers - moved with alacrity to employ dedicated personnel and set up a system to help investors. The Centre apparently has strong, serious support from very high within the Government. This bodes very well for Kenyan manufacturing.

The notorious, widespread smuggling of consumer goods may spur discrimination against local production if, as suspected, material inputs used to locally manufacture those goods cannot escape paying tariffs so easily. Since consumer goods - textiles, shoes, tiles, and so on - come in bulk, sent by multifarious traders, whereas manufacturers' material inputs often come in small lots from major overseas exporters, tax evasion may be easier for finished consumer goods. Thus the differential permeability of the import cordon can impede the second stage of import substitution. However, corruption by the custom's authorities can turn protection into an illusion, or worse, its opposite. The problems of corruption among the ports and customs authorities is an area that must be ugently addressed by the Government.

Export compensation

The Government pays compensation - 20 per cent of the f.o.b. value - to exporters of approved items with at least 30 per cent local content. Nevertheless, due to the high import content of most manufactured exports, the net extra incentive to export is little for many products after subtracting tariffs paid directly and indirectly on inputs used to make the exported item. Moreover, most payments go to just two large multinational companies exporting pineapples and cement. Red tape and delays of four to five months in receiving the payments have for long reduced the programme's effectiveness. The list of eligible items was slashed to about 700 items in 1988 to help government speed up the payments. Some manufacturers do report an improvement, but no systematic survey exists.

In early 1988, the World Bank tried to get the Government to switch to a multi-tiered export-compensation scheme with each tier set to offset approximately the value of the export's imbedded tariffs. Fearing the revised scheme would cause a bureaucratic nightmare - many appeals about detailed financial calculations - the Government and, eventually, the World Bank backed away from the proposal.

1/ World Bank, op. cit., 1988, p. 28.

Inflation and real wages

After historically high rates of inflation during the early 1980s, the Government held inflation to less than 12 per cent (Table 2.6). Real wages fell about 13 per cent between 1980 and 1988. This increased the competitiveness of Kenyan manufacturers in the world market and against imports.

Table 2.7: Changes in annual rates of inflation and changes and in real average earnings, 1980-1988
(percentages)

	1980	1981	1982	1983	1984	1985	1986	1987	1988
Change in consumer prices	11.3	24.8	18.3	10.1	11.0	11.5	5.8	10.0	10.7
Change in real average earnings	0.9	1.2	-12.5	-6.9	0.7	-1.5	3.0	0.1	1.9

Source: Republic of Kenya, Economic Survey (various years), Nairobi: Government Printer.

2.7.4 Credit and interest rate policies

For manufacturing, the important aspects of the credit system are: the tendency of Commercial Banks to extend mostly short- and medium-term finance; the lack of sectoral priorities by the development finance institutions (DFIs); the failure of DFIs to roll their loans over to fund new investments; the inability of many DFIs to offer funds free of significant foreign-exchange risks; the prohibitive expense of the Central Bank's futures contracts for foreign exchange; and the absence of long-term export credit financing.

Lending policies by financial institutions are very conservative and biased against all but the largest manufacturing enterprises.

> In general, Kenyan commercial banks will not extend term loans for more than three years. Moreover, such loans have to be backed by collateral whose marketable value exceeds the face value of a loan by a considerable margin (often 150 percent) ..... Banks have become increasingly reluctant to accept land deeds as collateral because of the long-time lags involved in actually gaining possession. Because of these strict collateral requirements small and medium sized firms [which] usually have little equity backing are rationed out of the loan market, with the vast majority of loans going to large prime domestic borrowers.[1/]

The non-bank financial institutions' demands for collateral are also stiff; and most of their loans are for only two or three years.[2/]

1/ World Bank, op. cit., 1987, p. 141.

2/ Ibid., p. 148.

The allocation of credit shows little evidence of being guided by a development strategy stressing the need to fill gaps in the nation's industrial structure. Aside from a weakly enforced, poorly defined Central Bank requirement that at least 17 per cent of each bank's loans must help agriculture, there has been no effort to steer investment into priority sectors. The DFIs passively wait for project proposals to be brought to them for evaluation and finance. In the years since independence, the DFIs have not gradually funneled more funds into industries producing intermediate inputs or capital goods.[1] The DFIs have a nearly frozen portfolio with a few very profitable firms subsidizing massive losses by others. The DFIs have failed to roll over their assets by starting a firm and then selling it after a few years in order to fund new projects. This has limited the DFIs' developmental impact.

The DFIs, especially the Industrial Development Bank, have too much foreign exchange to lend, but with no ability to cushion a borrower's foreign-exchange risk. Many borrowers have been hit very hard by the recurrent devaluations of the shilling and have become very reticent to borrow foreign currencies. Presently there is no reasonable solution for manufacturers since the Central Bank's forward contracts for foreign exchange sell at a prohibitively expensive premium. The government is now discussing ways it can partly absorb this risk. The absence of long-term export-credit financing is a related problem that stymies exports, especially since foreign suppliers often get a competitive advantage by being able to offer long-term financing to prospective importers.

2.8 Potential for economic co-operation and development

Kenya participates in three major trade agreements: the Preferential Trade Area Agreement (PTA), the Lomé Convention, and the General Agreement on Tariffs and Trade (GATT).

Preferential Trade Area Agreement

The PTA with 16 members is a major initiative to divert to and create trade among southern and eastern African countries.[2] It aims to gradually eliminate tariff and non-tariff barriers within the region. Despite having signed the agreement, many countries are hesitant to implement its provisions. The persistently large trade surpluses by Kenya and Zimbabwe cause the weaker economies to question whether, overall, their manufacturing sector will benefit by getting supplies from within the PTA (Table 2.7). These doubts have inspired some to delay publication of their Common Lists detailing the reduced tariffs applicable to eligible imports from within the PTA. Others do not pay their own exporters export compensation if the PTA Clearing House is used since the net payments between countries are cleared only every two months.[3]

1/ This conclusion is derived from an unpublished statistical analysis by Barbara Goetz made available to the mission of the allocation of equity and loan finance by the Industrial Development Bank, Industrial and Commercial Development Corporation, and Development Finance Corporation of Kenya between 1965 and 1983.

2/ See section 1.3.2 for listing of members.

3/ Hall, S. 1987. "The Preferential Trade Area (PTA) for eastern and southern African states: Strategy, progress, and problems." IDS (Nairobi), Working Paper No. 453.

Although doubts about the benefits of intra-PTA trade hinder regional co-operation, the Kenyan Government has not yet officially recognized that it should adjust its policies and institutional procedures to be more receptive to imports from other PTA countries. A long-term vision of the region's potential and how to achieve it is required. Petty mercantilism emphasizing selling but not buying will only brew discontent and frustrate the region's, including Kenya's, potential. As manufacturing slowly develops within the region, forces will build opposing bureaucratic and chauvinist impediments to realizing economies of scale achievable with specialization.

Spontaneously, some trading houses have been trying to facilitate trade through countertrade and triangular deals. But this has been hard. The Central Banks generally do not have standard, easy procedures to approve two-way trade deals requiring minimal foreign exchange. The custom authorities are not set up to permit duty-free imports for processing and onward export even when the input-output relations would allow little measurement-error. Even dies, moulds and patterns cannot move easily between countries so as to use excess capacity better.

A significant problem is the inadequacy of the region's transport infrastructure. Eastern Africa does not have a regional organization like the Southern Africa Development Coordination Conference (SADCC) that focuses on building up the region's infrastructure. Moreover, a special problem for Kenya has been the steady deterioration of the services in Mombasa port. This has led some freighters to divert trade to the port at Dar es Salaam.

Another immediate problem with the PTA was the requirement that only majority locally-owned firms could be eligible for the reduced PTA tariffs. This stricture was slackened temporarily for five years, but many foreign-owned firms in Kenya will be disadvantaged if the clause ever comes into full force. Still, the pressures to increasingly localize the ownership of manufacturing in Kenya may be attractive to Kenya's long term development.

Table 2.8: Kenyan trade within the Preferential Trade Area, selected years, 1979-1987
(KE'000)

	1979	1981	1983	1985	1987
Exports					
Domestic	65.5	108.5	124.7	135.7	140.3
Re-exports	10.6	9.7	8.5	9.5	16.8
Total	76.1	118.2	133.1	145.3	157.1
Imports	10.2	13.9	14.3	24.6	35.2
Ratio: Exports/imports	7.5	8.5	9.3	5.9	4.5

Source: Republic of Kenya. Statistical Abstract 1988. Nairobi, Government Printer, 1988, p. 52.

Lomé Convention

Along with other countries from Africa, the Caribbean, and the Pacific, Kenya is a member of the Lomé Convention for aid, co-operation, and trade with the European Economic Community (EEC). They get preferential access to the EEC market and nearly all industrial products are exempt from duty. Though their exports are not supposed to suffer quantitative restrictions, some restrictions, especially through the Multifibre Agreement, do apply. Firms from countries which have exhausted their textile quotas are beginning to set up stitching operations manufacturing under bond in Kenya so as to sell more cloth into the EEC. As yet, no quota has been imposed on Kenya; and Kenya enjoys preferential access to the EEC market.

General Agreement on tariffs and trade

Along with other less developed countries (LDCs), Kenya benefits from the generalized system of preferences (GSPs) programmes of different countries and economic zones. The GSPs allow LDCs, including Kenya, lower tariffs and preferential access to markets for most manufactured products. GSPs reduce the margin of special preference that some developed countries grant subsets of LDCs so as to maintain special historical and economic links. But often a GSP is restricted to exclude certain products, for example, textiles or shoes. These restrictions and the very underdevelopment of most LDCs means that, in practice, the more advanced LDCs benefit most. For example, the EEC's "GSP scheme had eroded the tariff advantages which would be enjoyed by the ACP over other developing countries."[1/] When discussing GSPs, Kenya usually has little influence except, perhaps, as one among many LDCs taking a united position.

2.9 Assessment of the environment for rehabilitation

Kenya's manufacturing sector has been growing steadily, though more slowly now. Gradually, the linkages between industries are becoming more robust and complementary, thus reducing the diseconomies imposed on firms due to working in an environment where many inputs and services are of poor or unreliable quality or just not available locally. Despite bureaucratic obstacles and resulting expenses, supplies can normally be obtained either from local wholesalers or as imports. Firms rarely shut for lack of raw materials. And, when firms, except parastatals, go into receivership, the market usually works within a year or so to put the assets to productive use again in different hands.

The government is increasingly aware that unnecessary bureaucratic obstacles stifle initiative and curtail productivity. During the latter half of the 1980s, the government began to liberalize the business environment by:

- simplifying the tariff and import-licensing systems to liberalize imports;

1/ Moss, J. and Ravenhill, J., "Trade between the ACP and EEC during Lomé I." In: Stevens, C., ed., EEC and the Third World: A Survey 3. The Atlantic Rift, London, Hodder and Stoughton in association with the Overseas Development Institute and IDS (Sussex), p. 150.

- devaluing the shilling to avert the tremendous inefficiencies and misallocation of resources arising when businessmen must recur to the black market for foreign exchange;

- reducing and centralizing the procedures to establish new business ventures;

- reducing the number of products subject to price control;

- easing the repatriation of funds by foreign investors;

- assisting potential exporters to travel to promote their products; and,

- lessening the harassment of the informal sector.

The Government understands that, by regulating industry, it has sometimes engendered stagnation or even decline, for example, in the productive chain from cotton to ginneries and cotton-textile factories. Though some parastatal manufacturing firms are very successful, others are nightmares of mismanagement and financial losses. Recognizing this, the Government is committed to privatize many of its parastatals, though concern about their future ownership and productivity causes delays. Still, it appears certain, the government has chosen its path. The Government, with a welcomed realism, is creating an attractive enabling environment for business initiative, and, hence, rehabilitation.

CHAPTER 3
THE MANUFACTURING SECTOR AND ITS REHABILITATION

3.1 General overview

Soon after Kenya achieved independence in 1963, the objectives for the country's national development plans were propounded in African Socialism and its Application to Planning in Kenya, the title of Sessional Paper No. 10 of 1965. The paper clarified that the Government was dedicated to large scale development of infrastructure. The Government also planned to be involved in productive enterprises. Nevertheless, the paper clearly made the point that market forces of a private sector economy would be predominant.

The Government has since produced five Development Plans based on the objectives that were expressed in Sessional Paper No 10. Those Plans centered on various aspects of progress, alleviation of poverty, and equitable distribution. The sixth Development Plan (1989-1993) has "Participation for Progress" as its theme, calling for the commitment of everybody to development activities for structural adjustment. It is the first of three plans to be based on the objectives for 1988-2000, which are set out in Sessional Paper No. 1 of 1986 on Economic Management for Renewed Growth.

In the first plan, the Government was confident about the capacity of the agricultural sector of the economy to be the basis for economic growth and foreign exchange earnings. Foreign exchange was vital for purchases of fertilizers and other essential agricultural inputs that were needed to increase the productivity of agriculture. Foreign exchange was also needed for purchases of capital equipment and material inputs for the development of industry.

While agriculture was mainly, though not exclusively, oriented to the production of cash crops for exports, manufacturing was largely oriented to production for domestic needs, particularly import substitution. The objectives were to develop the nation's industrial productive capacity, to increase employment, and in the long term to reduce expenditures of foreign exchange.

The Government took the initiative to provide the basis for expanding production in both agriculture and manufacturing through public investment in physical infrastructure (roads, railway lines and equipment, telecommunications, ports, energy generation and distribution, and so on). Marketing boards were established to encourage production and to expand the monetary economy. Most of these steps were taken in the interest of developing the African entrepreneur in agriculture and industry. At the same time the government maintained an effort to expand large scale, modern manufacturing investments by assuring foreign investors of a secure and profitable investment environment with guarantees of property ownership, repatriation of capital and remittance of profits. This policy was enunciated in Kenya's Foreign Investment Protection Act and incorporated in the Constitution of Kenya.

The manufacturing sector grew significantly from independence to the early 1970s. During the period, 1963-1973, value added in manufacturing grew, on average, by 9.1 per cent per annum. This rate of growth exceeded the

average annual rate of growth of GDP, 6.2 per cent. Towards the end of the 1970s and beginning of 1980s, the rate of growth of manufacturing value added (MVA) fell to 4.6 per cent. The changes in the rate of growth are shown in Table 1.2.

The rapid growth in manufacturing during the first decade is attributed to a strategy of industrial development through import substitution. The strategy required a number of policies, which at first had the desired effects but eventually created conflicting forces that now are causes of inefficiency and slower industrial growth. For example, import substitution policies require a high degree of protection of manufacturers, resulting in the market being supplied by relatively high cost manufacturers. The foreign exchange cost is sometimes high for machinery, parts, and production inputs that are required to keep an import substitution enterprise in operation and the employees engaged.

Most subsectors of manufacturing recorded increases in MVA between 1984 and 1988. Real output in the manufacturing sector grew by 5.7 per cent in 1987 and by 6.0 per cent in 1988. The branches in food products that had the largest increase were meat and dairy products and grain mill products. Significant increases were made in metal products, petroleum and other chemicals, and paper and paper products. A few branches show a small degree of negative growth. The only significant decline was in the rubber products branch. Miscellaneous food products and miscellaneous manufactures grew by 18.5 and 20.6 per cent, respectively. Textiles grew by 2.4 per cent; clay and glass products grew by 5.1 per cent.

There has been little structural change in manufacturing. The leading branches continue to be food products, tobacco, textiles, electrical machinery, fabricated metal products, chemicals, paper and paper products. Consumer goods branches continue to account for over 50 per cent of MVA, and the branches that produce intermediate products constitute a relative minor segment of manufacturing in Kenya.

Food, beverage and tobacco products have accounted for over 40 per cent of Kenya's manufacturing value added in recent years. Other major branches of agro-industry, namely, textiles and garments, leather products, wood and paper products, account for another 15 per cent of MVA. The remaining 45 per cent of MVA is derived from many other branches, including petroleum, rubber, plastic and chemical products, glass and ceramic products, cement, and metal products. The values of the output from various branches are shown in

Manufacturing accounts for 13.1 per cent of total GDP and three-quarters of total industrial GDP. Manufacturing's share of GDP has increased by only a small amount from 12.9 per cent of GDP in 1984. The share of total industry in GDP has increased by the same number of percentage points. Wage employment in the manufacturing sector is 13 per cent of total employment. Manufacturing as a whole employs 14.8 per cent of the men in the labour force and 6.4 per cent of the women.

Table 3.1: Value of manufacturing output by sub-sector, 1980-1987
(in current K£ thousands)

	1983	1984	1985	1986	1987
Subsector/branch					
Meat and dairy products	97.2	123.8	154.2	189.7	233.3
Canned vegetables, fish, oils and fats	79.5	87.9	129.3	147.3	158.6
Grain mill products	148.7	193.4	218.9	280.0	311.7
Bakery products	43.6	53.1	60.4	83.4	85.0
Suger and confectionery	80.5	93.7	94.2	105.7	125.6
Miscellaneous foods	413.6	556.2	653.9	813.5	1,028.7
Beverages and tobacco	128.4	144.1	216.0	277.4	298.7
Food processing (including animal feeds)	991.5	1,252.2	1,526.9	1,897.7	2,241.6
Textiles	99.5	112.5	145.0	182.1	186.6
Clothing	63.0	59.8	68.8	87.9	103.9
Textiles and clothing	162.5	172.3	213.8	270.0	290.5
Leather products and footwear	22.1	28.9	39.6	42.0	54.8
Wood and cork products	37.2	43.4	43.5	44.8	57.6
Furniture and fixtures	18.6	18.8	21.5	21.2	15.7
Paper and paper products	74.6	92.7	93.6	97.4	109.6
Printing and publishing	51.1	57.6	54.7	56.4	60.7
Wood and paper products	181.5	212.3	213.3	219.8	243.6
Industrial chemicals	81.9	86.6	91.9	97.9	134.8
Petroleum and other chemicals	392.0	506.0	617.6	797.2	912.5
Petroleum & chemical products	473.9	692.6	709.5	895.1	1,047.3
Rubber products	50.9	64.7	64.2	71.2	98.7
Plastic products	32.8	38.5	42.6	45.1	68.6
Pottery and glass products	8.1	8.4	8.6	8.7	7.6
Non-metallic mineral products	74.9	88.3	96.4	102.1	140.3
Building materials & ceramics	166.7	199.9	211.8	222.1	315.2
Metal products	167.7	198.2	242.0	298.9	337.4
Electrical machinery	13.7	16.2	20.0	21.7	20.3
Non-electrical machinery	87.1	97.5	119.6	143.9	179.0
Transport equipment	142.9	166.1	208.4	243.4	315.1
Metals and metal products	411.4	478.0	590.0	707.9	851.8
Miscellaneous manufactures	13.7	21.6	30.6	37.5	44.8
Total, all manufactures:	2,425.6	2,956.7	3,535.6	4,296.7	5,089.7

Source: Central Bureau of Statistics, Statistical Abstract 1989, p. 126.

Human resources: employment in the manufacturing sector

Employment data recorded by the Government covers wage and salary employment in the modern sector, and urban and rural small-scale enterprises. In these sectors the total number of employment was 1.6 million in 1987 which was less than 20 per cent of the total labour force in Kenya. In the period, 1983-87, employment grew at 3.7 per cent in the modern sector and 9.0 per cent in small-scale enterprise sector.

Manufacturing employment in private and public sectors and in total in the modern sector accounted for 20.5 per cent, 5.9 per cent and 13.3 per cent respectively in 1987. During the period 1983-87, manufacturing employment has increased at an annual rate of 3.4 per cent. In 1988, employment in the manufacturing sector made a marginal increase of 0.3 per cent. This was the lowest growth in employment recorded for the sector since 1982. This poor performance in employment creation was partly due to the fact that two sugar factories and two textile mills were non-operational during 1988. In addition, some textile mills were operating with fewer employees because of an lack of adequate market for their products.

Food and beverages and textile and wearing apparel sub-sectors have the largest shares of employment and together account for 50 per cent of the total manufacturing labour force. The basic metals and capital goods sub-sectors also have a large share (20 per cent in 1987) of total manufacturing employment. In particular in 1987, the manufacture of rail road equipment, which is wholly public owned, accounted for 7.7 per cent of the total manufacturing employment.

However, manufacturing employment is small in comparison to the total labour force which includes unrecorded self-employed and unpaid family workers. This implies that there is a significant potential labour force for manufacturing in urban and rural areas.

3.2 Major problems and constraints

Manufacturers are confronted with relatively few natural constraints and problems in Kenya compared to many countries in Africa and elsewhere. The country has a significant coast line. Good port facilities have been built in the excellent harbour in Mombasa. Nairobi has proven to be a convenient location for stopovers on the routes of international airlines for refueling and passenger destinations. The climate is favourable.

The economic environment is also favourable. Government expenditures on education and the moderately large population provide manufacturers with a good source of human resources. Besides the port facilities, the nation has a considerable amount of physical infrastructure. For example, the road network is good, although not always in good repair on the important Mombasa-Nairobi connection. Electric power is generated in sufficient quantities at the hydroelectric plant on the Tana River and supplemented by the thermoelectric facilities in the Rift Valley. Amenities in cities, major towns, and most urbanized areas are modern and more or less adequate for the population. There are few problems with roads, street lighting, electric power and water supply, medical facilities, cultural facilities, and so on.

Nevertheless, manufacturers still confront a number of problems and constraints. There are many controls on enterprises. Among the chief ones are import licences and taxes. Price controls are no longer the constraint that they have been until very recently. Import licences have always presented severe contraints. For example, manufacturers can only guess as to what proportion of their requested amount would be allowed, when the licence would be issued, and how the exchange rate would change, if at all. The procedure results in considerable waste. Manufacturers are thought to over-estimate their import needs. Stocks are costly if the entrepreneur wrongly guesses the action that will be taken on an import licence that is either granted early or granted for an amount that is larger than necessary. Insufficient or slow approval may result in underutilization of capacity, reduced production, and other inefficiencies.

In addition to constraints due to the process of application and obtaining import licenses, Kenyan manufacturers face further constraints because of their distance from suppliers. Those constraints include long delivery periods, unfavourable prices on small orders, and unfavourable terms on Kenyan manufacturers that are not known by the supplier.

Economy-wide constraints are insufficient foreign exchange, import policies of existing and potential trading partner nations, and deteriorating terms of trade.

Foreign ownership is a constraint on the volume of exports to PTA countries if the firm is not eligible for PTA preferences that are available only to firms under African management.

3.3 Linkages

Interindustry trade is weak in the Kenyan economy, but expanding. Linkages are developed in the large food processing industry with agricultural producers, transporters, and packaging suppliers. The motor vehicle assemblers and coach builders have established some linkages with smaller workshops for a few components. Linkages are weaker in most other industries.

Focusing on the sectors of this study, namely, cotton-based textiles, vegetable processing, and the ceramics industries, many actual linkages can be traced, but potential linkages are probably more numerous.

The cotton-based textile industry is linked backwards to primary cotton production via cotton ginning enterprises, to suppliers of dyes, printing, and finishing chemicals, and to producers of synthetic fibres for blended textiles. The main forward linkages are to tailors and to final consumers through retail outlets. Significant potential exists for other linkages to engineering workshops for machine parts, to specialized tailors for curtain, upholstery, and such textiles, and to the hotel and service industries, and the foreign market.

Vegetable processing is obviously linked to farmers and to the upstream producers of food products. The sector is linked to producers of tins and packaging materials, to producers of pallets, and transporters. Potential linkages could be possible to machine manufacturers and existing foward linkages could be expanded in wider markets.

The ceramics industry is also obviously linked to the domestic non-metallic mineral sector for the supply of clay, feldspar, kaolin, and other composites. It is linked forward to the hotel industry and to construction, for tableware, tiles, and sanitaryware. As in the other industries, there is scope for expansion of linkages to engineering works for dies, machinery, and parts. Further linkages could be developed to the power supply industry for insulators, to chemical laboratories that use porcelain items, for example.

3.4 Ownership patterns

African entrepreneurs own very few medium- and large-scale firms. Unga Limited, the largest grain miller in the country, is one of the few. The medium- and large-scale manufacturing enterprises are almost entirely owned by multinational companies, Kenyan Asians, or the Government, largely in the form of parastatals.

The ownership structure is to some extent a constraint on expansion of investment. Political pressures for Africanization of ownership and employment are additional constraints on management and at times a threat to the long-term existence of the enterprise.

Because property ownership in the fast developing urban areas of Kenya, especially in Nairobi, has always enjoyed long-term capital gains, has few of the bureaucratic problems of import licences, training levy taxes, and so on, many investors prefer to own property in the Nairobi area. Property ownership is perhaps easier for somebody who has no industrial experience or technical background. The pattern of ownership mainly shows that buildings are owned by Africans and manufacturing concerns are owned by non-Africans.

3.5 Spatial distribution

Government planners designated eight larger towns as centres of growth, in one of the first Development Plans, in order to relieve the pressures of rapid urbanization on Nairobi and Mombasa. In 1986, the Government announced an industrial decentralization policy to create a suitable environment for industrial employment in the rural areas.

Incentives have been provided for the development of the small-scale sector. These include reductions and exemptions from income and sales taxes. The 1989 budget provided for a reduction from 45 to 42.5 per cent tax on local firms, a foreign company rate cut from 52.5 to 50 per cent, for investment, a deduction for capital expenditure of 35 per cent for Nairobi and Mombasa, and 85 per cent for other areas. These incentives are only marginal inducements to establish production facilities outside the two largest cities, Nairobi and Mombasa. Industry is likely to remain concentrated in Nairobi, Mombasa, and Kisumu. There is no indication that other centres will grow, although Thika, near Nairobi, and Nakuru have become more attractive as the road connections have improved considerably.

3.6 Trade in manufactured products

Kenya exports are predominantly agricultural commodities, notably coffee and tea. Petroleum products out of its refinery in Mombasa also figure large in the export accounts. Exports of industrial supplies have grown in recent years, especially since 1986. Significant increases in industrial supplies have been in hides and skins, textile fibres, sisal, and minerals such as sodium chloride and flourspar.

Table 3.6.1: Total exports a/ by broad economic category, 1984-1988
(K£ million)

	1984	1985	1986	1987	1988**
1. Food and Beverages	467·06	492·71	646·77	451·85	546·36
Primary	420·70	446·17	598·61	402·81	492·57
For Industry	208·58	233·25	391·88	196·97	248·00
For Household Consumption	212·12	212·92	206·73	205·84	244·58
Processed	46·37	46·54	48·16	49·04	53·78
For Industry	3·79	1·66	2·11	3·03	5·49
For Household Consumption	42·58	44·88	46·05	46·01	48·30
2. Industrial Supplies (Non-Food)	113·21	128·14	146·71	147·20	194·38
Primary	58·68	64·05	78·01	85·04	113·71
Processed	54·53	64·08	68·70	62·16	80·66
3. Fuel and Lubricants	142·19	126·51	106·85	101·20	118·34
Primary	0·01	0·01	0·02	0·03	—
Processed	142·18	126·50	106·82	101·18	118·34
Motor Spirit	31·91	27·05	24·39	24·56	25·45
Other	110·26	99·45	82·43	76·62	92·89
4. Machinery and other Capital Equipment	2·16	2·63	4·17	4·06	5·61
Machinery and Other Capital Equipment	1·85	2·16	3·16	3·36	4·55
Parts and Accessories	0·30	0·48	1·01	0·70	1·06
5. Transport Equipment	1·24	1·57	3·23	4·14	5·34
Passenger Motor Vehicles	—	—	0·27	0·38	0·09
Other	0·14	0·37	0·72	0·89	1·63
Industrial	0·14	0·34	0·68	0·78	1·61
Non-Industrial	—	0·03	0·04	0·11	0·02
Parts and Accessories	1·10	1·19	2·24	2·87	3·63
6. Consumer Goods not elsewhere specified	28·42	33·37	49·95	44·72	47·52
Durable	0·53	0·64	5·13	1·30	1·36
Semi-Durable	7·11	10·37	12·40	9·13	12·71
Non-Durable	20·78	22·36	32·42	34·29	33·45
7. Goods not elsewhere Specified	0·54	0·17	0·29	0·24	0·18
TOTAL	754·81	785·10	957·97	753·41	917·72
PERCENTAGE SHARES:					
1. Food and Beverages	61·9	62·8	67·5	60·0	59·5
2. Industrial Supplies (Non-Food)	15·0	16·3	15·3	19·5	21·2
3. Fuel and Lubricants	18·8	16·1	11·2	13·4	12·9
4. Machinery and other Capital Equipment	0·3	0·3	0·5	0·6	0·6
5. Transport Equipment	0·1	0·2	0·3	0·6	0·6
6. Consumer Goods not elsewhere specified	3·8	4·3	5·2	5·9	5·2
7. Goods not elsewhere specified	0·1	—	—	—	—
TOTAL	100·0	100·0	100·0	100·0	100·0

Source: Republic of Kenya, Economic Survey 1989, Central Bureau of Statistics, Ministry of Planning and National Development, Nairobi, May 1989.

Note: a/ Exchange re-exports.
b/ Provisional.

The value of manufactured exports is not large. The value and relative proportions of exports are shown in Table 3.6.1. The value of food and beverages, industrial supplies (non-food), and fuel and lubricants was 93.6 per cent of the total of merchandise exports. The remaining 6.4 per cent consisted of commodities that are classified under machinery and other capital equipment (0.6 per cent), transport equipment (0.6 per cent), consumer goods not elsewhere specified (5.2 per cent), and a negligible amount of other items.

Table 3.6.2: Total imports by broad economic category, 1984-1988

(K£ million)

	1984	1985	1986	1987	1988[a]
1. Food and Beverages	127·58	109·00	116·21	98·10	100·97
Primary	83·41	50·74	37·01	35·34	28·82
For Industry	77·06	34·49	21·50	21·63	13·95
For Household Consumption	6·35	16·25	15·51	13·71	14·87
Processed	44·18	58·26	79·20	62·76	72·14
For Industry	37·89	45·13	42·02	40·68	60·21
For Household Consumption	6·29	13·13	37·18	22·07	11·93
2. Industrial Supplies (Non-Food)	289·14	353·33	407·97	468·97	641·60
Primary	15·30	13·59	14·70	16.51	21·86
Processed	273·84	339·73	393·27	452·46	619·74
3. Fuel and Lubricants	332·43	376·19	238·55	282·42	245·91
Primary	295·78	347·96	210·48	248·27	215·75
Processed	36·65	28·23	28·07	34·15	30·17
Motor Spirit	4·05	4·69	5·81	3·15	5·93
Other	32·59	23·55	22·27	31·00	24·24
4. Machinery and other Capital Equipment	184·89	180·19	254·46	319·67	414·27
Machinery and Other Capital Equipment	129·14	124·44	181·00	214·76	259·57
Parts and Accessories	55·75	55·76	73·46	104·91	154·70
5. Transport Equipment	113·46	122·16	259·61	190·72	267·19
Passenger Motor Vehicles	13·21	19·35	28·94	34·61	43·24
Other	59·52	56·60	164·84	90·84	137·98
Industrial	58·40	55·39	162·50	87·98	132·44
Non-Industrial	1·13	1·21	2·35	2·86	5·54
Parts and Accessories	40·73	46·20	65·83	65·27	85·98
6. Consumer Goods not elsewhere specified	47·40	53·96	59·79	70·60	93·91
Durable	9·90	10·60	10·03	12·22	20·96
Semi-Durable	8·77	10·61	9·44	11·76	16·66
Non-Durable	28·74	32·76	40·32	46·63	56·29
7. Goods not elsewhere Specified	2·30	1·18	1·30	0·41	1·30
TOTAL	1,097·21	1,196·00	1,337·89	1,430·88	1,765·14
PERCENTAGE SHARES:					
1. Food and Beverages	11·6	9·1	8·7	6·9	5·7
2. Industrial Supplies (Non-Food)	26·4	29·5	30·5	32·8	36·4
3. Fuel and Lubricants	30·3	31·5	17·8	19·7	13·9
4. Machinery and other Capital Equipment	16·9	15·1	19·0	22·4	23·5
5. Transport Equipment	10·3	10·2	19·4	13·3	15·1
6. Consumer Goods not elsewhere specified	4·3	4·5	4·5	4·9	5·3
7. Goods not elsewhere specified	0·2	0·1	0·1	—	0·1
TOTAL	100·0	100·0	100·0	100·0	100·0

Source: Republic of Kenya, Economic Survey 1989, Central Bureau of Statistics, Ministry of Planning and National Development, Nairobi, May 1989.

Note: a/ Provisional.

Imports (shown in Table 3.6.2) are dominated by industrial supplies (non-food). The declining trend in food imports is evidence of increasing food production in Kenya. The value of imported petroleum products fluctuates with the changing price of petroleum. The changing importance of imports of machinery and other capital equipment, as well as industrial supplies, reflects the growth of gross fixed capital formation in the economy since 1985.

One of the major objectives of the current development plan is to expand the "capacity of the industrial sector to diversify into export orientation in support of traditional exports of agriculture and tourism".[1/] The Government intends to encourage exports, particularly non-traditional exports. Kenya's policies have been increasingly oriented in toward this end, since the earlier policies of import substitution have been shown to be no longer suitable. Various trade liberalization measures, concerning import licences, the exchange rate, and schedules of customs duty, are aimed to make Kenyan products more competitive on the international market.

An Export Compensation Scheme, has been developed since 1974 to permit duty drawbacks on imported inputs and to refund indirect tax revenues to export-oriented firms. In 1986, as many as 700 products were eligible for the Export Compensation Scheme. Manufactures frequently complain about the scheme, saying that the paper work for the application for drawbacks and refunds consumes a considerable amount of time and, moreover, the refunds are uncertain to be paid even after a very long time. The scheme is structured such that it disproportionately benefits exporters of manufactures to developed countries, especially canned pineapples. Larger firms are thus the main beneficiaries.

3.7 Policies and institutions for the manufacturing sector

Governmental institutions, both centralized and decentralized, focus upon the manufacturing sector for planning, regulating, training, researching, and purchasing. For these functions, the standard institutions exist. A recent review of the role of government institutions in Kenya's industrialization, has concluded that:

> Kenya has an impressive number of institutions to facilitate industrial development. There are institutions established to provide finance for small, medium and large enterprises and others charged with control and research responsibilities. Though most of these institutions have the right national objectives, implementation is often poor. The objectives tend to be ignored in the actual operations of the institutions .....
>
> A serious lack of co-ordination among various government institutions exists even when they are handling related industrial issues. This failure together with a lack of resources has reduced the overall impact of these institutions. Policy makers in various government organs also lack intimate knowledge of the structure of Kenyan industry, its resources and constraints. This has reduced the catalytic role of government in the manufacturing sector and has contributed to a failure to clearly identify and encourage those industries with the highest potential.

1/ Development Plan 1989-1993, p xx.

> The overall picture emerging ..... is that although various institutions have been established, they have not been effectively used to achieve faster industrial growth.[1]

Thus, although the required institutions are mostly there, their motivation, focus and performance should improve.

To illustrate the problems of performance and focus, the rest of this section discusses four governmental institutions that are especially critical for industrialization: the Ministry of Planning and National Development, the big parastatal development finance corporations, the Industrial Promotion Centre, and the Central Tender Board. Though others, for example, the Customs and Excise Authorities, Price Controller, Kenya Industrial Research and Development Institute, and Kenya Bureau of Standards are also important, a full discussion is beyond the scope of this report.

The Ministry of Planning and National Development together with the Ministry of Industry plan the development of manufacturing by vetting feasibility studies, especially for economic infrastructure, and determining the policies and incentives required to guide industrialists. For example, the Government offers strong tax incentives for manufacturers to locate their enterprises outside of Nairobi and Mombasa. It also offers 20 per cent export compensation and has instituted a new manufacturing-in-bond scheme for exporters.

Though, during the 1960s and 1970s, the Government directly promoted industrialization through many joint ventures with multinational corporations, it virtually ceased doing this during the 1980s except for its prolonged support for seriously ailing parastatal manufacturing firms. In 1985, the government abolished the ad hoc inter-Ministerial New Projects Committee which was supposed to vet industrial projects. Although the committee had many problems - political interference - rapidly changing membership, inadequate professional support, it was the only central forum for approving and disapproving projects. By abolishing it instead of restricting its scope and enhancing its status and staff support, the Government abandoned a powerful tool of economic development planning: the ability to steer funds away from low-priority projects and into much needed activities. Instead, Government has increasingly relied upon macroeconomic and sectoral policies to guide manufacturing.

The large parastatal development finance institutions - IDB, DFCK, ICDC, and less so KIE - were once dynamic forces for industrialization in Kenya, especially during the 1960s and 1970s. During the 1980s, they became increasingly passive, too busy nursing the sick companies in their portfolios rather than aggressively promoting new industrial activities and divesting in

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1/ Ikiara, G.K, "The role of government institutions in Kenya's industrialization", 1987. In: Coughlin, P. and Ikiara, G.K., eds. Industrialization in Kenya: In Search of a Strategy. Nairobi: Heinemann; London, p. 247.

order to gain funds for new ventures to help fill the gaps in Kenya's industrial structure. That dynamism, vision, and ability to set priorities has been missing. Recognizing some of these problems, the Government has commissioned a currently ongoing study of the development banks to evaluate whether restructuring them would help.

With the appointment of a new Director in mid-1989, the Industrial Promotion Centre finally began to get the high-level support plus external aid required to streamline the procedures to approve a new project in Kenya. Previously, up to 30 approvals - but usually about 12 - were needed before an investor could begin a project. Now, an inter-Ministerial Cabinet-level Committee meets monthly to authorize approval there and then for any project that has encountered bureaucratic obstacles in getting some approval. This Committee has sufficient clout to cut across the normal lines of bureaucratic power. As a result, the Centre is truly becoming a one-stop office where entrepreneurs go to get all the required approvals, currently, within one month. The centre processes simple cases without referral to the inter-ministerial committee. The newly dynamic Centre holds promise of reversing the worrying trend of low or negative capital inflows.

The Government continues to miss many opportunities to use its Central Tender Board (CTB) to promote industrialization. The Board mainly considers the price and quality of a product and the reliability of the supplier.

> Foreign-exchange content, linkage effects, employment creation, etc. are hardly ever considered in the awarding of tenders. Most CTB officials were not aware of the role that the tendering system could play in the economy ..... The decentralization of the tender system leaves the CTB with only 40 per cent of the tenders. This weakens the CTB further.[1/]

The decentralization has increased the travel and marketing costs as well as the opportunities for corruption - costs that many small producers cannot afford. This often gives importers and large manufacturers an unnecessary advantage. With tender boards in 40 districts plus Nairobi, many opportunities to achieve bulk-purchase discounts or to encourage local production are lost, though a much-reduced list of items eligible for decentralized tendering may have helped promote rural production.

3.7.1 Human resource development institutions in manufacturing [2/]

In this section, institutions of formal technical training are reviewed with a focus on industrial training in Kenya.

A considerable variety of formal training institutions exist in Kenya: youth training centres, youth polytechnics, secondary technical schools, national youth service, Harambee Institutes of Technology, national polytechnics and universities. The curriculum technical training in these institutions includes not only industry related training, but service training and general education as well.

1/ Ikiara, G.K. 1988. op. cit., p. 239.

2/ This section is based on information contained in Dr. Mauri Yambo, Technical Training and Work-Experience in Kenya: A National Tracer Study of the Leavers of Harambee Institutes of Technology and Youth Polytechnics, December 1986.

Youth polytechnics are the single largest of all the types of training institutions. These institutions comprise about one-third of technical training institutions and train about one-third of all trainees. The original purpose of youth polytechnic training was to prepare primary school leavers for self-employment in rural areas. The current goal, however, is to provide primary school leavers and higher school leavers with practical skills to facilitate self- or wage-employment in local areas.

In 1984, a motion was passed in the Kenyan parliament which urged the Government to establish a Youth Polytechnic in every location in the country, which amounted to 876 locations in 1984. By 1985 the number of government-aided Youth Polytecnics had increased to 321 with an enrollment of about 21,500 trainees.

Secondary Technical Schools had 9,200 enrollments in 18 schools in 1983. The courses offered by the schools were mechnical engineering, electrical engineering, motor vehicle mechanics, agricultural mechanics, welding, masonry, plumbing, surveying, carpentry and industrial tailoring.

The National Youth Service (NYS), originally intended as a post-primary training programme, has recently increased its intake to admit secondary school leavers. In 1985, NYS had a total enrollment of 7,000. The courses offered by the NYS includes motor vehicle mechanics, panel beating, welding, general fitting, carpentry/joinery, masonry, plumbing, painting/signwriting, tailoring/dressmaking, upholstery making, and other service training such as typing and shorthand.

Harambee Institutes of Technology (HIT) were initiated by local self-help groups with considerable involvement of politicians and civil servants. The purpose of the HIT programme has been to train secondary school leavers in various skills, generally at the craft level intended to facilitate self or wage- employment. In 1984, there were 15 operational HIT with 3,900 trainees. The courses offered in the HIT largely overlap with other institutions.

National Polytechnics, among all the industrial training institutions, play a leading role in training a technically proficient workforce, especially in the private sector. Three National Polytechnics have been established in the urban centres in Kenya - Nairobi, Mombasa and Eldoret. Kenya Polytechnic (Nairobi) and Mombasa Polytechnic had a combined enrollment of 5,036 in 1987-88. The Polytechnic in Eldoret was only recently opened, as such it is not clear what is the exact size of its enrollment.

Kenya Polytechnic offers courses in manufacturing industry related technical skills. These courses are given in the engineering department (mechanical, electrical, automobile, general, aeronautical and telecommunications). In 1987-88, enrollment for these courses in Kenya Polytechnic was 976 or 28 per cent of the total enrollment. If other industry related courses such as building and civil engineering, and laboratory and other technicians are included, industrial training accounts for 54 per cent of total enrollment.

Mombasa Polytechnic has a greater emphasis on manufacturing industry technical training than Kenya Polytechnic though the total number of trainees was only 1,547 in 1987-88. The engineering department had 724 trainees, or 47 per cent of the total enrollment and by including other industry related courses, industry related trainees account for 62 per cent of total enrollment.

Although the total enrollment of trainees has been unchanged, around 5,000, in the two national polytechnics since 1984-85 - the National Polytechnics including the new one in Eldoret are likely to retain a significant share of the total technical training capacity in Kenya.

University education lies on the top of all training institutions. The University of Nairobi has by far the largest student capacity in Kenya. In 1987-1988 the total number of students exceeded 10,000 and the number of first degree course students was 8,500, of which 817 students were enrolled in engineering course. In other universities - Moi and Kenyatta universities - no course is offered in the field of engineering. In 1987-1988, the total number of students enrolled in Kenyan universities was 17,000, of which 15,000 were undergraduates. Among undergraduates, the ratio of engineering students was only slightly higher than 5 per cent. It should be noted, however, that many Kenyans go abroad to pursue university education, particularly in North America, Western Europe and India, and those graduates who obtained a degree overseas have established important positions in Kenyan industry.

Finally, although Kenya appears to be steadily increasing its training institutions, especially those imparting technical skills at all levels, it appears that the country is still not producing the right number and quality of trained people for manufacturing employment.

PART II

DIAGNOSTIC REHABILITATION ANALYSIS

Part II presents the actual rehabilitation analysis of the report and consists of six chapters - Chapters 4 to 11. The various chapters discuss the selection of key candidate plants, provide a precise analysis of the branches to which they belong and present an in-depth analysis of three especially selected industrial plants in key subsectors - ceramics, textiles and vegetable processing - with good linkages to primary sectors such as agriculture and other natural resource sectors. The detailed analysis of the rehabilitation needs of the three key firms focuses on management and organization, financial structure, human resource development, marketing, plant and economic performance, state of physical plant, capacity utilization, maintenance and spare parts as well as issues relating to the macro- and industrial economic policy and institutional framework.

Finally, Part II presents a summary of general and plant level findings and recommendations and project concepts of both a short- and long-term nature.

Chapter 4
Selected Industries and their Rehabilitation

4.1 Cotton-based textiles

4.1.1 Overall characteristics

The textile industry - spinning, weaving, knitting, and finishing fabrics - is Kenya's second largest manufacturing employer: in 1987, it had 20,123 employees, or 12.0 per cent of employment in manufacturing. Of the total labour force in the textile industry in 1987, 5,665 were in knitting mills. Since 1983, employment in the industry has been growing faster (8.7 per cent) than the average for all manufacturing (3.3 per cent); and so has its quantity index of production (7.0 per cent as against 5.1 per cent).

The textile industry has strong backward and forward linkages to other manufacturing industries, such as ginneries, filament extruders, mechanical engineering, and garment and furniture manufacturers. In 1987, the ginneries had 1,180 employees; and the garment manufacturers, 8,253. As yet, dyes and most chemicals used in the industry are not made locally.

Though the textile industry in Kenya was traditionally based on cotton, a long-term profound shift towards using more synthetic fibres - polyester, viscose, nylon - has occurred since the early 1970s. Most mills, even those that had exclusively woven cotton fabrics, now increasingly produce cotton/synthetic blended fabrics. This switch has been stimulated partly because the production of locally grown cotton has been decreasing and the government, through the Cotton Lint and Seed Marketing Board (CLSMB), has allowed insufficient imports of cotton, and even that reticently.

The textile industry operates at a high rate of capacity utilization - 81 per cent in 1986 and is diverse, robust, and fairly mature.[1] In 1986, 14 large factories were fully integrated from fibre blowing through fabric finishing. Five plants import polyester pellets to produce and spin continuous-filament yarn; one of those plants also produces continuous-filament nylon yarn. In the 1980s, the industry began to decrease raw wool and export wool tops, and, more recently, to spin wool yarn for local consumption. A factory in Nakuru is installing machinery to spin wool-carpet yarn, mainly for export. And, Kenya Threads, a large African-owned enterprise, exports the bulk of its output of cotton yarn whenever the local price of cotton is equal to or less than the international price.

1/ Coughlin, P. (1986) "The gradual maturation of an import-substitution industry: The textile industry in Kenya," Discussion Paper, Industrial Research Project, Economics Department, University of Nairobi, Mimeo; World Bank, Industrial Development and Finance Division, Eastern and Southern Africa Region (1987) Kenya: Industrial Sector Policies for Investment and Export Growth, Washington, D.C., World Bank, pp. 275-87.

In both spinning and weaving, "Kenyan firms display superior technological mastery in [both spinning and weaving], with levels creditably near world best-practice levels."[1] The industry is also highly protected: in 1986, its effective rate of protection for polyester yarn and diverse fabrics ranged between 72 per cent and 93 per cent.[2]

Though from 1980 to 1987 the textile industry reduced imports of fabrics from US$ 40.7 million to US$ 14.0, its exports fell from US$ 6.1 million to US$ 3.3 million.[3]

> Kenya has not yet succeeded to export much yarn, fabric and garments. For some products, the Kenyan producers are not efficient, e.g., shirts, towels, and linen. For others, they are only efficient enough to penetrate the limited regional market and to keep out most imports, e.g., most blankets and sweaters. For yet others, some firms have begun to sell into the European markets, e.g., T-shirts, men's briefs, dress pants, some ready-made suits, and wool tops[4] .

Kenya may, however, begin soon to export much more. In response to the Government's whole-hearted, high-level support for the new single-stop Industrial Promotion Centre for encouraging foreign investors, four foreign investors manufacturing garments under bond for export only, have started production. Thirteen other projects manufacturing under bond - mostly garment manufacturers - had been fully approved by January 1990 and await for the entrepreneurs to start investing. The centre also reports many inquiries by potential investors.

Since Kenya still has easy access for its garments in the European Economic Community's market, investors from Asian countries stymied by import quotas under the Multifibre Agreement are considering sewing garments in Kenya using fabrics from their countries. Gradually, the local textile factories should be able to sell fabrics and yarns to these new factories. If continued, these new investments would much change the focus and competitiveness of Kenya's textile industry.

4.1.2 Major problems and constraints

Though other, lesser problems exist, three major constraints bridle Kenya's textile industry: lack of sufficient cotton at a good price and quality, lack of specialization and economies of scale in the textile mills, and often weak managerial skills.

1/ World Bank, op. cit., 1987, p. 283.

2/ Coughlin, P., op. cit., 1986, p. 39.

3/ These statistics comprise all of SITC 65 except for garments, SITC 658.

4/ Coughlin, P., op. cit., 1986, p. 40.

Cotton shortages and inadequate quality

Local cotton production has shrunk despite strong growth of the textile industry (Table 4.1). In addition to climatic variations, the main reasons were:

- the sharply declining real prices to farmers (Table 4.1);
- the very low yields and, hence, profitability of the crop for farmers;[1/]
- the more than one-year delays in paying farmers.

These reasons have caused many farmers to stop growing cotton. For example, in Busia district, the longer farmers had to wait to get paid, the more reticent they were to grow cotton for the next season.[2/] The delays resulted both from the dire financial situation of the CLSMB and the cotton co-operative societies' delays in forwarding payments to the farmers.[3/]

To obviate part of the delays, the CLSMB began during 1988 to pay farmers directly, instead of through their co-operative societies. CLSMB's officers report that, as of January 1990, the farmers have been fully paid for the 1988-89 crop. With the reduced delays and higher payment per kilo, the CLSMB hopes that the 1990-91 cotton harvest will be much better.

Despite shortages, CLSMB has only reticently imported cotton, and then, in very insufficient quantities (Table 4.1). In response to complaints from textile manufacturers, the government began in early 1989 to require manufacturers to submit a joint request for imports through the Textile Manufacturers' Association. Still, the requests are delayed both by the association, the CLSMB which must give a letter of no-objection, and the import-licensing and foreign-exchange authorities. The result: factories still do not get enough cotton.

Nor is the quality good enough. Kenya produces medium-staple, medium-strength cotton that lowers the quality and strength of the yarn and decreases the efficiency in weaving. The lower quality is also difficult to sell in export markets. Partly for this reason, factories manufacturing under

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1/ "The farmers' cotton yields are fairly low, averaging about 100 kilos of lint per hectare. Results of research experiments in various parts of the country, however, show that with improved varieties and production technologies, yields of between 450 and 900 kilos of lint per hectare can be realized." National Fibre Research Centre (Mwea Tebere) (1988) "National cotton research project." Report for the Kenya Ministry of Agriculture, p. 2.

2/ Etyang, M. (1979) "Price elasticity of cotton supply in Busia District." M.A. research paper, Economics Department, University of Nairobi, pp. 60-101.

3/ Routsi, J. (1989) "Cotton ginning industry in Kenya: The case of the co-operative ownership and management mode." IDS (Nairobi) Working Paper No. 470, p. 4; Dijkstra, T. (1988) "Cotton lint and cotton seed for the domestic market in Kenya." Report for the Kenya Ministry of Planning and National Development, Nairobi, Mimeo, p. 12.

bond resist using local fabrics. The CLSMB has not encouraged factories to import stronger, longer-staple cotton for blending with local fibre to upgrade the end product. This reticence has hampered the industry's effort to secure the domestic market against the many imported - often smuggled - fabrics.

Table 4.1: Farm-gate prices and sales of cotton to CLSMB, 1980-1988

	Farm-gate price (KSh/kg)	Price Price index	Real farm-gate price[a/] (KSh/kg)	Production ('000 tonnes)	Net imports ('000 tonnes)
1980	3.41	1.00	3.41	38.1	n.a.
1981	3.41	1.18	2.89	25.5	n.a.
1982	3.52	1.44	2.44	24.3	n.a
1983	3.69	1.64	2.25	25.8	n.a
1984	4.48	1.82	2.46	22.8	1.1
1985	4.80	2.02	2.38	38.0	-1.7
1986	4.70	2.16	2.17	25.4	-.4
1987	4.82	2.34	2.06	23.8	-.9
1988	5.86	2.62	2.24	10.9[b/]	1.9
1989	6.00	n.a.	n.a.	n.a.	n.a.
1990	10.00	-	-	-	-

Sources: Kenya Government (1986 and 1989) Economic Survey for 1986 and 1989. Nairobi: Government Printer; Kenya Goverment (1984) Statistical Abstract, 1984. Nairobi: Government. Printer; and for prices for 1989 and 1990, interview with F. Kebeney, production officer, CLSMB, 30 January 1990. Statistics for net imports come from Kenya Goverment (1986 and 1988) Annual Trade Reports for 1985 and 1987, Nairobi: Government Printer.

a/ This index was constructed from official indexes for middle- income Nairobi prices and recalculated for the base year, 1980.

b/ Provisional estimate.

Specialization and economies of scale

Loss of economies of specialization is the major cause of loss of productivity by Kenyan textile firms relative to technologically similar best-practice firms in the UK.[1/] The Kenyan plants are sub-optimal in

1/ Pack, H. (1987) "Productivity, technology choice, and project design, with an application to the cotton textile sector." In: World Bank. Appropriate Industrial Technology, Phase II. World Bank Report No. 671-77, Washington, D.C.

size and produce too many types of products to achieve economies of scale.[1] Since the plants are usually closely linked to but a few wholesalers, they feel pressured to satisfy all the diverse demands of these wholesalers.[2]

Weak managerial skills

Apart from a few with multinational links, most textile firms in Kenya are weak in marketing and product design, partly due to the industry's inward orientation and the limited competition in certain products.[3] For example, Mountex is the only local producer of 48" bed linen; and Kenya Taitex Mills, of nylon fabric. Many firms, especially parastatals, have very weak upper management and miss easy, immediate opportunities to reduce costs or increase production and sales. Most managers - public or private - do not understand and use the concept of marginal costs, and, hence, forego the chance to use compartmentalized pricing to capture new domestic or export markets.[4]

Other problems

The industry faces other, lesser problems. Much of the equipment is old, and many factories have significant imbalances between sections. Engineering maintenance is often deficient, and few firms have systematic preventive maintenance programmes. The engineering difficulties are compounded because Kenya's mechanical engineering capabilities seldom surpass medium precision, and their reliability is quite mixed.[5] This, of course, drives up the costs of operating a factory.

Despite existence of the Kenya Textile Training Institute and the textile training schools at many factories, "all firms complained of a general shortage of skills. There is, therefore, a long-term need to provide appropriate training programmes in the country."[6]

On-site amenities for workers are often lacking or sorely deficient. Moreover, the health conditions in many, especially cotton factories are often bad and sometimes atrocious, with thick cotton lint in the air, while workers - lint caught on their eyebrows, caps, and overalls - toil unprotected even by a mask.[7] Respiratory ailments are common and, in some factories, are a major cause of absenteeism.

1/ World Bank, op. cit., 1987 p. 283.

2/ Coughlin P.,op. cit., 1986 pp. 33-37.

3/ World Bank, op. cit., 1987 p. 285.

4/ Coughlin, P., op. cit., 1986 p. 23.

5/ Coughlin, P., "Converting crisis to boom for Kenyan foundries and metal engineering industries: Technical possibilities versus political and bureaucratic obstacles." Africa Development, Vol. 10, No. 4, 1985.

6/ World Bank, op. cit., 1987 p. 285.

7/ Coughlin, P., op. cit., 1986 pp. 32-33.

Many factories discriminate against female production workers absolutely: except for maids and secretaries, they hire no women. Other factories have mainly women in certain sections and only men in others. No systematic study exists of differential productivity by sex, and the experiences and views of managers in diverse textile factories in Kenya.

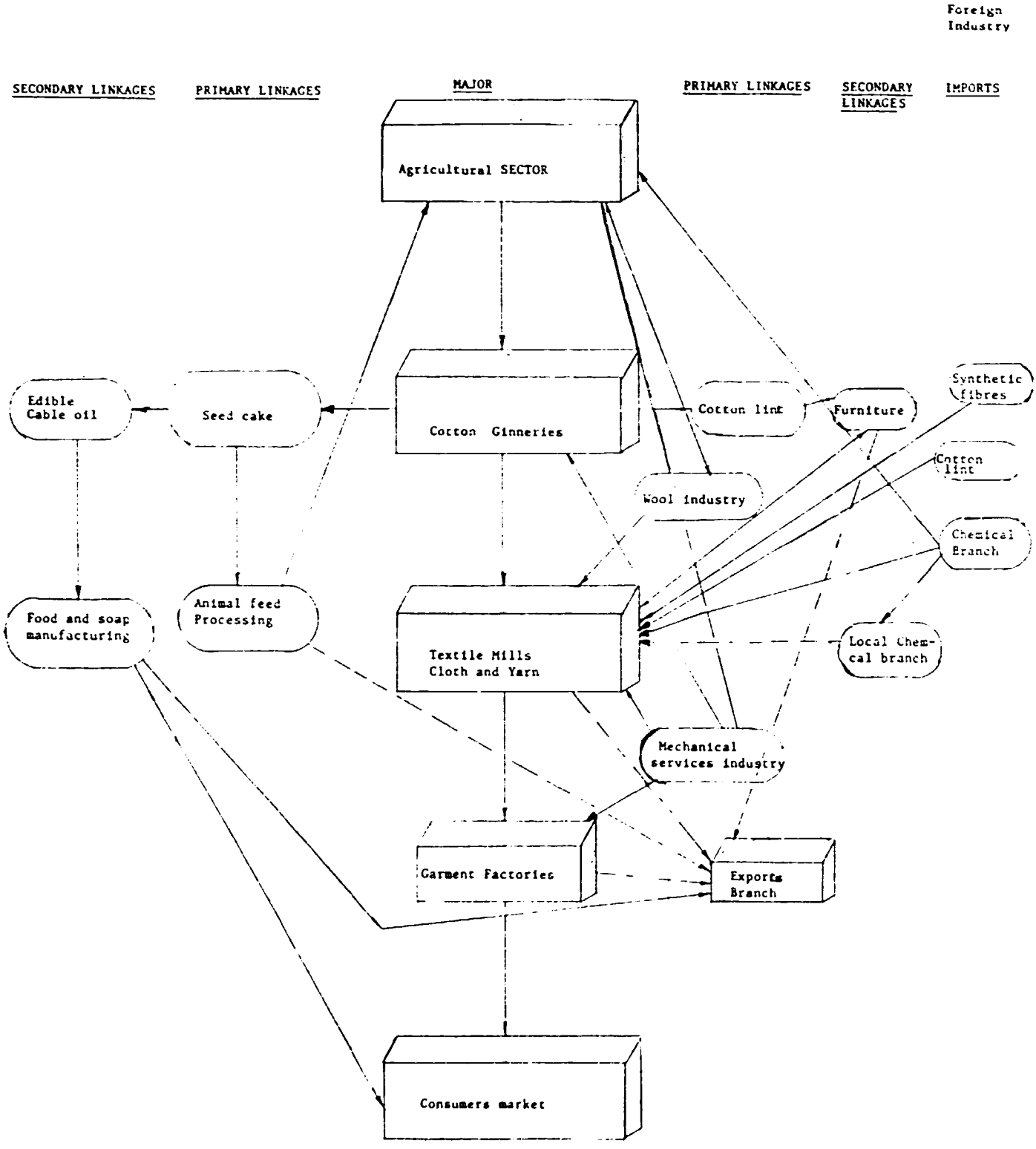
4.1.3 Linkages

Kenya's cotton-based textile industry has many forward and backward linkages (Figure 4.1). For example, ginneries provide cotton; mechanical engineering supplies spares; and the local chemical industry supplies some chemicals, though most are imported. The cotton-based textile industry supplies the major input for garment and furniture manufacturers: cloth. It also supplies cloth to wholesalers who supply retialers and small garment manufacturers.

Due to declining real prices for cotton and long delays in payments, local farmers have been growing less and less cotton. In reaction, the cotton-based textile factories have gradually shifted towards using imported synthetics and cotton, thus weakening the domestic linkages.

Growth of the local cotton-based textile industry would stimulate many agriculture-based industries, for example, edible oil processing, animal feeds, and cotton lint for hospital gauze and sanitary towels.

Figure 4.1: Present potential linkages for the cotton based textile industry



4.1.4 Ownership pattern

Most textile firms and filament extruders in Kenya are owned either by the big development finance institutions, such as IDB and ICDC, or by private Kenyan citizens.

The non-Government sector of the textile industry is overwhelmingly owned by Asian-Kenyans (though there are several instances of equity shares by overseas Asians). There is only one medium-sized firm with majority African shares, but this is also managed by Asians. The parastatal textile firms have Africans in top management positions, but rely partly on some expatriate (Indian and/or European) technical managers.

The private firms have usually concentrated managerial control in local Asian hands, and have drawn extensively on textile technicians from India for know- how and engineering expertise. However, there has been a clear tendency to Africanize technical positions as people with the appropriate training have become available.

The Government through its investment houses owns six companies that employ 3,755 workers. The relative distribution between Government-owned and privately-owned companies was not available to the mission.

4.1.5 Spatial distribution

There are 53 known companies[2] involved in the textile industry branch, which are carrying out weaving, knitting or filament extrusion. Their distribution is as follows:

Nairobi	17
Mombasa	16
Thika	5
Nakuru	5
Eldoret	3
Nanyuki	2
Athi River	1
Ruiru	1[2]
Total	51

The above companies do not include garment manufacturers unless they also possess the ability to make their own fabrics. Of the above companies, nine are involved, to some extent, in garment manufacture. Fourteen of the companies integrate spinning with either knitting or weaving.

1/ Coughlin, P., The Gradual Maturation of an Import Substitution Industry: The Textile Industry in Kenya, 1986.

2/ Even though there are 53 known firms, the location of 2 of the firms is unknown.

The distribution is naturally heavily concentrated in Nairobi and Mombasa, the two major population centres of the country, which are the main markets for much of the production from the mills. Synthetic textile producers, which rely on imported inputs have a preference for the two main centres.

4.1.6 Human resources

In 1987, the cotton-based textile industry including wearing apparel, had a 20 per cent share of total manufacturing wage employment. In the period of 1983-1987, employment in the textile industry grew at an annual rate of 5.0 per cent. In the same period, employment in the spinning, weaving, and finishing textiles branch at an annual rate of 9.7 per cent. Though the textile industry grew rapidly until the middle of the 1980s, the numbers employed reached a peak in 1986 and since then have declined. The decrease in the numbers employed in the textile industry may be a reflection of the fact that two textile mills have recently closed and many textile mills are now operating with fewer employees.

The Government has established a training school for the textile industry, "Kenya Textile Training Institute" (KTTI) in Nairobi in order to increase the number of skilled textile specialists. It is currently managed by the Ministry of Technical Training and Applied Technology. KTTI is the only specialized textile training school in Kenya where textile firms can send their employees to upgrade their technical skills. Although there have been certain criticisms with respect to its training schemes and obsolete equipment and facilities, there is no doubt that KTTI is the major technological and training center of the textile industry in Kenya.

Particular training weaknesses in the industry at present are in industrial design, weaving and quality control. Usually in the development of the textile industry, women's labour force is a major contributor. However, women are not utilized to an optimal level in some factories in Kenya. In particular factories, there appears to be a strong prejudice against using female labour.

4.1.7 Policies and institutions relating to cotton-based textiles

The main policies and institutions affecting the cotton-based textile industry in Kenya are general policies which concern exports, the supply of domestic and imported inputs, management of parastatal textile firms, and training.

Besides the new manufacturing-under-bond programme for plants producing for export only, the Government grants other manufacturers a 20 per cent export-promotion payment on the f.o.b. value of exports. After subtracting the value of tariffs imbedded in their inputs, this payment still renders a 9 per cent to 12 per cent incentive for exporters working outside the manufacturing-under-bond scheme.[1/]

1/ Coughlin, P., op. cit., 1986 p. 39.

Imported uncarded cotton attracts a 30 per cent tariff and no sales tax; imported uncarded polyester fibres have a 25 per cent tariff and no sales tax. These tariffs have imposed a significant disadvantage on the textile industry because the bans and tariffs against imported fabrics and clothing have been so permeable, and, hence, partly illusory. As a result, unofficial imports are large and restrict the industry's growth.

The selection of top managers for most of the six parastatal textile firms is quite politicized. Often, the Managing Directors and General Managers have no business experience or training, though there are exceptions. For example, the General Manager at Rivatex is a certified public accountant. Significantly, he succeeded in completely transforming his company from a big loser to a fairly profitable enterprise. But his example is not the norm. Top managers of most parastatals lack the business vision, initiative, and toughness required, and, instead, often overload their factories with unneeded staff in acquiescence to political exigencies[1].

The Government's bureaucracy is often timid and procrastinates long, even years, before making urgently needed financial decisions to rehabilitate some parastatal factories. These delays cost hundreds of millions of shillings, sometimes far more than the costs for rehabilitation.[2] Meanwhile, shortages of working capital, especially for spare parts, aggravate the factories' problems; and the managers confront daily crises that prevent them from concentrating on strategic improvements, for example, through market studies, personnel training, better work incentives and managerial information systems, and key investments to balance out equipment.

4.2 Vegetable processing

4.2.1 Overall characteristics

Although vegetable processing has a long tradition in Kenya, significant development of the vegetable processing industry started only after independence. According to the "Sessional Paper on Crop Development to Year 2000", 18 December 1988, there were no exports of processed vegetables from Kenya in the early 1960s. About 25 years later, in 1987, Kenya exported processed vegetables with a total value of KSh 700 million. This should be compared with the export of fresh vegetables which approached 1,500 tonnes in 1963 with a value of KSh 3.1 million. By 1987, vegetable export had increased to 36,000 tonnes, or a total value of KSh 1.1 billion.

1/ Coughlin, P., op. cit., 1986 pp. 24-25.

2/ For example, Nzoia Sugar Company was losing about KSh 100 million per year, though rehabilitation would have required around KSh 80 million including an infusion of KSh 30 million for working capital. The losses continued for more than five years before the government decided to both rehabilitate and expand the factory. See: Coughlin, P. "Decisions and their Financial Implications at Nzoia Sugar Company." Paper presented to a seminar on the sugar industry and sugarcane outgrowers' associations, Webuye, 7-10 September 1986.

Export of vegetables in the early 1960s did not involve sorting, grading and packing to the same extent as is required now. Today, international trade in vegetable is very competitive. An industry has developed which in conventional terms should probably not be classified as simply processing. However, vegetable processing is an important part of the branch which contributes the major part of export earnings.

There are only a few important, larger processing companies, three of which have canning factories processing vegetables for the domestic market and for export. There are only a few firms engaged in freezing french beans, exlusively for export (see Table 4.2.1), and one dehydration plant whose products are also exported. In addition, there are a few smaller plants using vegetables as raw material for processing. These include the manufacture of potato crisps, and tomato sauce.

Since the climate in Kenya permits the growing of fresh vegetables practically all throughout the year, the growth in domestic demand for processed vegetables will not be particularly rapid. For this reason, a major part of the production of processed vegetables must be exported. World markets for processed vegetables are highly competitive and a great number of countries, not least in the Third World, are attempting to increase their exports. The cost of packing material is significant in the total costs of products - on account of this, the supply of intermediate inputs, such as tin cans, at competitive prices is a pre-requisite for increased exports. Consumers in the industrialized countries are being increasingly concerned about the high content of chemicals in processed and fresh food. There is not yet sufficient awareness in Kenya of these changes in consumer preferences.

4.2.2 Major problems and constraints

The branch includes a number of different types of processing industries and technical problems common to the branch as a whole have not been identified. Given that the financial situation of a company is satisfactory, the acquisition of spare parts should not be a problem. They are mostly available from local workshops and imported spare parts can generally be ordered through the same firms. Direct approach to overseas manufacturers is also possible.

One major constraint for exporting fresh vegetables has been the lack of air-freight capacity. Since importers, in the world markets, usually require deliveries of specified quantities and qualities at certain dates, freight constraints will seriously hamper exports of fresh vegetables.

4.2.3 Linkages

Figure 4.2 illustrates the linkages of the vegetables processing branch. The linkage pattern is not very strong and the number of companies registered at the Ministry of Industry, or otherwise discussed by the mission are comparatively few as is shown in Figure 4.2. It is worth mentioning that there are no firms engaged in sorting, grading and packing which are registered in the agro-industry sub-sector. The reason is obviously that the value added is considered marginal and that there is no processing in conventional terms. A modern efficient sorting, grading and packing company requires substantial investments in equipment and is fairly labour intensive. Such a firm could also be a combination of fresh vegetable market supplier and processor of dehydrated frozen or canned products. The mission has not been

able to identify a firm in Kenya with this particular protile. A future development might be to process dried soups and so on, based on domestically available meat extract from the meat processing branch and dehydrated vegetables.

Vegetable processing is sometimes combined with processing of fruits and/or berries. This is also the case in Kenya but not to any large extent.

Figure 4.2: Linkage vegetable processing branch

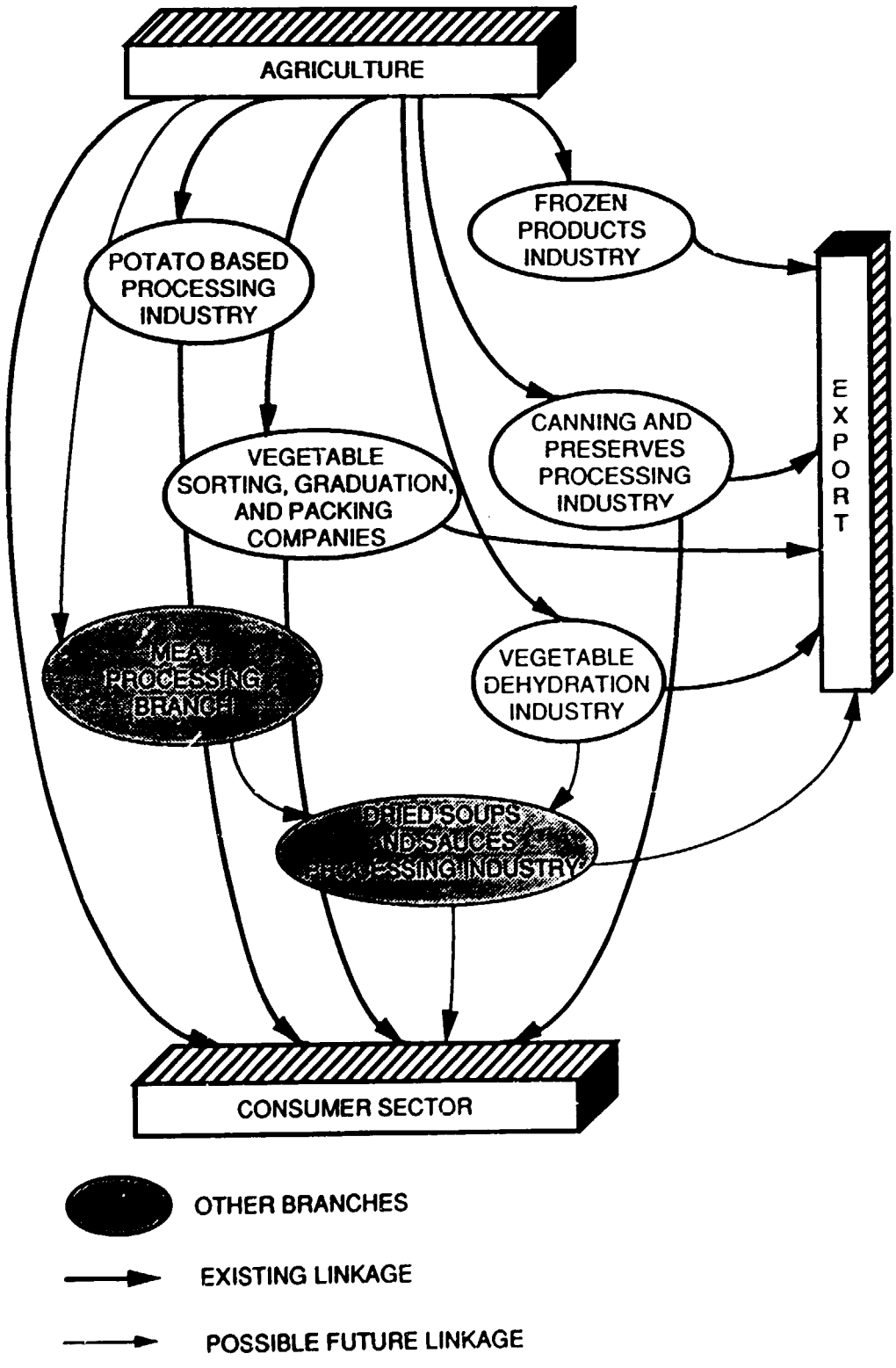


Table 4.2.1: Firms in the vegetable branch of the agro-industry sub-sector

	Firm	Location	Products(s)
1.	Ngoro Canning Factory Ltd.	Nakuru	Canned french beans
2.	Trig-O-Ken	n.a.	Frozen french beans
3.	Go-Tresh Agrapha Ltd.	Nairobi	Potato crisp, fried nuts
4.	Fine Foods Ltd.	Nairobi	Potato crisp, etc.
5.	Ambica Foods Ltd.	Nairobi	Potato chips, ec.
6.	Premier Food Industries Ltd.	Nairobi	Canned and boiled products
7.	Truefoods Ltd.	Nairobi	Tomato paste
8.	Kabazi Canners Ltd.	Nakuru	Canned carrots, beans, mixed vegetables
9.	One Shop Enterprises	Nairobi	Potato crisp, fried nuts, etc.
10.	Mount Kenya Agro Industries	Kiganjo	Dried onion and pepper

Source: Mission's field survey.
Note: n.a. = not available.

4.2.4 Ownership patterns

The Processing industry branch has registered 584 companies. The branch is almost entirely privately owned, the most important private companies being:-

Company	Location	Product	Number of employees
- Delmonte	Thika	Canned fruits	-----
- Njoro Canning Factory	Nakuru	Canned beans	-----
- Premier Foods Ltd	Ruaraka	Canned, bottled prod.	-----
- Kabazi Canning Ltd	Nakuru	Canned carrots, beans mixed vegetables	
- Tru Foods	Nairobi	Tomato paste, sauce	340
- Tropical Food Processors	Mombasa	------	300
- Frig-O-Ken	Nairobi	Frozen french beans	40
- Kenya Orchards Ltd	Machakos	Fruit jams	-----
- Go-Fresh Agrapha Ltd	Nairobi	Potato chips fried nuts	-----
- Mount Kenya Agro Industries	Kiganjo	Dried onion and pepper	75

The Government has a minority share in Kenya Food Products Ltd. and owns, through ICDC, 100 per cent of the shares in Pan Vegetable Processors in Naivasha.

The above mentioned government participation represents less than 5 per cent of the industry's total output.[1/]

1/ The information given above was obtained from the Horticultural Crops Development Authority, the Ministry of Planning, Kenya National Chamber of Commerce & Industry, and the Bureau of Statistics. Statistics and background material are very difficult to obtain, if available at all, they are usually old and out-of-date.

4.2.5 Spatial distribution

The vegetable processing industry has 16 major companies, which are registered at the Ministry of Industry and the Horticultural Crops Development Authority. They are distributed as follows in Table 4.2.2.

Table 4.2.2: Number of vegetable processing companies, by location

Location	Number	Location	Number
Nairobi	8	Nakuru	1
Mombasa	1	Machaka	1
Thika	1	Kiganjo	1
Njoro	1	Naivasha	1
Ruaraka	1		

Sources: Ministry of Industry, Register of Agro-Industries, 7th September 1989. Horticultural Crops Development Authority, meeting with mission, 1 February 1990.

Note: It should be noted that the two sources did not give the same companies, some were common to both lists, others were only on one list. The above totals are a combination of the different companies on the two lists.

The distribution system for fruit and vegetables is carried out through 32 large wholesale and retail stores and numerous small family owned businesses. Of the larger wholesalers/retailers, 29 are located in Nairobi and 3 in Mombasa.

Associated with this subsector are also 6 fruit juice processors/canners, all of which are located in Nairobi.

4.2.6 Human resources

There is little information on human development specific to the food processing industries in Kenya. What little information that is available suggests that engineers and quality control specialists in food processing industries usually have a degree in food science from domestic universities. However, with the development of food processing industries in Kenya, there may be a need for greater numbers of food technologists with increased technical sophistication especially, for example, in processing techniques such as freeze-drying.

4.2.7 Policies and institutions as they relate to the vegetable processing branch

Many overall government policies significantly affect the vegetable processing branch, although generally in a positive way. The production of vegetables has priority in Kenya's development strategy, because it is a high value product. Moreover, vegetable production can be undertaken efficiently by small and large farms alike. The production technology can be labour intensive, and increasing Kenya's vegetable production could also provide much needed employment.

Vegetable processing mainly uses domestic raw materials and thus provides important backward linkage effects. A large part of processed vegetables are exported and thus fall within a priority area of Government policy.

The vegetable processing branch is particularly sensitive to the policy instruments used by the Government. To export processed vegetables, the price of the product must be competitive in the world market. Because of this, the price is sensitive to the prevailing exchange rate, and if, the Kenyan shilling is overvalued, exporters would find difficulties in marketing the products. Moreover, the processing of vegetables requires important inputs of imported or locally produced goods such as oil products and packaging materials. The prices of these, depend in turn on exchange rates, and import and tariff policies. The vegetable processing branch would clearly benefit from market liberalization, including foreign trade.

The tax system, such as the VAT, export and import tariffs, is being revised and the proposed changes should be beneficial to the branch.

4.3 Ceramic industry

4.3.1 Overall characteristics

The ceramic industry in Kenya is small and presently produces a very limited range of products. Three companies are known to be current producers of glazed ceramic products. Wall tiles, sanitaryware, and tableware are produced by Ceramic Industries (East Africa) Limited. Giftware items - mostly figurines, such as dogs and cats - are manufactured by Atlantis Ceramic Industry. Porcelain Products Limited produces tableware, but on a small scale in comparison to Ceramic Industires. These manufacturers are the only producers of glazed ceramic ware in the non-metallic mineral products subsector of manufacturing. All are situated in Nairobi.

Ceramic Industries is the most significant firm in the sector; the other firms are very small. Ceramic Industries and Porcelain Products are operating under receivership. Ceramic Industries is the only producer of items that are basic to the industry: crockery (tableware), wall tiles, and sanitaryware. Therefore, practically viewed, it is the ceramic industry in Kenya.

A few manufacturers are making unglazed floor tiles, roofing tiles, and bricks, including refractories. Besides these manufacturers of structural clay products, an unknown number of small potters in the informal sector are making earthenware. The greatest number of these producers are in the western regions of the country.

The size of the industry is small, in comparison to the manufacturing sector as a whole. The non-metallic mineral products subsector, comprising ceramics and earthenware, glass, structural clay products, cement and plaster, concrete products, and so on, as a whole, accounts for about 3 per cent of total manufacturing output and 3.2 per cent of total manufacturing value added.

The non-metallic subsector is broken down to one further level in the national accounts: clay (or pottery) and glass products, on one hand, and non-metallic mineral products (cement, concrete, and all other non-metallic mineral products), on the other hand. The manufacture of clay and glass products account for 8.2 per cent of the total output of the non-metallic subsector and 19.1 per cent of the subsector's manufacturing value added.

The average annual rate of growth of the manufacture of clay (pottery, glazed ceramic, and structural clay products) and glass products from 1983 to 1987 was 7.7 per cent. Production increased a further 5.1 per cent between 1987 and 1988. These rates of growth compare to 5.1 per cent and 6.0 per cent growth in total manaufacturing in the years from 1983 to 1987 and 1987 to 1988, respectively.

Compared to 1987, the output of floor and wall tiles declined marginally in 1988. During the same period, the production of glass bottles and windscreens for automobiles, the two major products made of glass, increased by 6.0 per cent and 37 per cent, respectively. It appears that the 5.1 per cent rate of growth in clay (including ceramics) and glass products results from strong growth in glass products, which offsets the low or declining growth in the production of ceramic and structural clay products.

It is important to note that the ceramic industry is a labour-intensive branch of manufacturing and, therefore, provides potential employment generation with growth of the industry. It also utilizes local materials for a large proportion of its material inputs. The proportion has increased recently, as the major producer in the branch has made a concentrated effort to use more local clay in place of imported clays, despite resultant problems in production. Despite the large use of local clay, the branch is entirely dependent upon imports for its requirements of glaze, which accounts for about 20 per cent of the total cost of production, or about 60 per cent of the materials of production.

4.3.2 Major problems and constraints

The major problems of the branch are those that are found in the rest of the manufacturing sector, namely, insufficiencies in technical know-how, financial management, and raw materials or intermediate inputs. Nearly all other problems are secondary, though critically consequential.

In a number of enterprises and industrial branches, marketing and import-dependency are other major problems. Presently, marketing is not a major problem in the ceramic industry, but import-dependency is critical. The appearance and quality of the final product in ceramics depends as much on the glazed surface, which is produced by imported glaze, as on the body, which is made of local clay and other minerals.

Import-dependency can be the root cause of production stoppages due to delays in receiving shipments of imports, high financial cost due to working capital being tied up for long periods in the purchasing procedure, and inferior product quality. This latter problem is shown by a recent example at Ceramic Industries. Surplus or waste glaze was reclaimed and recycled when the glaze stocks were exhausted. The dependency on imports was temporarily removed, but the solution created its own problem, which was a poorly glazed surface.

Other problems in the branch are matters of old equipment, lack of replacement parts, lack of local sources of reliable supply and good quality replacement parts or repair services. A major problem the branch faces is the fact that there is insufficient experience and technical capability in ceramic production at the level of top and middle management and a similar shortage of technical capability and skills among supervisors and workers.

A major constraint is the low degree of development of local sources of raw materials. Consequently, the supplies are irregular, of varying and unknown qualities. Some are absolutely not available, for example, glazes and plaster-of-Paris, used in making moulds. The reasons for this constraint are partly due to the small size of the branch, and therefore, low demand for raw materials. Other reasons may be an inadequate geological survey, and also a failure to seek and obtain technical assistance from various potential sources.

Poor product quality is another serious problem and constraint to market expansion. Inferior products are produced due to problems of materials and manufacturing techniques, and to old designs. Consequently, the products are not competitive against imports, without a high protective wall, sales revenue is low, and the branch's potential for export distribution is virtually eliminated.

The branch is constrained by a lack of detailed cost accounting. This is part of the overall constraint of inadequate financial management. Some of the consequences are excessive expenditures on overhead. They were very high relative to total costs of production for the major producer of the branch, during the period of about six years before it was placed under receivership.

Without detailed cost accounting, the managers of the enterprises in the branch cannot know the relative rates of profitability among the various products, and cannot pinpoint the location and occurrence of excessive costs, or unnecessary expenditures. With two out of three companies in the branch under receivership, because of defaults on loan repayments, the indication is that the managers did not adequately monitor the financial position of their companies. Perhaps they made investments that were not well evaluated.

In summary, most problems and constraints in the branch can be traced to the primary problems of gaps in technical know-how, inadequate analysis and management of finances, and deficiencies of one kind or another in raw materials and intermediate inputs.

4.3.3 Linkages

The ceramic industry has very strong backward linkages to the mining of non-metallic minerals and as these are normally located in rural areas, there is a beneficial income generating effect in these low income areas. Some temporary employment is also created during the periods when extraction takes place.

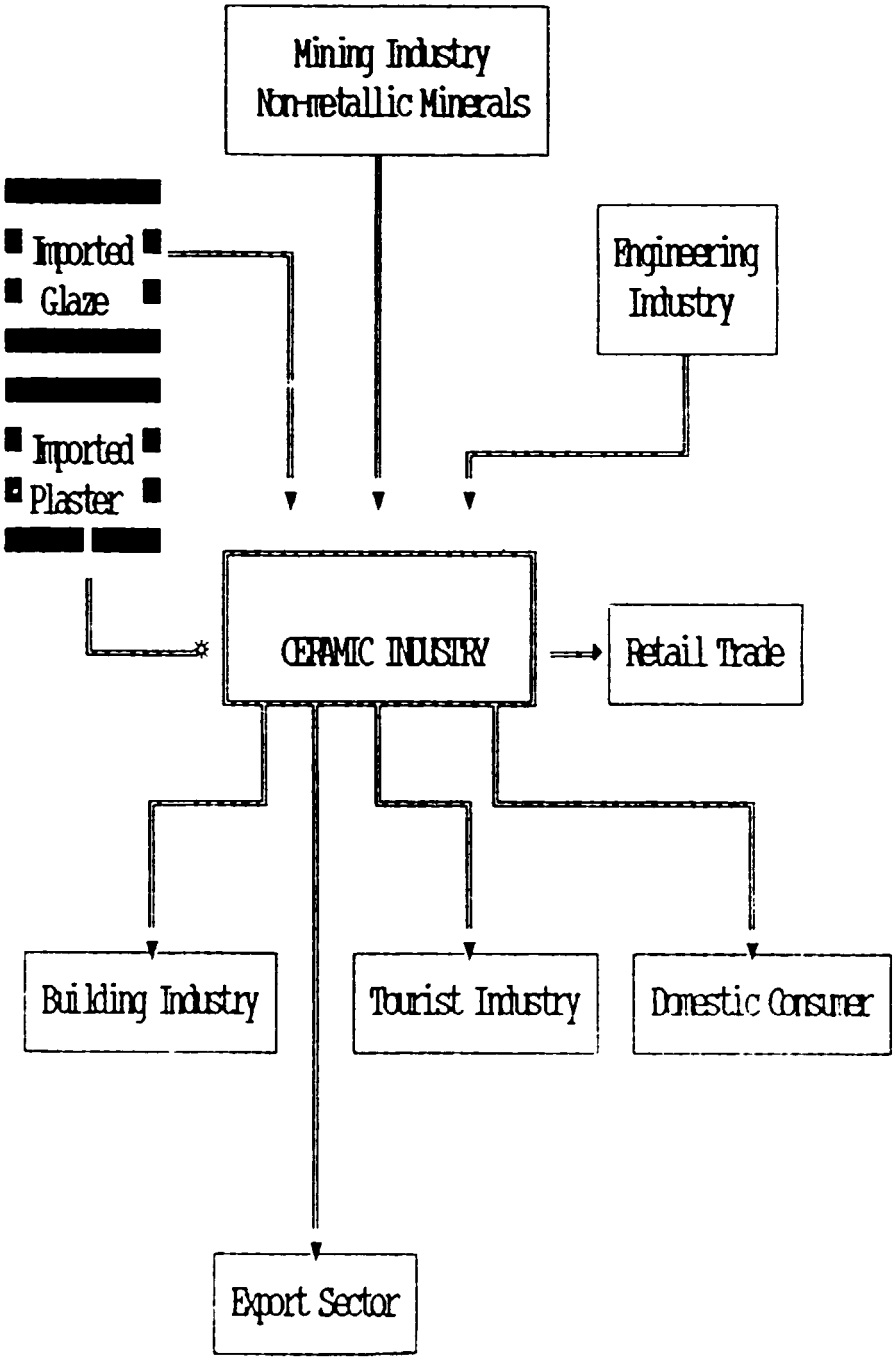
Backward linkages also exist to the engineering industry for the supply of spare parts and consumables but unfortunately some engineering concerns cannot supply the required items at the right quality. Improvement in the training of the machinists in this sector would enable the linkage to the ceramics sector to be strengthened.

Forward linkages exist to the building industry, which uses large quantities of sanitaryware and tile products. The value of sanitaryware in normal construction contracts in Kenya can amount to 15 per cent of the total, the majority of which is imported. Development of the ceramics sector would strengthen this linkage considerably with considerable savings in foreign exchange expenditure.

Forward linkages also exist to the domestic consumer and the tourist industry, crockery being sold to both individuals, supermarkets, hotels and restaurants. In all cases, the products are substitutes for imports.

There is some potential for exporting a small proportion of production into the regional market, once the volume of production has been increased and quality standards improved.

Figure 4.3: Ceramic Industry - Linkages



4.3.4 Ownership pattern

Apart from Ceramic Industries (EA), Ltd. and Porcelain Products Ltd., there is a small private company called Atlantis Ltd which is producing small amounts of giftwares.

Porcelain Products Ltd., which was founded by the previous Managing Director of Ceramic Industries went into receivership in 1987 and has now a limited production of tableware.

Ceramic Industries was a private company until the beginning of the 1970's when ICDC bought a 20 per cent share of the company. In 1980, ICDC, together with ICDC Investment and the Development Financing Company of Kenya, DFCK, acquired the remaining stock of shares, except for 8 per cent which remains in private hands. ICDC and ICDC Investment holds 75 per cent of the shares and DFCK holds 17 per cent, this gives ICDC complete control of the company. Ceramic Industries went into receivership in 1988. The question of new ownership was not settled at the time of the mission's visit (February, 1990).

4.3.5 Spatial distribution

The formal sector contains only three main companies concerned with the manufacture of whiteware ceramics, all of which are located in the Nairobi area. These companies are:

a) Ceramic Industries (EA) Ltd., located on Kitui Road in the industrial area. This company is the most important company in this sector and produces crockery, sanitaryware, wall tiles and small quantities of gift items. The company is presently in receivership but is still producing its full range of products.

b) Porcelain Products Ltd., located on Shima-La-Tewa Road, Nairobi. This company was established by a former General Manager of Ceramic Industries (E.A.) Ltd. but is now in receivership. The company is still producing a limited volume of crockery items but as many of its employees have been made redundant by the receiver, it is currently operating well below its capacity.

c) Atlantis Ceramics Ltd., located on Factory Street, Nairobi does not manufacture a full range of crockery and produces only giftware items, such as vases, fruit bowls and plates.

d) Ageca (Kenya) Ltd., located on Kijabe Street, manufactures ceramic beads.

The concentrated distribution of ceramics companies in Nairobi, is a natural consequence of the fact that the major market for the products is in the Nairobi area. A second factor is that the local raw materials for ceramic manufacture are within a reasonable travelling distance of Nairobi and the deposits are easily accessible from major roads.

4.3.6 Human resources

In 1987, wage employment in the ceramics industry in Kenya was recorded at less than 1,000, but there are a significant number of people engaged in the small or cottage scale sector of the ceramic industry. Because of the underdeveloped nature of this sector, no institution has been established as yet to provide formal training for ceramics. What domestic training that is available is inadequate and provided on-the-job. However, small numbers of Kenyans are sent abroad for advanced training. Unfortunately, funds for such training are limited. In short, human resource development for the ceramic industry in Kenya is woefully inadequate and is a major cause of the industry's current problems.

4.3.7 Policies and institutions as they relate to the ceramic industry

The performance of the Kenyan economy began to improve in 1985 after a few poor years due to drought and other external circumstances. In 1986, the GDP growth rate rose to 5.5 per cent per annum. Inflation declined to 5.7 per cent due to the government's constrained expenditures and economic management in the preceding years. 1985 was a good year in the Kenyan economy, and as the planners were in the early stage of writing the 1989-1993 development plan, the government produced Sessional Paper No. 1 of 1986 on "Economic Management for Renewed Growth." New directions in policies were being formulated for liberalization of the economy.

Going into the second half of the 1980s, the Government began to review the structure of customs duties on imports and the procedures for issuing import licences. Presently, policy changes are being made toward further rationalization of customs duties and lowering of tariffs.

The procedure for obtaining an import licence is an additional time consuming job for the ceramic industry, which depends on imported glazes for its production. After the licence to import is obtained and the glaze is cleared through customs, 40 per cent duty is paid. Glazes are exempt from the 17 per cent sales tax. Most equipment is subject to 20 per cent customs duty and is exempt from the sales tax.

The Government has no policy that is specifically applicable to the ceramic industry. The industry is affected equally with other industries by such institutions as the Investment Promotion Centre and government policies for promoting exports.

The branch is small and there are no institutions specifically for the ceramic industry. The Kenya Industrial Research and Development Institute (KIRDI) and the Kenya Institute of Management (KIM) are two institutions that possibly could offer assistance in the problem areas of the branch.

CHAPTER 5
THE CHOICE OF PLANTS

5.1 The selection process

The choice of plants was made by the mission after consultations with the Ministry of Industry, other government departments, including the Ministry of Finance, the Ministry of Planning and National Development (MPND), the Investment Promotion Centre (IPC) and representatives of the Kenyan business sector and of the country's main bilateral and multilateral co-operation partners.

During a preparatory mission in October 1989, it was agreed that the Ministry of Industry, in consultation with MPND and other relevant Kenyan authorities, would forward the Government's suggestions for sub-sectors and industries to be the focus of the diagnostic survey. As agreed, the Ministry of Industry forwarded a list of 23 candidates for rehabilitation. The candidate firms represented a wide spectrum of subsectors, ownership and geographical distribution. Out of the 23 firms, 10 were private and the remaining 13 parastatals.

Upon the arrival of the UNIDO mission in January 1990, the Investment Promotion Centre (IPC) presented an additional list of 11 companies to the mission for consideration.

For the final selection, the following criteria were applied:

(a) The plants should be selected within strategic industrial sub-sectors, such as agro-industries.

(b) The plants should have a good future economic potential and thus be viable rehabilitation projects.

(c) The plants should be able to attract funding from donor(s), banks and or commercial enterprises, and should be of a bankable nature.

(d) The plants should have the economic capacity to reduce imports and/or increase exports.

(e) The plants should exhibit a maximum number of forward and backward linkages in order to enhance the impact of eventual rehabilitation efforts.

(f) The plants should be able to mobilise domestic resources and utilize locally available materials.

(g) The plants should have a significant employment generation potential.

(h) The plants should be drawn from both the public and the private sectors.

(i) The plants should enhance the socio-economic welfare of women.

(j) The plants should enhance the participation of Kenyan entrepreneurs.

(k) The plants, in terms of their rehabilitation, should promote a greater role for the private sector.

(l) The plants selected should contribute towards an improved regional balance within the country ("district focus").

The criteria for plant selection have taken into account, as much as possible, the statements of priority made by the Government of Kenya (GOK), particularly in: Sessional Paper No. 1 of 1986 on Economic Management for Renewed Growth and the Development Plan 1989-1993 and also UNDP's Fourth Country Programme for Kenya 1988-1991.

5.2 Selected enterprises

After further consultation with Kenyan authorities, the mission selected four companies to be included in the survey. These were:

(a) Mount Kenya Textiles Ltd. (Mountex)

(b) East African Bag and Cordage Ltd.

(c) Pan Vegetables Processors Ltd. (PVP)

(d) Ceramic Industries (East Africa) Ltd.

After having visited the plants, it was decided to exclude East African Bag and Cordage from the list. This was because the company was in the process of being sold to a private company and it was agreed that at this stage a rehabilitation study would be premature.

5.3 Justification

Although the three chosen plants are all parastatals, they were selected as candidates because the rehabilitation package developed for the firms examined, if considered a viable option, provide ways and means for their subsequent privatization.

This emphasis is in keeping with the GOK's declared intentions to assess privatization as a policy instrument where appropriate. In this context, in the opinion of the mission, the possibilities for enouraging an increasing role of Kenyan entrepreneurs in these companies, both in their role as financiers and as managers, should be fully explored.

Mount Kenya Textiles (Mountex)

This company was established in 1973-74 by Lonrho with financing from development banks. It became operational in 1976, but soon went into receivership. In 1978, the government took over the company. The machinery originally installed was not adequate and after rehabilitation efforts the plant started operations in January 1989.

The company inherited a debt of about 60 million Kenyan shillings. Poor economic performance and successive devaluations of the shilling have led to a situation that the company's assets could only cover a small part of its debts if the company were to be liquidated. Alternative uses of the plant are limited. From an economic point of view, the basic question is whether the plant can make a profit sufficiently large to pay its current costs, interest and amortization charges on a loan equivalent to the value of the plant in its best alternative use. It is the opinion of the mission that, from an economic point of view, the rehabilitation of the plant could be justified.

Pan Vegetable Processors Ltd. (PVP)

The history of this company dates back to the 1960's. Its present production structure was established in the late 1970's when a joint venture was formed. The company was purchased by the Industry and Commerce Development Corporation (ICDC) at the beginning of the 1980's. After some rehabilitation, the company resumed production in 1987. Since then, it has operated at a loss.

The company produces dehydrated vegetables mainly for the export market. Raw materials are obtained from two farms operated by the company as well as from other farmers in the region.

In order to make the company profitable a series of measures have to be taken. In view of past experiences and its present situation, doubts can be raised as to the rationale for rehabilitating this company. Therefore, on strictly commercial grounds, there may be a good case for liquidating the company.

However, viewed within the broader context of Kenya's economic development there are important factors to consider. The activities of the plant satisfy a great number of Kenya's development objectives. It produces an export product and uses local raw materials. Women work both on the two farms and in the plant. Increasing vegetable production in the region would generate additional employment, because vegetable production is labour intensive. The plant is located in Naivasha and thus satisfies the district focus criterion. From these perspectives there are compelling reasons to select the company for in-depth examination.

Ceramic Industries (East Africa) Ltd.

Ceramic Industries (EA) Ltd. is the only company in Kenya producing ceramics on an industrial scale. It has three lines, sanitary wear, tiles and cutlery. The company is under receivership and outstanding liabilities are significantly higher than assets.

Many other African countries have profitable ceramics factories and there should be room for at least one in Kenya as well.

CHAPTER 6: PLANT PROFILE
MOUNT KENYA TEXTILE MILLS LTD. (MOUNTEX)

6.1 History of the company

Mount Kenya Textile Mills Ltd. (Mountex) started in 1974 as Nanyuki Textile Mills Ltd., located 208 km north of Nairobi. From its inception, the mill was beset with problems such as use of old machinery, no proper financial structure, and lack of market demand for its finished products.

The company was incorporated on 15 July 1974 with a nominal share capital of KSh 2,000,000 (100,000 shares of KSh 20 each). The initial distribution of the shares is shown in Table 6.1.

Table 6.1: Mountex distribution of company shares

Shareholders	Per cent[a/]
Kenya Industrial Development Investments Ltd.	26.0
East African Development Extract Co.	25.2
David Whitehead and Sons	12.5
German Development Bank	7.5
Industrial Development Bank	12.5
Motor Mart Holding	16.0

Source: Mountex.
Note: a/ Percentage shares do not add-up to 100 per cent due to rounding error.

Most shares were either wholly or partly owned by Lonrho Group subsidiaries. The Lonrho Group therefore was the major shareholder, with some 75 per cent of the shares.

When the mill was established, the capacity was 10 million m^2 of cloth per year, or roughly 830,000 m^2 of finished cotton cloth per month.

On completion in December 1976, the project experienced "teething" problems, including: poor management, high cost of cotton and poor cloth quality that was unmarketable. In designing the factory, the engineers mismatched the production flow through the various departments. This led to bottlenecks which prevented the projected target of 10 million m^2 of cloth from being achieved. Also, the installed machinery in all the production departments was second hand; their spares were not readily available; and most operations were labour intensive.

Beset by problems and low sales, the company could not meet its loan obligations. Hence, it was placed under receivership in 1977.

On 26 June 1978, the Industrial Development Bank and the Government of Kenya set up Mount Kenya Textile Mills Ltd.

The new company acquired all the assets and liabilities of Nanyuki Textile Mills Ltd., and the share capital was increased to KSh 68 million. This takeover meant that the new owners inherited all the problems of the previous owners.

Since 1978, the Government of Kenya has had a compelling interest in the company. The ownership was and is:

Government of Kenya	87.5 per cent
Industrial Development Bank	12.5 per cent

The company's inherited problems still persist today. Although attempts have been made to improve the company's situation, for example, by rehabilitation, introducing new machinery, extension of the production areas and introducing new synthetic fibre lines, the company still has not been turned around.

6.2 Existing situation

(a) Summary of current problems

The company's current problems comprise both those which it inherited from Nanyuki Textile Mills Ltd. and new problems which have surfaced during recent years. The problems are major obstacles to the firm's profitability.

The major problems are:

- weak financial structure;
- poor management and human resources development;
- old and technologically backward machinery;
- lack of spare parts;
- bottlenecks in production departments, especially weaving;
- high cost of energy due to old machinery;
- high cost of services;
- unreliable supply of cotton; and
- occupational hazards, especially in weaving.

(b) Management and organization

Mount Kenya Textiles Ltd. (Mountex) is located in Nanyuki approximately 200 km north of Nairobi.

Mountex was founded in 1973-74 by Lonrho as a private company and collapsed within a year and went into receivership. Various financial institutions such as the African Development Bank, the Industrial Development Bank, the Development Finance Company of Kenya and DEG - Deutsche Finanzierungsgesellschaft für Beteiligung in Entwicklungslaendern GmbH have come to rescue the company over the years.

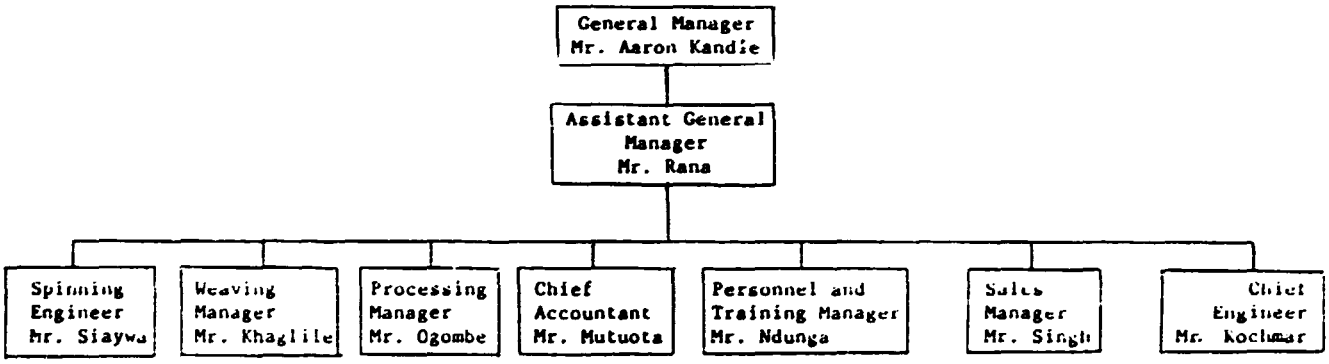
Mountex is today wholly owned by the Government. The Board of Directors of Mountex include:

Chairman:	Mr. M. Akifhulle	Managing Director of East African Development Bank
	Mr. Reginald Ogee	Managing Director of Industrial Development Bank
	Mr. Wilfred Koinange	Permanent Secretary of Ministry of Industry
	Mr. C. Mbindio	Permanent Secretary of Ministry of Finance
	Mr. John V. Bosse	Managing Director of Development Financing Company of Kenya
	Mr. Hansmann	Deutsche Finanzierungsgesellschaft für Beteiligung in Entwicklungslaendern GmbH (DEG)

The General Manager attends board meetings but is not a permanent member of the Board of Directors. Board meetings are meant to be held quarterly but in practice they are usually held only once a year in connection with the year end report.

The Board is extremely top heavy with high level representatives from ministries and institutions. They practically never take part in any board meetings but send alternates or nominees who usually do not have power or status to take decisions. This makes it very difficult to proceed with implementation of decisions as it takes a long time for decisions to be actually taken.

Figure 6.1: Management structure of Mount Kenya Textiles Ltd.



The General Manager, Mr. Aaron Kandie is a Kenyan national and has been employed by the company for the past 15 months. The General Manager began his studies at Makerere University. He obtained a scholarship to continue his studies at the University of Michigan where he received his B.A. and M.A. degrees in economic geography (economic statistics, mathematics and economic geography).

The General Manager has had a variety of high level positions as a civil servant culminating as Permanent Secretary of the Department of Personnel in the Office of the President.

The General Manager, a political appointee, appears to be an intelligent and able man. However, his abilities may not be well suited to this position where specialist experience and expertise is needed. These deficiencies do not make him the ideal candidate to ensure the long-term viability of the company. The mission recommends that a properly experienced General Manager be found as a more long-term solution to the company's problems.

The middle management at Mountex appears to be a large, but unbalanced team with glaring examples of very good and less competent men. Most of the managers have been with company for many years. The mission's assessment of the various managers, where information was available, is given below:

- Mr. Rana, assistant General Manager, has been with the company for 10 years, and seems to be performing well.

- The Chief Engineer, Mr. Kochmar, appears to be an excellent engineer, who has established a workshop where 70 per cent of all the spare parts needed are made. Refurbishing of machinery is also done here. However, the mission notes that there is no systematic preventive maintenance programme.

- Mr. Singh, the Sales Manager also gives a good impression and appears to have the marketing department under good control.

- Mr. Khaguli heads the weaving department, which is the weakest link in the production chain. In the mission's opinion, many of the bottlenecks in this department can be traced back to the very poor management of this department. Mr. Khaguli appears to have certain problems with his subordinates. At the end of 1989, 40 workers left the company's weaving department at one time. The reason for this protest is not known.

- Mr. Ogombe, the Processing Manager, is a very able manager who appears to handle people well. He is highly competent on the technical side and runs his section very well.

- The Chief Accountant, Mr. Mutuota, has not been with the company for a very long time but gives a good impression as a dedicated worker. He has no knowledge of using computer systems in accounting.

- Mr. Siaywa, Manager of Spinning Department, has been with the company since 1986 and the General Manager is quite happy with him, but the mission has not been given sufficient information to be able to form an opinion about him.

The company is not running at full or even near full capacity which means that if and when production is increased it might be necessary to reinforce the sales department.

(c) Human resources

1. Management team

There is very limited information on the training background of the existing management team, except for the General Manager who seems to have a high level of experience in administrative and personnel matters. However, it was quite clear from his former education and work experience that he has very little knowledge of textile manufacturing and marketing.

The mission was not able to obtain detailed information about the background of the various middle managers of the company.

2. Production departments

There are three different production departments, that is, spinning, weaving and processing. Each of these departments has a Manager, a Deputy Manager, officers, supervisors and workers. As of October 1989, aside from the Manager and Deputy Manager, the spinning department had 2 officers, 4 supervisors and 289 workers; the weaving department had 2, 6 and 372; and the processing deparment had 3, 3 and 170 respectively. Among experienced workers, charge-hands are assigned for each production line. There are no women working in the factory.

Most of the workers are either unskilled or semi-skilled labour. Only about 5 per cent of the labour force is classified as skilled. The firm provides ample opportunities for both in-house and external training for all level of employees. As part of its in-house training system, it provides a weaving training workshop. Newcomers in the weaving department are first [illegible] week. They then begin technical training. After the three months of basic training in the workshop, they are initially assigned to work on two weaving machines. After six months training, an average worker can manage six weaving machines. An additional six months training usually makes it possible for a trainee to manage 12 machines. The ability to cope with 12 machines is the accepted required expertise in the weaving department.

The training system as such is well organized and efficiently co-ordinated in the weaving department; particularly the three months basic training workshop given to newcomers.

The spinning and processing departments do not provide any particular theoretical training for newcomers. They learn their work skills strictly via on-the-job training. Almost all the workers are literate and have received at least seven to eight years of education. They acquire necessary knowledge and skill quickly. On average, after four years of experience they are promoted to become charge-hands. After three years of experience as charge-hands, they can be promoted to become supervisors.

As for external training, the firm is sponsoring some of its employees by taking an advantage of the government training facilities provided by the Directorate of Industry Training (DIT) under the Ministry of Technical Training and Applied Technology. Many of the employees in management and supervisory positions have been trained in the facilities of DIT or have been sent to India for education and technical training.

There is a technical training school - Kenya Textile Training Institute (KTTI), specially established for textile industry training under DIT in Nairobi. Currently six employees of Mountex are undertaking the training course in KTTI. The training course adopts a so-called sandwich system, that is, a half year of theoretical and practical studies in KTTI and a half year of work in the plant, and then back again to KTTI for further studies. In this way, students can acquire knowledge and skills directly useful for their work in the plant.

Although Mountex has been making an effort to sponsor its employees for further training, the majority of the workers in the production plant are unskilled or semi-skilled. They simply repeat the same procedure of unskilled work on the production line with very little knowledge of the machinery and equipment they use and also with little concern for the quality of products they produce. They seem to lack a conducive working atmosphere and have little motivation.

Working conditions in the plant are rather severe. The workers are working almost without any break for eight hours in three different shifts. The night shift which starts at 11 p.m. and ends at 7 a.m. is especially hard and strenuous. Despite air conditioning running all the time, the air in the factory is stuffy and hot. In addition, cotton dust is extremely unhealthy and causes respiratory problems, in particular, in the weaving and spinning departments.

The medical officer reports that many workers in these departments have respiratory difficulties and tend to be susceptible to flu. Absenteeism is very common. Although they are encouraged to wear a special mask in the factory, few workers have one due to the fact they are uncomfortable and inconvenient to wear. Hearing difficulty is another occupational hazard that

recommended to wear ear plugs, but again because of similar reasons given above, most of the workers seem to be unprotected against the hazard.

It has turned out that there are a significant number of turnovers in the production departments. At the end of 1989, 40 employees in the weaving department left the plant and never returned. To fill the gap, the firm had to recruit new 70 trainees. The high employee turnover is very costly to the firm and also affects the quality of the woven material.

3. Maintenance department

As of October 1989, the maintenance department consisted of a chief engineer, a superintendent, a mechanical engineer, 4 technicians, 3 supervisors and 56 workers. About 60 per cent of the employees in the maintenance department have had formal technical training in Polytechnics in Nairobi, Mombasa and Maseno or in the Harambee Institutes of Technology. The rest of the workers have been trained on-the-job.

The number of skilled workers in the maintenance department is relatively higher than those in the production departments, but the skills acquired in the technical training schools tend to be specialized in certain fields such as automobile or electrical mechanics. On the other hand, the knowledge and skills required for the textile industry are hardly taught. In fact, in Kenya, there are few technical schools in which textile machinists, maintenance fitters, turners and boilers are produced. So far, all these skills are taught on-the-job in Mountex.

Overall performance of the maintenance department is good. Many of the workers are highly competent. To save on maintenance costs, a motor rewinding section was established within the factory and a small foundry installation has been proposed as a future investment to further reduce maintenance costs. All of the recent extensions of the factory have been carried out competently under the chief engineer's supervision.

The working environment in the workshop is clean and safe. There does not seem to exist any occupational hazards. The nature of work requires highly skilled mechanical performance. This also requires a significant safety net and favourable working conditions, but as machinery in the production plant is running for 24 hours, the night shift is required in the maintenance department to look after the machinery and equipment.

The turnover of the workers is also high in the maintenance department. However, their reasons for leaving Mountex seem to be different from those in the production departments. People in the maintenance department usually leave for posts elsewhere for promotion and higher salaries. Recently, three employees out of four who were sent to a Polytechnic in Nairobi for technical training did not come back to Mountex.

In conclusion, working conditions on the production lines of Mountex have many problems. A significant number of employees suffering from respiratory problems, absenteeism and turnovers have resulted and have been affecting productivity and the qualitiy of products adversely. Lack of incentives and motivation is another factor causing the performance of the firm to stagnate.

(d) Financial structure

Table 6.2.1: Summary balance statement for Mount Kenya Textiles Ltd.
(KSh millions)

	Fiscal Year		
	1987	1988	1989
Fixed assets	113.5	200.7	195.9
Stocks and work in progress	30.8	31.4	43.7
Accounts receivable	24.4	37.2	40.8
Monetary assets	12.1	5.4	1.5
Total Assets	180.8	274.7	281.8[a/]
Liabilities:			
Current	45.5	78.5	97.1
Long-term	301.7	431.0	516.1
Total liabilities	347.2	509.5	613.2
Equity	(166.4)	(234.8)	(331.4)

Source: Mountex's audited accounts.
Note: The company's fiscal year ends 30 June.
a/ Does not add due to rounding error.

Mountex is owned 87.5 per cent by the Government of Kenya and 12.5 per cent by the Industrial Development Bank. The company's liabilities have far exceeded its assets for a number of years (Table 6.2.1). Since the Government has supported the company, the plant has not been foreclosed by its creditors. Though Mountex has been collecting sales taxes on its sales, it has not forwarded that money (KSh 72.5 million) to the Treasury. This together with a Rs. 50 million (KSh 65.2 million) loan in 1988 by the Kenya Government (with the Industrial Development Bank as the Government's agent) enabled Mountex to construct new buildings and purchase new machinery plus spares to rehabilitate broken machines mostly in the spinning and weaving sections.

Except for KSh 90.5 million, the company's long-term debts are all denominated in convertible currencies (Table 6.2.2). The interest rates are not soft. They range between 8.5 per cent and 10.0 per cent p.a. plus a 1 per cent or 2 per cent penalty for late payments. With the gradual devaluation of the Kenya shilling between 1978 and 1989, Mountex has suffered a threefold increase in the shilling value of the original principal (KSh 57.1 million) due in 1978.[1] Since Mountex has never been able to pay any of the instalments on its long-term debts, interest plus penalty charges have been geometrically compounding each year, that is, interest is charged on unpaid interest. Though charging interest on interest contravenes anti-usury laws in some countries, this has apparently been standard practice in Kenya. This practice swells the amounts Mountex owes by just over KSh 100 million.

Mountex uses reasonable, standard rates in depreciating its assets: buildings, 2.5 per cent p.a.; plant, machinery, fittings, furniture and office equipment, 12.5 per cent p.a.; motor vehicles, 25.0 per cent p.a.; and land, nil.

Table 6.2.2: Distribution of long-term debts, Mount Kenya Textiles Ltd

Creditor	Interest rate	Year of initial loan	Initial amount of loan (millions)	KSh equivalent (millions)	Balance as at 30 June 1989 (millions)
East African Development Bank	10	1978	US$ 3.1	23.7	241.4
East African Development Bank	10	1978	KSh 1.1	1.1	3.7
Industrial Development Bank	10	1978	DM 1.3	4.9	38.5
Development Finance Corporation of Kenya	10	1978	DM 1.0	6.2	21.5
Deutsche Entwicklung Gesellschaft	8.5	1978	DM 3.9	14.8	104.4
Government of Kenya	9	1978	NGL 1.8	6.4	45.2
Government of Kenya	b/	1988	KSh 65.2	65.2	65.2
Total					516.1

Source: Audited accounts and loans contracts.

Notes: a/ According to the directors report of 1989, this loan is apparently now payable in Kenya shillings though it was initially made in Deutschmarks.

b/ Not available.

1/ From mid 1978 to mid 1989, Mountex estimates it lost KSh 166 million due to foreign-exchange devaluations, that is, nearly a third of its long-term liabilities in mid-1989.

(e) Buildings and installations

(i) Buildings

The buildings are located on 6.8 hectares and comprise:

480 m^2 of main office block
13,186.5 m^2 of factory complex
202.6 m^2 of boiler shed
876.12 m^2 of engineering shed
876.12 m^2 of stores for chemicals and dyes

There is also a temporary wooden structure presently used as an in-house training school, particularly for weaving. One portion of the wooden structure is used as a clinic.

The factory site has a chain link fence and one main steel gate entrance. The office block is made of concrete blocks with corrugated iron sheet roofing. Internally, the office is divided into rooms, including a large boardroom. A ceiling is provided throughout the office block.

The factory complex houses all the manufacturing departments including raw materials stores able to hold 1,500 bales of cotton or synthetic fabric. The other departments are divided into spinning and weaving. The processing department, engineering department, a warehouse and a store for chemicals and dyes are housed in separate buildings.

The factory complex's buildings have concrete portal frames with concrete [illegible] has corrugated iron sheets. The floors are finished in concrete screed. Generally, the buildings appear structurally sound though in the processing area, the floor is pitted due to chemical corrosion.

The factory was apparently planned to allow future extensions. However, there appears to be no space inside the factory for additional machinery unless the old machinery is removed to create room for new ones. Presently, there are some plans made for extension to various buildings, provided there are enough funds.

Some buildings do not have fire protection facilities. Only certain sheds have a hose-reel system; other buildings have portable fire extinguishers as the only fire fighting systems. In the event of a major fire, much damage could occur due to inadequate fire protection. There is no fire hydrant system outside. Reportedly, the company plans to install the system with fire pumps utilizing the present 1,000 m^3 raw water ground tank.

In the mission's opinion, the company's fire fighting facilities should be urgently examined and improved.

(ii) Installations

The various departmental machinery and processes were examined to assess their function, capacities and the condition of the installed equipment. Bottleneck areas were assessed and causes of such bottlenecks identified.

The factory's installations have five major activities related to the following departments: godown for raw materials (under the sales department), spinning; weaving; processing; warehouse, and engineering departments.

Godown

The Godown is the main central store under the sales department. It can store up to 1,500 bales of raw material. Though it presently gets only 200 bales per month for storage, on average, only two weeks stock is held. The sales department indicates how many bales to order. The bales requisitioned by the spinning department depends on the yarn required by the weaving department. There is no problem identified in the godown department other than lack of raw materials to be stored.

Spinning department

The spinning department is where the yarn is prepared for weaving of cloth fabric. At every stage in the manufacture of the yarn, there are machinery of various capacities. The mission was informed by the spinning manager, Mr. Joseph Siyaywa that the installed capacity for the mill was 7,000 kg per day of yarn based on three shifts of 22.5 hours per day for all fibres in various combination. However, in various sections of the spinning department the capacities are higher than reported.

Blowroom section

The blowroom is the first stage in the process where cotton, polyester and viscose are prepared in two separate lines. One line is for 100 per cent cotton; the other is for a 67/33 per cent polyester/viscose blend.

Initially, the complex was planned for cotton fibre only. The cotton-line equipment installed then was manufactured in 1960. The quality of the cotton lap from the blowroom was very bad due to the inadequate machine in the blow-line. This eventually affected weaving, and the finished products could not be marketed. To improve the line, certain machines were replaced with new ones. The line still has the old blender, a new manocylinder, another new machine called E.R.M. These machines further help to open up the cotton to prepare it for the scrutchers. The old scrutchers were retained. This arrangement improved the finished lap, but, since the blenders and the scrutchers are old, the lap is still not uniform and wastage is high.

The department cannot identify the quality of lap due to the lack of a laboratory.

The polyester/viscose line blend is new and has few problems. The line has a blender which feeds into the hoppers and scrutchers to produce lap.

The two lines operate on 22.5 hours per day, six days a week, Monday to Saturday. Sunday is an off-day.

Considering all these problems due to the poor quality of lap and high wastage the cotton line can only provide 3,500 kg of lap per shift if the equipment were used 100 per cent. However, the line runs at 75 per cent utilization due to frequent machine stoppage and produces 2,625 kg per shift, or 7,875 kg per day. Though the polyester/viscose line could make 1,500 kg per shift at full capacity, it uses only 75 per cent of its capacity for the same reason, that is, 1,125 kg per shift, or 3,300 kg per day. Therefore, total lap production in this section is about 11,175 kg per day. This is 3,300 kg more than the rest of the factory's design capacity. This over-capacity arose when the polyester/viscose blends line was installed later.

Carding section

The lap is fed into 24 carding machines; 15 of these machines were manufactured between 1950 and 1955. The other 9 machines were manufactured in 1987. So far, the new machines have had sufficient spares. The old carding machines break down frequently, and it is difficult to get spares for them.

Sliver is produced on these machines from lap. Each new carding machine produces 40 kg per hour of sliver, whereas each old machine produces 8 kg per hour. Due to lack of raw material and frequent breakdowns, the old and new machines operate at a capacity utilization rate of 50 per cent. Given this, the nine new carding machines produce 4,050 kg per day of sliver while the 15 old machines only make 1,350 kg per day. Thus, the combined capacity at 50 per cent utilization is 5,400 kg per day and this makes the card machines a bottleneck area.

However, the section is capable of producing up to 10,800 kg/day, if the maintenance of the machines was improved and the raw material supply was assured.

Drawframes machines section

The sliver from carding is processed by the drawframe machine at a 1:6 input/output ratio. This improves the fibre paralization, regularization and reduces the weight per length.

The section has 8 machines; half are new. The old ones were manufactured in 1969; and the new ones, in 1987. The old drawframes have a problem: they can only draw in a 1:5 ratio. Beyond that, the sliver breaks. They also lack spare parts. When the mission visited the factory, one old machine pair and two new pairs were working. The old pair can make 500 kg/shift of sliver but it only makes 425 kg/shift, or 1,500 kg/day because of breakdowns and lack of raw materials. The four new machines also work in pairs. One pair is for cotton sliver; the other, for polyester/viscose blend. The polyester blend line is running slower since the fibre is delicate. The cotton line runs fast. If all the old machines are working the capacity will be 3,000 kg/day.

The polyester blend line can produce 424 kg/shift; and the new cotton line, 915 kg/shift. Both these lines work at 80 per cent utilization, and both produce 3,660 kg/day, or, combined, 4,128 kg/day.

The drawframe section is a bottleneck since the old drawframes are out of action due to lack of spares.

Roving frame

The roving frame (also known as speed frames, fly frames or simplex) use sliver from the draw frame to produce roving.

There are four new and three old roving frame machines. One of the old machines is out of commission due to lack of spares. The new machines can produce 600 kg/shift at 85 per cent utilization. In total, these four machines make 7,200 kg/day. The old machine produces 325 kg/day. Currently with two old machines, production is 1,950 kg/day. The total output from the working roving frames is 9,150 kg/day.

The output from the new ring frame machines based on the average count of 20 Ne is 70 kg/shift/machine, or 3,990 kg/day of yarn. On the old machinery, the total output is 5,500 kg/day. From the ring frame section, the total output is 9,449 kg/day with 80 per cent utilization, 7,559 kg/day of yarn is produced based on 20 Ne count.

The ring frame section is capable of feeding the weaving section with 7,559 kg/day of yarn.

Quality control in spinning is bad mainly due to lack of adequate laboratory tests. A well equipped quality control laboratory is required especially to check the yarn's evenness, the weight, count, impurities, strength, and stable length. Many problems experienced in the weaving department could be identified at this stage and remedial action taken before the yarn is sent for weaving.

The section has a yarn winding machine to make yarn solely for sale outside the company. This machine has 120 spindles. They do cone-to-cheese winding and impart a twist in the yarn. Due to lack of yarn, the machine is used for just 10 per cent of its capacity.

The two old roving frame machines that are running, lack spares and are prone to breakdown. However, the section does cope with whatever comes from the drawn frames. There could be a bottleneck if the two old Simser machines broke down as has happened before. If a breakdown occured, this would reduce production to 7,200 kg/day.

Ring frame

The roving is fed to the ring frame spinning machines to produce yarn. There are 19 new model G5/1 Lakshmi Reiter machines in the new shed with 120 spindles each. These new machines were manufactured and installed in 1987. There are 29 old ring frames with varying ages. These include:

- fifteen 8-Rm Simser (manufactured in 1936)
- seven Simser 720 (manufactured in 1970)
- seven Simser Hartman (manufactured in 1958)

One Simser 720 is out of commission due to lack of spares.

The counts produced are 8, 14, 20 and 28 Ne for cotton and 28 Ne for polyester blends. If finer counts are required, then combing will be necessary after the carding. Combers would also improve the yarn quality.

Weaving department

The yarn from spinning is brought to the weaving department in various counts. The department has two sections: the yarn preparation section and the loomshed.

Yarn preparation

The yarn preparation section does cone winding, warping, sizing, pirnwinding (weft preparation).

Cone winding

In the cone winding process, the yarn is improved by removing thick and thin areas in it. Since the yarn received is of poor quality, much time is spent to improve it before weaving. If the quality control in spinning were better, cone winding would present little or no problems. Each cone contains up to 60,000 metres of yarn. The cone winding section has the following machinery:

Table 6.2.3: Cone winding section: machine specifications and production

Count No.	M/C	No.	No. of spindle	Speed (Rpm)	Production capacity (kg/day)
28/20 Ne	Autoconer (padmatrix made in India)	2	100	1,000	1,836
14 Ne	Textool RT96 (made in India)	1	120	600	2,200
14 Ne	Textool RJ (made in India)	1	120	600	2,200
28/20 Ne	Schlaforhost (made in Germany 1975)	1	96	700	2,200

Source: Mission survey.

Total production capacity in this section is 8,236 kg/day.

Actual total production is, on average, 5,353 kg/day. This is a serious bottleneck which needs to be addressed. The Schlaforhost machines are old and break down often. However, the weaving manager is confident that, if he had enough trained personnel, machine efficiency would increase from 40 per cent to 75 per cent. Reduced production in this section slows down the other weaving sections and, hence, the processing department.

The maximum machine utilization could be 65 per cent if absenteeism and machine breakdowns were controlled and trained personnel were available.

Warp reparation

The yarn from cone winding goes for warping where up to 600 yarns are placed on a cylinder. Since the yarn is not strong, many yarns break during warping and slow the beaming. The yarn defects have been traced to either spinning or cone winding problems.

There are three machines in the warping section. Details are shown in the following Table 6.2.4.

Table 6.2.4: Warping section: machines and specifications

M/C	No.	Creel capacity	Speed M/Min
Lessona (1975)	2	432 threads/machine	500
Bathboi	1	600 threads/machine	500

Source: Mission survey.

The Lessona machine is used for 25 per cent of its capacity; and the Bathboi machine, between 35 per cent to 40 per cent. Total production is 6,125 kg/day in this section. The machinery appeared to be working well. This section is able to cope with what comes from cone winding. Should the situation improve in cone winding there could be a bottleneck. The low capacity levels here are due to manual arrangement of yarn ends on the cylinder. The actual times to run the yarn to the cylinder is very short.

Sizing

The next section, sizing, combines several warp beams into one big beam and strengthens the yarn by adding starch into it. This helps the yarns endure strains and stresses during weaving. Sizing also reduces roughness which could cause problems during dyeing.

The machine in the sizing section are given in the following Table 6.2.5.

Table 6.2.5: Sizing section: machines and specifications

M/C	No.	No. of cylinders	Creel capacity
Lessona	1	9	10
Ambica	1	9	12

Source: Mission survey.

The machines use only 65 per cent of their capacity working on two shifts. Production is 8,442 kg/day. With three shifts, the production would be about 12,600 kg/day, equivalent to 77,244 metres of cloth per day. This sizing section has ample capacity.

The machinery in this section is performing well. No major operational problems have occurred.

Drawing in

The drawing in section draws all the weaver's beams according to the design of the fabric to be woven. In the same drawing in section, the weft (pirn winding) is also prepared from a cone. For this step, the machines being used are shown in Table 6.2.6.

Table 6.2.6: Drawing in section: machines and specifications

M/C	No.	No. of spindles	Speed (Rpm)
Schloforhast (made in Switzerland)	9	10	10,000
Lakshmi Reiter (made in India)	1	36	10,000

Source: Mission survey.

The machines wind the pirn (weft) for the specific looms. The weft for Ruti looms is made on a Schlaforhost pirn winder, and the weft for Northrop Looms are made on a Lakshmi Reiter pirn winder. The reason is the pirn for Ruti looms cannot fit in the shuttle of the Northop looms and vice versa.

Reportedly, if all the looms were working, additional pirn winding machines for Northrop looms will be required. However, the present pirn winders seem to cope with the reduced capacities of the looms since several Northrop looms are out of order.

Loomshed

The loom section has 332 looms; 14 are new Ruti looms with 56 inch maximum width capacity of fabric, and 38 Northrop looms of 44 inch maximum width capacity. Only 260 looms are operating in the loomshed and two are in the training school. The rest of the looms are all out of operation due to lack of spares or have been cannibalized for spares to keep other looms running.

The old Northrop machines in the loomshed are likely to break down further reducing production. This requires urgent attention.

The 260 looms in the loomshed could make, on the average count, 38,500 metres of cloth per day (6,200 kg/day). However, with all the problems of machinery breakdown and labour sickness capacity utilization is, on average, just 60 per cent.

Seven hours are lost on Mondays starting up, warming up the loomshed and stabilizing the machinery. On Monday the relative humidity is much lower than the required 85 per cent. This results in many yarn breakages.

There is a very high turnover among the weavers. Good weavers frequently go to other, higher paying textile mills. For example, in December 1989 along, 40 experienced weavers left and new ones have had to be recruited.

The high incidence of respiratory sickness among weavers also increases absenteeism and reduces production.

The weaving department is Mountex's biggest bottleneck.

Processing department

The grey cloth from weaving are of the following types:

100 per cent cotton
67/33 per cent polyester/cotton blend
67/33 per cent polyester/viscose blend.

The grey cloth passes through various process routes called druglines to produce various finished cloths. Presently, there are 14 druglines with a fifteenth polyester/viscose line having been added.

Before any processing is done the grey cloth is checked for weaving defects such as cracks, floats, warp streaks, double ends, weft cracks and so on. The quality of the end product will to some extent reflect the efficiency of the checking process. In the absence of laboratory equipment checking is done visually only.

From this point, the grey cloth undergoes six preparatory processes. First, dry processing is undertaken, where singing with flame to remove the loose lint, then shearing, cropping to remove the uneven sides, are done.

Second, calendering is done with two rollers at high temperature and two rollers at cold temperature to give ironing effect on the grey cloth.

The grey cloth goes through further operations to finally prepare it for dyeing. The detergents and alkaline imparted during sizing in weaving are removed, including impurities. Then, desizing removes most of the sizes used in the weaving section. Finally, the grey cloths are caustisized with caustic soda at the rate of 30 m/min. The process:

- improves dyestuff absorbency;
- adds luster or shine to the cloth;
- gives the cloth strength; and
- gives it dimensional stability.

The last preparation of the grey cloth is bleaching where the cloth is prepared for colouration to further improve absorbency. The machine for this purpose is one month old.

From these four preparatory stages the cloth now goes for colouration in two ways. First, the cloth is taken for dyeing, fixation with fixing agent washing, soaping to remove superficial dyes, and lastly to be rasin-finished. There are a number of reasons for the rasin finish, for example, fireproof cloths, waterproof cloths, crease resistance finish and so on.

Lastly, the sorting of cloth of different qualities and grading are made and the material taken to the warehouse. Packaging is done ready for sale.

Processing can be divided into two sections, pre-treatment and finishing. In the pre-treatment section, the equipment is capable of handling 40,000 metres of cloth per day or 6,600 kg/day but due to the bottlenecks experienced in the weaving section, the equipment is only able to handle an average of 23,000 metres/day on three shifts.

This section works five days a week, unlike other departments, due to lack of adequate stocks. The section has an installed capacity of 1,200,000 metres of cloth per month. However, to achieve this capacity, the section will require 180 employees instead of the present 90.

The intermediary zones of the pre-treatment preparation sections have the following machinery:

- Five jiggers - all operating at 5,000 metres of cloth per shift or 15,000 metres per day. The rated machine utilization is 95 per cent or 14,250 metres/day.

- One set drying machines working for three shifts produces 48,000 metres/day. At machine utilization of 95 per cent, this is 45,600 metres/day.

- Hot flue - this is used mainly for fixation work. The machine runs at 20 metres/minute. This produces 28,800 metres/day on three shifts. At 95 per cent utilization, this machine produces 27,360 metres/day.

- One printing machine which runs at 20 metres/minute and is capable of 28,800 metres/day; at 95 per cent machine utilization, the output of this machine is 27,360 metres/day.

The intermediary zone is therefore capable of handling 1,380,000 metres per month at 95 per cent machine utilization. There are no bottlenecks experienced here.

There are two stenter machines in the finishing section. One stenter machine was recently installed and the other one is old. These machines are used for re-doing returned cloths to remove creases and also for finishing new cloth which are ready for sale. Each machine runs at 40 metres/minute. This gives a latent capacity of 50,616 metres per day of cloth per machine. At a machine utilization of 95 per cent, each stenter machine produces 53,280 metres of cloth per day. For the two machines, the total output is 106,560 metres/day. There is a large capacity on this machine.

The processing zone uses 600,000 litres of water. It is pre-treated by the de-ironization plant before use. The caustisizing process uses a lot of water that can be recycled by recovering caustic soda for re-use. The rest of the effluent from this area goes to oxidation ponds where the water is disposed of by evaporation.

It was noted that not all machinery in the processing department are used in the process of the various druglines. At the moment, the cloth products that are being made are processed without a problem. Should any cloth product become very marketable there is a likelihood of bottlenecks with the machinery.

The processing department has a studio and a chemical store. In the studio films are prepared on a cylinder for the various patterns. The studio has two darkrooms, cameras and film processing facilities. So far they have experienced no problems in this area.

The chemical store is mainly where the dyes and chemicals are mixed to give the shade of colour required. There is no checking of cloth quality at every stage of the production process. The quality control is done visually. It is important to have a laboratory for this purpose.

Warehouse

The various types of finished cloth are stored in the warehouse. The folding machine used is an old mechanical type with a mechanical counter. The folding is not accurate. There is therefore a likelihood of extra metres being counted per bunch. A new and better folding machine is essential.

Engineering department

This department is run by the Chief Engineer, who has eight years experience in the industry. This department provides support services to all the departments including administration.

Their major problem now is keeping the old machines running. The high cost of spares has led the Chief Engineer to start manufacturing some of the items in the factory workshop. This includes repair of broken gear teeth instead of purchasing new ones, rewinding of burned motors and so on. This has saved the company a substantial amount of money in purchases.

At present the engineering department has a staff of 73 personnel - 16 of these are electricians of various skills, six builders, 40 mechanics who are semi-skilled; the rest are unskilled. Lack of proper skilled labour and the frequent breakdown on old machinery, means that the Chief Engineer is unable to initiate preventive maintenance programmes. Most of the machine repairs are done either on breakdowns or on Saturdays.

As for specific services it was found that the installed electrical capacity is 1,800 KVA, however, the maximum demand is 1,500 KVA. This gives a limited expansion capability. Upgrading of the maximum demand will be necessary if the expansion of the factory is extensive.

The factory has three boilers, one of which is a spare. The other two are running for 24 hours and only shut on Saturday evenings when the rest of the plant is shut down. The oil consumption for these boilers is 12,000 litres/day. The condensate return is 70 per cent of the boiler feed water requirements. The rest of the water requirement is made up from the high level tank. There are no facilities for measuring the amount of steam utilized or the amount of water pumped to the boiler. For cost purposes the energy utilized is calculated backwards from the oil consumption and divided pro rata for each department; similarly for electrical supply.

The water used by the site is pumped in raw form from the Nanyuki River to a 1,000 m^3 concrete tank. From this tank, it is pumped through a treatment plant and into a 300 m^3 high level tank. The water requires minimal treatment as it is from melting snow and the only impurities are gathered along the way. However, the temperature of the water is generally low. Approximately 10°C pre-heating of the water is therefore necessary before going to the boiler. At the moment there is no pre-heating of the water.

There is also a central compressed air service. Several machines around the complex have pneumatic controls. Some machines used to have their own air compressors, but due to lack of spares, most have been removed and connected to the central compressed air system. This system is working now at full capacity. In some areas, for example weaving, they require compressed air to blow lint from the looms. But when this is done this fouls up the rest of the departments and several machines with pneumatic controls malfunction. Lack of cleaning of the machines causes wear and tear of parts and hence associated increased maintenance costs. A new compressor is required urgently.

In conclusion, the engineering department is coping well with its maintenance duties given the state of the old machines.

(f) Inputs

The main inputs are cotton fibres, the raw polyester, viscose, chemicals and dyestuffs.

The company's productivity has been hampered by the failure by the Cotton Lint and Seed Marketing Board (CLSMB), which has the monopoly for marketing of all Kenya cotton, to meet the full orders placed by Mountex through Textile Millers Association. Also the cotton's weak and medium stable length lowers the quality of finished products.

Because of lack of sufficient cotton, the CLSMB has allowed the Textile Manufacturers Association to import cotton from Tanzania, mainly from regions around Lake Victoria. Since Mountex finds this Tanzanian cotton to be of better quality than Kenyan cotton, the mill blends it with local cotton to improve the quality. Mountex imports polyester and viscose fibre from Germany and Austria. Increased use of this synthetic fibres has been due to inadequate supply of cotton.

The dyes and chemicals used in the processing department are also all imported, mainly from India and Germany, though a few chemicals are bought locally.

(g) Product range

Mountex produces several cotton-based products and one main polyester viscose product, all for the local market. Production for the budget year 1988/89 for the company as a whole, of the company's various products are given below in Table 6.2.7.

Table 6.2.7: Production volume and value of Mountex, by product, 1988/89

Product	Volume meter/month	Value (KSh)	Share of total (per cent)
Kangas	275,000	6,600,000	39.8
Bed sheets 48"	200,000	4,800,000	28.9
Bed sheets 60"	25,000	750,000	4.5
Polyester viscose	100,000	2,800,000	16.9
Linen	55,000	990,000	6.0
Curtains	20,000	640,000	3.9
Total	675,000	16,580,000	100.0

Source: Sales department at Mountex.

At present, local production by Mountex and its competitors can only satisfy approximately 60 - 65 per cent of the local demand. This means that there are no immediate marketing problems. However, strong financial reasons exist favoring specialization. If production picked up the market for certain products would be saturated and a diversification of the product range might prove necessary.

In this event and if supply of cotton continued to be irregular, one possible road to take might be to temporarily expand the polyester viscose production since there is a high demand for this product.

(h) Plant and economic performance

i) Plant performance

The present installed capacity varies within and between departments and creates production bottlenecks (Table 6.2.8). These bottlenecks arose because, under the rehabilitation programme undertaken after 1986, new machinery was added in some sections, though the old machines were retained. Though the new machinery performs well, old machinery does not. This slows down production.

Table 6.2.8: Productive capacity by section, Mountex

Department	Actual production kc/day	Rated capacity kg/day	Capacity utilization per cent
Spinning			
Blowroom	8,738	11,650	75
Carding	5,400	10,000	54
Draw frames	4,128	7,430	56
Roving frames	7,200	8,470	85
Ring frames	7,559	9,449	80
Weaving			
Cone winding	5,353	8,236	65
Warping	6,125	15,313	40
Sizing	8,442	12,662	67
Looms	6,200	9,920	62
Processing			
Total for all deparments	23,100 metres	48,000	48

Sources: Interviews with Mr. A. Juma, assistant spinning manager, Mr. Siyaywa, spinning manager, Mr. Khaguli, weaving manager, and Mr. Ogombe, processing manager, 18, 19 and 25 January 1990.

The company's entire operation appears to be held up by the bottleneck in the cone winding and warping sections, which can only produce about 6,000 kg/day. The poor performance of the loom shed also reduces what the processing section gets though it could handle about 1,200,000 metres per month.

In summary, the bottlenecks are: in the spinning department, carding and draw frames; in the weaving department, cone winding. The low efficiency achieved on the loom shed is mainly due to old machinery starting up time on Mondays, and many weavers with little experience have been employed.

Overall the plant's capacity utilization is between 40 per cent and 67 per cent in the weaving department.

The engineering department does not have a preventive maintanence scheme. Repairs are done when machinery breaks down. These frequent breakdowns of machinery have lowered the mill's performance. Also lack of sufficient funds to purchase enough spares has contributed to the maintenance problems.

ii) Economic performance

Though Mountex has the capacity to produce 1,000,000 metres of cloth per month (pm), it produces less than 60 per cent of its capacity. For example, it made only 585,000 metres of cloth in fiscal year 1989. Consistent with reports elsewhere in the industry, management claims that it could easily get sufficient orders to justify higher purchases of raw materials. Now that Mountex has new or repaired machinery, the main reason for company's low rate of capacity utilization is its inability to get sufficient cotton from the Cotton and Lint Seed Marketing Board (CLSMB). Despite promises to fulfill the company's orders for cotton, CLSMB often delivers less than promised and, thus, repeatedly forces Mountex to produce less than planned.

Although the cotton textile factories now use the Textile Manufacturers Association to place orders with CLSMB jointly for enough imported cotton to cover the nation's cotton deficit, CLSMB has been quite reticent to import cotton. Hence, the total supply of cotton has been insufficient for many cotton mills in Kenya.

CLSMB's unreliability in fulfilling orders and the resulting severe under-utilization of Mountex's capacity has encouraged management to begin to use more imported polyester and viscose fibres. Once import licenses are issued, the company can rely on the delivery of those imports. In 1986, Mountex produced 100 per cent cotton products; now about 8 per cent of its production is for blended fabrics, and Mountex aims for about 15 per cent blended fabrics. This shift towards synthetic fibres reflects a long-term trend over the last two decades by Kenya's textile industry away from natural fibres towards imports, thus partly reversing import substitution in textiles.

Mountex also faces secondary, though important, constraints in using its full capacity. After using an Indian loan of Rs. 50 million to buy equipment in 1988, the factory's equipment is balanced much better than before, but significant imbalances still exist and would show up acutely if Mountex produced much more. For example, the draw frames only have a capacity of 6,600 tonnes per day (tpd) though other sections can handle at least 8,000 tpd; to 9,000 tpd; and a few sections can process considerably more. Of its 332 looms, about 50 have been cannibalized for spares. But a second shipment of KSh 500,000 worth of spares is in the port at Mombasa. Management reports that these will be sufficient to repair 30 of the idle looms.

Unlike many other textile firms in Kenya, Mountex does not run at full capacity (168 hours per week); it operates just three 45-hour shifts. To produce more, Mountex would need to train more weavers. According to the production manager, the company would need about three months to train additional weavers if the supply of cotton increased radically

Since Mountex is presently not by any extent using its full capacity, management has experimented very little about how to squeeze more production from its machines and workers, for example, by adjusting the machinery's speeds or paying production bonuses to workers. More attention to the productivity of men and machines is needed. Also, despite the recent large investment in buildings and machines, gross output and value added have grown little in current prices (Table 6.2.9), and have been nearly static in real prices using the implicit GDP-deflator for the monetary economy.[1/] Meanwhile, employment soared from 663 in 1986 to 1,130 in early 1990.

Table 6.2.9: Value added at Mount Kenya Textiles Ltd.
(KSh millions)

	Fiscal year		
	1987	1988	1989
Gross product			
Sales	98.6	111.1	112.0
Change in finished inventories	(2.0)	2.5	(.9)
Change in work in process	2.6	(4.0)	12.1
Total gross product	99.1	109.7	123.1
Inputs			
Raw materials	48.8	62.4	64.9
Other material inputs and purchased services	23.7	25.6	27.2
Total inputs	72.4	88.0	92.1
Value added	26.7	21.7	31.0

Source: Audited accounts and management's report about average employment.

The company's performance depends critically upon how well it uses its capacity. As production increases, many categories of expenses increase much less than proportionately or, often, not at all, for example, depreciation charges do not increase, and labour can be used more efficiently. Mountex's management indicated reasonable, though rough estimates of how much each category of expenditures would increase in order to make 800,000 metres pm and 1,000,000 metres pm (Table 6.2.10). Accordingly, if Mountex were to produce about 28 per cent more cloth than presently at its current efficiency levels, it would cover all costs except financial charges. That is, if it were to make about 750,000 metres of cloth pm. If it produced 1,000,000 metres pm, it would make about KSh 14 million in profit before financial charges without significant fine tuning of its production efficiency. Motivating workers better, reducing energy costs per metre, and improving machine efficiencies could then allow Mountex to earn good profits on its assets.

1/ Between 1987 and 1989, the implicit deflator rose by 11.1 percent. Hence, in real prices, Mountex's gross output grew very slowly from KSh 98.6 million to KSh 100.8 million; and value added, from KSh 26.7 million to KSh 27.9 million.

Access to raw materials is the key. But government policy, not the company's management, controls that.

Table 6.2.10: Marginal income, expenses and profits at selected levels of production, Mount Kenya Textiles Ltd.

	1989 (585,000t)	40 per cent more (819,000t)		71 per cent more (1,000,000t)	
		% b/	KSh	% b/	KSh
Value of prod.	123,106	40.0	44,794	70.9	79,442
Costs:					
Raw materials	64,926	40.0	25,970	70.9	46,059
Production overheads	50,844	7.8	3,974	14.6	7,426
Administrative costs	14,617	1.6	229	3.1	450
Selling costs	2,250	37.8	851	67.1	1,510
Total costs	132,637	23.4	31,024	41.8	55,445
Change in gross profits before financial charges	(9,531)		13,769		23,997
Gross profits before financial charges	(9,531)		4,238		14,466

Source: Derived from audited accounts for 1989 and rough estimates of marginal costs by category provided by the production manager for Mount Kenya Textiles Ltd.

Notes: a/ These calculations assume no significant additional investment. See Annex Table 1 for more detailed estimates and an explanation of the methodology.

b/ Percentage share of the 1989 value of production and costs that would be required to increase production by 40 per cent and 71 per cent.

Protection

Though Kenya has banned the imports of used clothing since the late 1970s, much clothing enters the country illegally. Ostensibly, the textile industry is heavily protected. The tariff on most fabrics is either 60 per cent or 70 per cent; discontinuous synthetic fibres attract a 25 per cent tariff, and continuous synthetic fibre tow attracts a tariff of 30 percent.[1/] Importers must pay 17 per cent sales tax on both fabrics and fibres. The effective rate of protection on cotton and cotton-polyester fabrics has been and still is 83 percent.[2/]

1/ Tow is semi-processed carded cotton.

2/ Coughlin, P., "The gradual maturation of an import- substitution industry: The textile industry in Kenya." Report for the World Bank, 1986. Mimeo. p. 39. The effective rate of protection measures the protection that tariffs on a firm's output, net of tariffs on its inputs, yield the firm for doing a specific process, e.g., converting cotton to cloth. The extra margin provided the firm by the protective tariffs is expressed as a fraction of the value added, in international prices, for that process.

Profit record

Mountex has been incurring losses even if its mounting foreign exchange losses, interest and penalty charges were excluded (Table 6.2.11). Despite large investments and expanded capacity, sales have not yet increased much. Between 1987 and 1988, depreciation charges for plant and machinery more than doubled from KSh 9.3 million to KSh 19.2 million, and other production expenses increased by 25 percent. As a result, losses increased even without financial charges. Thus, Mountex currently does not have profits to cover its depreciation charges. This situation cannot be sustained for long.

Table 6.2.11: Summary income and expense statement, Mount Kenya Textiles Ltd.
(KSh millions)

	Fiscal year[a]		
	1987	1988	1989
Income:			
Sales	98.6	111.1	112.0
Other income	1.3	0.4	0.3
Total income	99.9	111.5	112.3
Expenses before financial charges:			
Cost of sales	82.7	101.7	104.6
Administration & selling costs	15.4	15.3	16.9
Total non-financial expenses	98.1	117.1[b]	121.5
Gross profit/(loss) before financial charges	1.8	(5.6)	(9.2)
Financial charges	29.5	34.5	43.3
Net profit/(loss)	(27.7)	(40.1)	(52.6)

Sources: Mountex's audited accounts.
Notes: a/ The company's fiscal year ends 30 June.
b/ Does not add due to rounding error.

Costs and pricing structure

None of the prices on Mountex's inputs or outputs are controlled. After considering market conditions, Mountex prices its products to at least cover variable costs. Though management knows that the cost of its imported inputs would be lower if several Kenyan mills co-operated in making import orders, it considers the organizational and technical difficulties daunting.

Mountex has signed an agreement with the labour union that requires paying double time for work on Sunday. This agreement is stiffer that at many other Kenyan textile mills where management may rotate a worker's seventh day. The agreement does not stipulate any production bonuses for labour.

Its expenses for telexes and transportation seem high, apparently, largely arising because the general manager commutes from Nairobi and maintains a second office there.

Mountex is currently improving its financial controls by refining its cost estimates by product. The company has analysed the costs and prices for each product and conducted a sensitivity analysis to see the impact of increasing the overall level of production. However, the cost estimates by product imbed simplistic, probably erroneous, assumptions about how to allocate electricity costs between different stages of production. For example, the consumption of electricity in each section is not metered; rather, a crude rule-of-thumb based on the horsepower of the motors in each section is used to allocate electrical charges. Moreover, the monitoring of each section's efficiency in producing each product is not fed into the cost accounting. For example, if weavers became more efficient in making a certain product, the estimate of the costs of labour, supervision, electricity, machinery, and administrative overheads needed to produce that item would not decline since the allocation of these costs is based on the section's total production of each item. Such erroneous assumptions and failure of the cost estimates to reflect changes in efficiency can seriously misguide management as it sets prices and decides how best to specialize to enhance profits.

Though there are problems in the way costs for each product are calculated, the mark-up on different product lines vary widely. Apparently, the company has not seriously considered narrowing its product range to concentrate on the most profitable items and achieve economies of scale.[1/]

(i) Market and competitors

Mountex is one of many producers of textiles in Kenya. The company's production is mainly geared towards cotton-based products. The whole production is sold on the local market and none of the products are exported. Total sale for 1987/88 amounted to KSh 16,580,000.

Mountex's products are not of the highest quality and are therefore, directed to people of lower incomes. Price and quality competition between Mountex and its competitors is quite stiff. In order to compete with regards to price, Mountex has, for some products, reduced the number of picks per inch to 36 (competitors used usually 40 picks per inch). This lowers the quality of the product.

The main competitors are the government controlled Rivatex in Eldoret, Thika Cloth Mill in Thika and Kikomi in Kisumu. These companies are bigger than Mountex and are producing similar products but concentrating more on polyester products. Depending on the product they have an output of 1.5 to 3 times that of Mountex. It was not possible for the mission to obtain exact production and sales figures from these companies.

1/ The World Bank strongly advocated that Kenyan textile firms should specialize more to realize economies of scale. In a comparative study of 13 countries, H. Pack identified the lack of specialization as the major factor lowering the efficiency of Kenyan cotton textile firms. See: World Bank, Kenya: Industrial Sector Policies for Investment and Export Growth, Vol. II, Washington, D.C., World Bank, 1987, p. 283; H. Pack "Productivity, Technology Choice, and Product Design, with an application to the Cotton Textile Sector," Report for the World Bank, 1984, Mimeo.

The company does not have a serious marketing problem at the present rate of production. The factory's low capacity utilization is the main bottle neck for efficient marketing of the products. At present only 60 - 65 per cent of Kenya's total demand for this type of textiles is satisfied. When rehabilitation is completed and production is at full swing the situation will change and there will be a risk of saturation on the market for some of the company's products. With the present difficulties of obtaining cotton for various product lines, and since the demand for polyester viscous products are high, it may appear attractive for the company to diversify its production in this direction. However, a thorough market survey will be necessary in order to find out which product line is the most profitable. Mountex's market share for polyester products is, at present, approximately 7 per cent.

Mountex's sales department comprises of one Sales Manager, a Deputy Sales Manager, one Sales Officer and two Sales Clerks. The company does not have any representatives of their own in the country but sells most of their products through wholesalers in Nairobi, Kisumo and Mombasa.

The company has no sales representatives abroad and does not export at all. No export is contemplated for the near future. The reason is mainly that the local market is not satisfied and that the company's prices are not competitive on export markets. The reason for the latter is a very strong price and quality competition from Taiwan, India and other countries in the Far East.

Mountex performs its sales promotion through nation wide advertisements on radio and television, as well as in newspapers and magazines. The company also takes part in district exhibitions in Nairobi, Nanyuki, Nyeri and Mombasa In 1987/88 KSh 89,000 was allocated for this purpose. For 1988/89 the figure is approximately KSh 50,000.

Sales for 1988/89 shows decreasing figures compared with the previous year, and will reach only about KSh 13,000,000. The reasons for this decrease in sales include problems with raw material (cotton), slow handling of import licenses for import of raw material for the polyester line and production constraints in the factory.

The most common way of making local sales is at the factory gate where customers pick up their purchases against cash payment.

Mountex does not have its own transport system and has therefore to rely on outside transport companies.

(j) Policies

Mountex suffers due to the irregular and unreliable nature of its cotton supply of cotton inputs. Even though the supply of locally grown cotton has been decreasing, the Government, through CLSMB, has allowed insufficient imports of cotton. In addition, Kenya's cotton has quality problems. These quality problems could be helped if the CLSMB encouraged imports of stronger, longer-staple cotton which could be blended with the local medium-staple, medium strength cotton for improved quality and strength.

(k) Constraints

Management and organization

- The present Board of Directors consists of a number of high level persons from public and private institutions who rarely have the time to travel to Nayuki to take part in board meetings. Alternates or nominees are sent to the meetings but they usually do not have power or status to take decisions. This makes it very difficult to proceed with implimentation of decisions.

- It is recommended that members of the board be, at least partly, selected from private business people with experience in running a business of this kind. In addition alternates or nominees of Board members should be of sufficient status to make decisions. This would avoid the current delays in the decision making process and speed implementation.

- The General Manager, who like General Managers in other parastatals, is a political appointee without a business and management background. A complicated business enterprise like Mountex calls for a very skilled businessman with in-depth knowledge of the textile industry.

- There are no vacancies on the middle management level but the quality of some managers is questionable. The Weaving Department is a very weak link in the production and it appears that many of the existing problems in that department can be traced back to incompetent management.

- The company has no computerized Management Information System which must be considered a serious constraint in the every day operation of the company.

Human resources

- Many workers in the weaving and spinning section suffer from respiratory problems and hearing difficulties.

- Due to severe working conditions, workers are frequently absent or quit work. The high labour turnover is a heavy financial burden to the firm and also lowers productivity and the quality of products.

- Because of an agreement with the labour union the job descriptions are narrowly specified. This leads the workers to be inflexible about what they do.

Financial structure

- Mountex has two basic financial constraints plus other lesser difficulties affecting its financial performance. The basic constraints concern the company's financial structure and the de facto restrictions upon the supply of the main raw material, cotton.

- Due to Mountex's low rate of capacity utilization, it cannot even finance its depreciation charges. This is not sustainable for many years. To overcome this situation, Mountex must increase its level of production. But this is hard; orders for cotton placed with the CLSMB often go unfilled or only partly filled. Thus, the company cannot reliably

influence the major constraint affecting its basic profitability.[1/] Moreover, unless this is changed, the factory will continue to be basically unprofitable, and a buyer would be unlikely to want to purchase it as a running concern. Thus this constraint critically affects the company's prospects, including the viability of any financial restructuring.

- Mountex also has important, but less fundamental problems relating to its cost accounting system. Its accountants use many crude rules of thumb to allocate various categories of costs to specific products. Due to this, changes in costs due to improved efficiency in handling particular products will not be reflected in the cost analyses presented to management. As a result, management cannot know exactly which items are most profitable and, hence, in which it should consider specializing. Not being computerized, the company's accounting department must spend too much time in clerical rather than analytical functions.

Buildings and installations

- Inadequate and unreliable raw material supply has hampered production and lowered machinery utilization rates.

- Lack of spares for the old machinery further slows down production and causes bottlenecks, for example, in the loom section.

- Whereas the processing department has excessive capacity and can process 48,000 metres of cloth per day, the other departments can hardly cope with 20,000 metres of cloth. This lowers the utilization of machinery to less than 50 per cent in the processing department.

- Problems with labour, such as skilled labour leaving, and the old machinery in the weaving section, has slowed production.

- Imbalances in various sections fo the factory have caused certain sections to have large capacities. This reduces the return on capital in the over-capacity areas.

- Simplistic methods for assessing how much energy is used in each department have contributed to inaccurate costings.

- Lack of a proper working environment, especially in the weaving section, causes health problems adn low man-hour and machine time.

Inputs

- Mountex suffers from irregular and unreliable supplies of cotton. Orders placed with the CLSMB often are only partly filled or not filled at all. Also when domestic production of cotton is decreasing, the CLSMB appears reluctant to make up the deficits by importing needed cotton.

1/ Basic profitability refers to profits before financial charges including interest and foreign-exchange losses.

Product range

- The product mix is not optimized in that management, because of deficiencies in the company's cost accounting system, does not accurately know the costs of production for particular product lines. As a result, management cannot know exactly which product lines are most profitable and, hence, in which line it should specialize.

Markets and competitors

- Mountex's present problems are mainly located on the production part of its operations. Sales of their products are not a major problem. The local market is satisfied only to 60 - 65 per cent and it will take some time before the situation is likely to change.

Policies

- Mountex is particularly handicapped by irregular and unreliable supplies of cotton. These problems are compounded by the CLSMB's reticence to import cotton and the unreliabilities of its deliveries, and the declining real prices and delayed payments to farmers.

6.3 Rehabilitation requirements

Management and organization

- It is essential that the major core of Mountex's Board of Directors be selected from high-level people with significant business experience. The selected Board members should be committed to being full-time members who attend Board Meetings regularly. If for some reasons Board members cannot attend the meetings, it is imperative that their nominees or alternates have the status to make decisions. The current situation of poorly attended Board Meetings, or Meetings often attended by nominees with little or no authority to take decisions, is far from satisfactory and seriously hampers the smooth functioning of the company.

- Rehabilitation of the company also urgently requires a General Manager with good business skills and demonstrated knowledge and experience of the textile industry.

- It is also recommended that the Weaving Department be the subject of an in-depth examination and concrete action be taken as a result of this examination. This department appears to be the source of many of the company's production problems.

- The company's middle management should also be subjected to a thorough management audit with necessary adjustments made as a matter of urgency.

- Even if the rest of the middle management appears to function reasonably well it would be recommended that the whole management, including top management, should be the subject on extensive analysis in order to make necessary adjustments.

- It is strongly recommended that the company acquires a number of Micro-Computers in order to improve the Management Information System with regard particularly to accounting, sales, purchasing and administration. Since most of the staff do not have sufficient experience with computer systems it is also recommended that this purchase of computer hardware is accompanied by suitable training programmes.

Human resources

- The firm should much improve the working environment in the factory so as to protect workers' health.

- The medical clinic should have better facilities. The medical officer, with the full co-operation of management, should firmly insist that workers use health protective devices. More appropriate and comfortable masks should be procured, not the improvised masks currently used.

- To improve working conditions and motivate workers, the firm should install welfare facilities such as a cafeteria and shop compound which can be used for many purposes, for example, dances, meetings, parties, and other cultural activities.
- The firm should stop discriminating against female workers and consider hiring them for work on the production lines.

Financial structure

Short-term

- After training or hiring appropriate staff, the company should computerize its accounting systems and significantly improve its cost accounting and analysis.

- To increase profitability, management should carefully evaluate the economies of scale achievable by producing larger volumes, but less varieties.

- With a renewed sense of urgency, management should continue to strive to purchase increasing amounts of raw materials - both cotton and synthetics - so long as the company's marketing department can sell the products.1/

- To cut costs, the General Manager should move to Nanyuki as soon as possible.

- Management should evaluate whether the large increase in employment is fully required. If not, the work force should be trimmed.

1/ From the national viewpoint, Kenya's textile industry needs more specialization and increasing reliance on domestically grown fibres - cotton and wool. But the government's own institutions have been thwarting that goal through declining real prices and delayed payments to cotton farmers and erratic and insufficient imports of cotton to cover the deficit in supplies in Kenya. The recent increase in the price of cotton from KSh 6 to KSh 10 may reflect a shift in policy to favour cotton production. Still, so long as cotton supplies are severely constrained, individual companies must strive to import more and more synthetic fibres despite the implications for overall national development.

Medium-term

- In the medium-term, Mountex must be financially restructured and probably privatised. Two solutions are possible: most, if not all, of the company's debt should be turned into equity; or, its assets - free of debt - should be sold as a running enterprise to a new owner. Either way, the Kenya Government should forgive the accumulated sales taxes that Mountex owes.

Buildings and installations

- The condition of most old machinery is very poor, with constant breakdowns leading to reduced utilization levels in some sections on the loomshed where utilization levels are as low as 40 per cent. Within the overall rehabilitation programme for the mill complex, new machinery will be necessary, possibly in a phased purchase scheme, to replace the old and worn out machines. Absolute priority should be given to the loomshed machinery draw frames and carding machines in the spinning department.

- The compressed air system needs urgent attention. The present air compressor is working at maximum capacity. Since several machines have their pneumatic controls feed from the central compressed air system, if the compressor broke down the machines will not operate. Some of the compressed air is used to blow off lint or dust from machines. This is poor working practice which contributes to the unhealthy dust-laden factory atmosphere. Cleaning should be carried out by a vacuum system to reduce the amount of lint in the factory atmosphere.

- Urgent attention is required to sort out the problems of respiratory sickness and hearing losses. Suitable protective breathing gear should be used. This gear should be such that it can allow normal breathing and provide comfort to the users. Also suitable ear masks/plugs should be provided to workers to reduce permanent hearing losses. The noise reduction could be also achieved by insulating the roof internally with suitable acoustic absorption material.

- Electricity meters should be installed in various departments to monitor energy consumption per department for costing purposes. The installation of these meters will also help to identify areas of poor energy consumption. This will enable remedial measures to be taken to reduce energy cost. Use of solar energy for heating of boiler feed water should be considered.

- A quality control laboratory should be provided and equipped with instruments to enable quality checks of raw material such as cotton for impurities, stable lengths and so on, and other materials in the spinning and finishing sections.

- The sewer system should be connected to the Nanyuki Municipal System to reduce costs and to empty the present septic tanks. Since the site is lower than the nearest municipal connextion the fuel sewer should be pumped to the level of the municipal sewer.

- A preventive maintenance programme should be started immediately to ensure fewer breakdowns of machinery.

- Loss of 7 hours every Monday due to start up and stabilizing the equipment operation can be avoided if the rehabilitated plant can operate for 24 hours a day.

- Effluent from the factory should be neutralized and disposed of properly to avoid possible contamination of ground water and the river system.

Inputs

- The main inputs to the mill are cotton, polyester, viscose, dyes and chemicals.

- The supply of cotton to the mill is linked to the Government policies on cotton growing in Kenya. For some years now, the policies were not clear and the farmers were not motivated to grow more cotton. However, with the new incentives especially quick payment to farmers for their crop, the Cotton Lint and Seed Marketing Board have forecasted an increase in production of cotton starting with the 1990 crop year. This move could ensure an adequate supply of the cotton to the mill. Therefore for rehabilitation the following will be necessary:

    - Forward planning of the raw inputs should be made by the purchasing officers to ensure spinning department is adequately supplied with cotton, polyester and viscose.

    - The caustic soda recovery plant should be installed in the finished products area to save on purchases of the chemical.

Markets and Competitors

- Mountex's present problems are mainly located on the production part of its operations. Sales of their products are not a major problem. The local market is satisfied only to 60 - 65 per cent, and it will take some time before the situation is likely to change.

- When production is increased there will be an urgent need for a thorough survey of the market, in order to find out the market situation for present or future products. This is in order to optimize the product range and to find the most profitable product.

Policies

- The Government should re-double its efforts to ensure that supplies of cotton are regular and reliable. Particular attention should be paid to halting the decline in the real prices paid to farms and also delays in payments. In addition, the CLSMB should, as a matter of urgency, examine its policy and procedures with regard to cotton imports. This is expecially needed in situations when local supplies of cotton are deficient and/or there is a need to improve local fabrics by blending it with imported superior quality cotton. Improvement in the quality of local cotton fabrics could greatly improve their export potential.

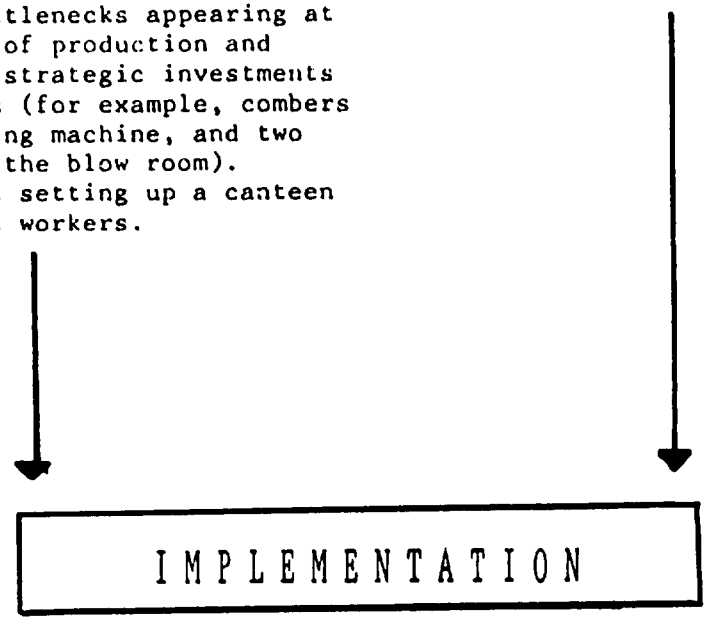
Figure 6.3: Outline of rehabilitation concept - Mountex

Phase I

Months	A. Management support for Mountex (UNIDO)	B. Resolution of raw material difficulties and evaluation of financial restructuring options
0 -		
1 -	Request by GOK to UNIDO for technical assistance to set up and run a computerized management information and accounting system and designing a systematic preventive maintenance programme. Meanwhile, management should thoroughly assess each product line and begin specializing in the most profitable lines.	An urgent, high-level decision assistance by GOK is needed to expedite training for staff to allow adequate and timely imports of cotton to slow or reverse the long-term shift to synthetics. Government evaluates how to restructure Mountex financially, e.g., debt-to-equity exchange or a sellout of the firm's assets as a running enterprise.
3 -	Arrival of computers and auxiliary and start of training using local consultants. Mountex installs electrical metres in each major department, buys a new air compressor, overhauls the stenter machine, and improves the health clinic. Using spare parts already ordered, Mountex finishes renovating most of its currently broken or cannibalized looms. With UNIDO's assistance, Mountex's management studies and launches the preventive maintenance programme for all departments. Management also studies its personnel requirements, trims its labour force where appropriate, and stops its policy of discriminating against hiring women, at least in some sections of the factory.	Mountex increases imports, sales and equipment, production while increasingly specializing in its most profitable lines.

Phase 2

Months	A. Medium-term programme to reduce bottlenecks	B. Financial restructuring
13 -	Depending on whether the raw-material shortages are alleviated, management evaluates the bottlenecks appearing at the higher level of production and makes frugal but strategic investments in a few machines (for example, combers and another drawing machine, and two new scrutches in the blow room). Mountex considers setting up a canteen and shops for its workers.	Government implements its programme to financially restructure Mountex



CHAPTER 7: PLANT PROFILE
PAN VEGETABLE PROCESSORS LTD. (PVP)

7.1 History of the company

A processing plant for dehydrated vegetables was first established in Naivasha, 90 km north-west from Nairobi, in the mid-1960s. The objectives of the firm at that time are not clear but may have been to provide a market for locally grown vegetables. As the Kenyan market is entirely focused on fresh vegetables, export of the dehydrated vegetables appears to have been the second likely objective.

Later, in 1975, Pan African Vegetable Products Ltd. was formed as a joint venture between three governmental financing institutions and three foreign investors namely, the Industrial and Commercial Development Corporation (ICDC), the Industrial Development Bank (IDB), the Agricultural Bank, Société International Financière pour les Investissement et le Développement en Afrique, Geneva, Switzerland (SIFIDA), Barclays Overseas Development Corporation, UK (BODC) and Bruckner-Werke FRG, Hamburg, FRG (BWAG). In addition, it was agreed that BWAG, a major European company operating in the World market for dried vegetables, should act as a partner and purchase PVP's entire production for export. The paid up share capital amounted to KSh 24.7 million, 71 per cent of which was held by the Kenyan public investors. The remaining 29 per cent of PVP shares were held by the foreign investors.

The supply of raw materials, a variety of vegetables, came mainly from four firms around Lake Naivasha operated by PVP, and to some extent from outgrowers in the Kinangop area. As a result of low yields in combination with insufficient irrigated land the deliveries of raw material never reached the requirement for full capacity utilization of the processing plant.

The installed capacity in the plant is 33,000 tonnes a year of raw vegetables. The highest input ever of raw materials was registered in 1977 when 22,100 tonnes were supplied. This suggests that the plant's capacity utilization rate might have been about 65 per cent. By 1980, available figures indicate that the average plant processing capacity utilization rate dropped gradually to about 40 per cent. In 1981, capacity utilization dropped below 40 per cent.

The technical assistance provided by BWAG, as part of the 1975 agreement, was suspended in 1979. It appears that this was due to PVP's inability to fulfil quality and quantity requirements. In total, long term loans of KSh 30.0 million (US$ 3.4 million) were extended to PVP by parastatal and foreign financing institutions and by the Ministry of Agriculture. However, in 1982 PVP went into receivership and operations ceased. Two years later, in 1984, PVP was taken over by ICDC as a wholly owned subsidiary.

Rehabilitation of the company was initiated and focused on the following:

- Cannibalization of one drier to make two processing lines operational;
- Repair of the boiler unit;
- Construction of staff canteen and offices;
- Upgrading of the farm irrigation systems;
- Substantial renovation of the General Managers' house;
- Paving of road network on the factory site.

The rehabilitation efforts appear to have been slow and in 1986 PVP was ordered by the President to resume operations, in order to again provide an outlet for locally produced vegetables. At this time the company was re-established as Pan Vegetable Processors the (PVP), a wholly government-owned parastatal. This was despite the fact that the plant was not yet fully rehabilitated and adequate management capacity and technical expertise had not been engaged. As a result, the initial products processed by PVP were of extremely poor quality and could not be sold. The stock of processed products accumulated in the warehouse to a value of KSh. 2.1 million by mid-1987 and approached three times that amount by the end of the year.

The present General Manager was appointed in early 1988. At the end of the financial year 1987-1988 (30 June) the processed products in stock had increased to KSh 9.2 million and no, or negligible quantities, of PVP's products had been sold. In January, 1989 an agreement was signed with E.C. Arnold Ltd., (ECA) Heckignton, UK, to market all of PVP's products, both the stocks held in PVP's warehouse and forthcoming production. The agreement was for 4 years and incorporated some technical assistance.

By mid-1989 most of the pre-agreement stock of products had been shipped to ECA. These products were of poor quality - and poorer quality than had been anticipated. Up to the end of June, 1989, thirteen batches of dehydrated products had been received by ECA, all of them processed in 1989. According to an ECA marketing report dated 10th July, 1989, the quality had been over classified in Kenya in 75 per cent of the cases and culinary quality in 25 per cent of the cases. Fifty per cent of the batches showed bacterial counts exceeding microbiological specifications.

By the end of 1989, the agreement with ECA had resulted in total sales of about KSh 9 million but no deliveries had been made for some time. Very recently, on 8 January 1990 Michael Moore and David Waterhouse were appointed Administrative Receivers of ECA PVP's claims on its trade partner amounts to KSh 800,000. Although ECA has introduced PVP to potential end- buyers in UK, FRG and Holland, no sales have been made as yet. A point of importance in this connection is that PVP reportedly does not enjoy the best reputation with traders and potential buyers, particularly German-based companies. The failure to supply products in conformity with required specifications, as in the case of ECA, is in this context very serious. As far as has been disclosed contacts with Deco Foods in Israel may result in the supply of 10 tonnes of dehydrated cabbage.

It is concluded that too little attention has been paid to marketing of the product, especially with regard to a more broadly-based clientèle. For example, at any one time in the past the company has only had one major buyer of the dehydrated vegetables. The company has sizeable quantities of finished products in stock. Most of this appears to have been processed from about April/May 1989 and onward. The current processing capacity, considering prevailing constraints, is approximately 1.5 tonnes per day. This implies that the stock in the warehouse for finished products is increasing at a rate of some 8 - 9 tonnes per week.

The company has been unable to procure sufficient quantities of vegetables to the processing plant ever since it re-opened in 1986. Company farms have been poorly utilized, have experienced severe problems in hiring workers when needed, and have suffered from break-down of irrigation

equipment. As a result, the necessary activities before, during and after the growing season for a particular crop, have not been carried out in a timely fashion. Due to negligence to maintain and improve the drainage system on one of the farms, increasing areas on this farm are suffering from water logging and salinization.

Since 1986, recruitment of outgrowers has not been successful. Efforts to recruit outgrowers seem to have been completely inadequate and a well organized system for input supply, extension services and transport has not been developed.

In addition to inadequate management of the company farms, it is concluded that the company has never been able to establish firm relationships with outgrowers to ensure the required quantity and quality of raw material. This has been partly due to the company's inability to guarantee payment to the farmers in a timely fashion and sometimes not at all. In addition, the prices offered to farmers have not been very attractive.

Since the plant was never properly rehabilitated, prior to resumption of operations in 1986, and since the supply of raw material has been far from sufficient, the capacity utilization of the processing plant has continued to be very low. The fact that the company has had no money of its own, but relied entirely on finance from ICDC, is likely to have made the day-to-day operation of the company more difficult. It is the opinion of the mission, however, that the major reason for the current state of the company is that PVP has had a poor history, since the onset, of inadequate and inexperienced management. This has been due to lack of incentives, in salary structure and conditions of work. As a result of this the company has also experienced inability to retain experienced staff. Staff turnover has been extremely high in recent years. The General Manager has been with the Company for only two years and many of the current management have only been with the firm for a number of weeks or months. Moreover, the management appears to have insufficient guidance from the Board of Directors.

7.2 Existing situation

(a) Current problems

In summary, the company's current problems are the following:

- Inadequate management;
- Inefficient utilization of human resources;
- Financial structure not conducive to dynamic rehabilitation efforts, lack of finance;
- Crippled processing capacity and outdated, energy consuming processing technology;
- Insufficient supply of raw material;
- Product range not optimized;
- Impossibility of attaining an acceptable utilization capacity rate; given its installed capacity, overall poor and unacceptable performance due inadequate hygiene conditions affecting product microbiological quality;
- No existing market outlets.

As a result of the above mentioned problems the company produces dehydrated vegetables at high cost, of low quality, in too small quantities, and has no guarantee of raw material supply or market outlets.

(b) Management and organisation

PVP is a parastatal, 100 per cent owned by the Kenyan government through the Industrial & Commercial Development Corporation (ICDC), a holding company which has major interests in many parastatal enterprises. Information about the exact distribution of the shares in the company was not available to the mission.

The Board of Directors consists of the following persons:

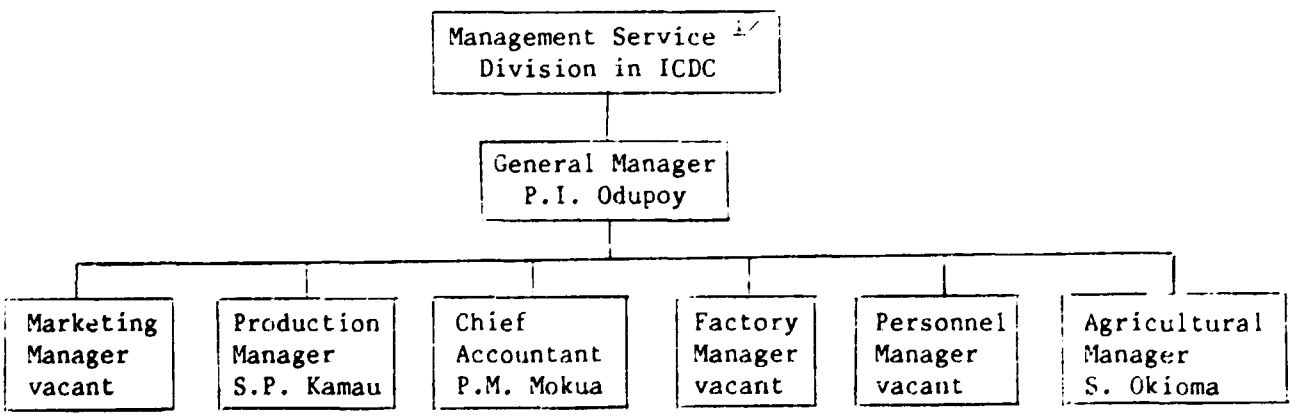
Chairman:	Mr. J.P.N. Simba	Executive director ICDC
	Mr. G. Kimaru	Chief Industrial Manager, ICDC
	Dr. E.G. Karuri	Head of Department of Food Technology and Nutrition, University of Nairobi
	Mr. G.S. Wangila	Representative of Ministry of Industry
Secretary:	Mr. B.K. Murage	Management Service Department of ICDC

According to the General Manager, The Board of Directors, also has representatives from the Ministries of Finance and Planning. Unfortunately this could not be confirmed as the mission was not given access to the statutes of the company and other relevant information which could have corroborated this.

Apart from the above mentioned board members, the General Manager and his staff also attend the board meetings.

Board meetings, at the factory, are normally held quarterly. Due to the fact that the members are very high level people in industry, government, and other important organisations it has proved difficult to assemble them all to meetings on a regular basis. In their absence, the alternates or nominees of the Board Members, do not appear to have status or power to take decisions. This causes serious delays in the implementation of important decisions.

Figure 7.2.1: Management structure of Pan Vegetable Processors Ltd.



1/ ICDC's Management Service Division is a major influence on PVP's management. It is able to provide secretarial and accounting service to ICDC's daughter companies such as PVP. Even managerial services are available should it be necessary.

The General Manager, Mr. Odupoy, is a Kenyan citizen who is a political appointee of the President of Kenya. Mr. Odupoy has a background as an Assistant Minister in the Ministry of Water and Ministry of Finance. He has also worked as a Sales Representative and Area Manager for Wellcome Kenya Ltd, a private pharmaceutical company in Nairobi. Mr Odupoy has no previous experience as a General Manager and particularly of a company in the vegetable processing business.

The General Manager begins an average working day with a meeting with the different department managers in order to check the status of production, sales and personnel matters. At this time, break downs and other problems in the production lines are reported as well as reports on incoming orders, deliveries of orders, and the status of the work force. This takes usually about one hour between 0800 and 0900. Between 0900 and 1000 the General Manager makes a round in the factory when, among other things he attends to maintenance and other technical matters. From 1000 to 1100 the General Manager deals with various technical and financial problems. Correspondence and other office work is done from 1100 to the lunch break at 1300. After lunch at 1400 the General Manager deals with routine work and reports from various activities and takes care of any emergency that might have occurred. At 1500 he makes a new round in the factory as well as in the warehouse, this usually takes one hour. From 1600 to 1700, he has a meeting with his managers for a check on all activities and the current state of business.

Formal meetings with the General Manager and his different managers are meant to be held once a week. At these meetings various questions regarding the running of the factory are discussed, such as long term planning, maintenance, spare parts, personnel, and so on. There is no evidence that meetings are held with the workers or the unions.

The organisational chart of the company shows a few vacancies at the middle management level in the Departments of Marketing and Personnel as well as for the post of Factory Manager. The Sales Department is temporarily headed by the Assistant Marketing Manager, Mr. Hagoi, who appears to be experienced and doing a good job under difficult circumstances. He would probably function well as Sales manager. The post of Factory Manager is occupied, also temporarily, by the Factory Engineer, Mr. Oriaro. Mr. Orario gives an impression of being an experienced engineer and a good worker and organizer, with several years experience of production. The Personnel Department is at present run by the Assistant Personnel Manager, Mr. Wambugu, until this position can be filled. Mr. Wambugu was sent out to PVP by ICDC's Management Service Division.

PVP has its own farms and in this area there is evidence of severe mismanagement. This is not necessarily due to bad farm managers but is more a result of a very bureaucratic organization where very few responsibilities are delegated down to middle management - for instance, regarding purchase of spare parts.

There are no major changes contemplated in this organisational structure except that there is a desire on the part of the General Manager to fill the above mentioned vacancies as soon as possible.

A serious weakness in the organisation is that many of the staff members, including the General Manager are under-qualified as well as inexperienced. Most of the management has only worked at the company for a very short period of time. Time of employment for the current management ranges from 1.5 years (General Manager) down to only a few weeks or months for other managers. This is a particular weakness in strategic areas such as the Accounting and Production departments, where the Chief Accountant and Production Manager had at the time of the mission's visit only been with the company 2 weeks and 1 month respectively.

The mission also noted that there have been frequent changes in personnel at the middle management level in the recent past. This has apparently been due to the fact that the salary structure at PVP is not attractive enough to retain staff, many of whom have resigned for private industry and more attractive government appointments.

The mission has been told that this situation is not uncommon in the parastatal sector in Kenya. But unfortunately the situation is particularly severe at PVP given that it is graded F, which is the lowest ranking among parastatals.

In addition, conditions of work at PVP are not attractive either. The medical scheme is not very generous and there is no payment of overtime. Instead, staff are offered compensating time off, in lieu of overtime pay. The company offers an annual salary adjustment, car loans to the management, and two cups of tea, daily to the workers. There is no profit sharing scheme for any of the employees and no sales commissions for the sales personnel. The advancement possibilities for lower management are very few since there are no funds for training or funds to fill vacancies.

Staff members that have been with the company for a longer period seem dejected in the face of the continuing difficulties of the company.

Because of this, the company has difficulty in attracting and retaining suitable middle management which causes dislocation and weakness in running the company. This situation must urgently be addressed in the near future.

The management of the company is not adequately guided by an appropriately constituted board of directors which would be normal business practice.

(c) Human resources

Management team

The management team in PVP consists of a General Manager, a Chief Accountant, a Production Manager, an Agriculture Manager, an Assistant Marketing Officer, and an Assistant Personnel Officer.

The General Manager has not had any experience in the vegetable processing business, nor has he had any management experience in a commercial firm. It seems that he finds it extremely difficult to manage the firm with no background in business and management. It is doubtful if management training can affect his performance.

The Chief Accountant has just arrived in the firm and therefore it is difficult to assess his capability.

The Production Manager had worked in Pan African Vegetable Processing Ltd., the previous status of PVP, for a short period in 1981-82 as a Production Manager and returned to PVP in 1989. He has a B.Sc. in food technology and is managing the production lines very well despite the limited capacity.

The Agriculture Manager is in a special position. He was seconded by ICDC, the largest shareholder of PVP. He is competent, but does not show interest in his work.

The Assistant Marketing Officer appears to have inadequate marketing skills, due primarily to lack of experience.

In the management team the Assistant Personnel Officer has been working the longest for the firm. He worked in a bank for 13 years and joined the previous ownership of PVP in 1974. After he was laid off in 1982, he came back to work for PVP in 1988. He appears to be good at handling employees and general personnel matters of the firm, but tends to be truculent to his superiors.

Most of the staff in the management team have only been with the firm for a short period time and appear to be underqualified to manage the current crisis conditions. The turnover of middle managers is very high due to the crisis situation of the firm, the inadequate salary, and poor working conditions.

Plant operation

The production line consists of the following employees: a senior production foreman, 3 production foremen, 4 supervisors, 2 charge-hands, 22 permanent workers, and about 150 casuals.

Most of the skilled workers in the production line joined the firm during the period when it was called Pan African Vegetable Processing Ltd. and had a different ownership. PAVP Ltd. collapsed in 1982. When the plant resumed its operation as PVP in 1986, these workers came back to the firm. The senior production foreman has secondary school education and has been working in the plant since 1966. He does not have any formal training, but he has acquired his skills through experience and on-the-job training.

The three production foremen, two of whom have primary education, and one, secondary education, joined the firm more or less at the same time in the late 1970s. Similar to the senior foreman, none of the foremen has any formal training for his work, but has acquired requisite skills through experience and on-the-job training.

The four supervisors also joined the firm at the same time as the three foremen; all of them have secondary education and learned their skills on-the-job.

The process of producing dehydrated vegetables consists mainly of four different activities or sections: preparation, drying, hand picking and warehousing. Along the processing line the preparation and hand picking sections largely depend on unskilled women workers. Male employees work in the drying section and the warehouse to stock final products.

The plant is run for 24 hours with three shifts. Working conditions are severe - hours are long with only a 15 minutes tea break in-between. The work of casual workers is particularly monotonous and tedious, on the conveyer line all day long. About 70 casuals, all of whom are women, are assigned every shift to conveyer lines in the preparation and hand picking sections. The position of casual labour at PVP is insecure and unpredictable. Every morning they leave home without knowing whether they will be given a job or not. Sometimes they have to go right back home without working or they may have to work on Sunday when production is behind schedule. Their salary is considered low and they find it difficult even to pay their monthly rent.

Even the skilled employees feel that it is extremely hard to be content with present working conditions and salary levels. One claimed that his income has virtually remained the same since he was laid off in 1982. There are no fringe benefits or incentives for any of the employees. Even though this may also be a reflection of the precarious financial state of the company, it is nonetheless unsatisfactory.

Production control

In the quality control laboratory there is, a food technologist, 3 production assistants, a laboratory assistant, and 3 laboratory attendants.

The Food Technologist holds a B.Sc. in food technology. He joined the firm very recently. His predecessor resigned after she returned from technical training in England. Three of the production assistants also joined the firm recently in 1988, December 1989 and January 1990 respectively. All of them are formally educated and have a diploma in food science. Three of the laboratory attendants, who have had secondary school education, did not have any formal training for the laboratory work but learned their skills via a two months period of on-the-job training.

Maintenance and repair

The maintenance and repair section consists of a factory engineer, a senior engineering foreman, 2 foremen, 2 supervisors and 19 workers.

The Factory Engineer holds a B.Sc. in engineering and joined the firm in 1987. Among the senior staff he was the only engineer who had a formal education in engineering. The Senior Engineering Foreman has been with PVP since 1964, excluding the period that the plant was shut down in 1982-86. He has acquired his skills only through on-the-job training and experience. Both of the foremen joined the previous firm in 1978 and came back to work when the new firm was established. One foreman is responsible for the workshop, and the other for maintenance. Both of them have secondary education, but have had no formal training outside the firm. Both of the supervisors have only primary education and joined the previous firm in 1975. One supervisor is responsible for plumbing, and the other, for building maintenance. Of the 19 workers, only a few have had technical training outside the firm.

Having only a few qualified skilled workers, the engineering section is poorly equiped to provide the required service. Despite the ample space available, the layout of the workshop is disorganized and inefficient. In the plant, because of the lack of qualified maintenance engineers, misallocated equipment and machinery can be seen, many of which are out of order for long periods of time.

The present poor state of the workshop and inadequate maintenance of equipment and machinery lead to demoralization of the workers. On-the-job training is very poor and few workers can develop their skill independently to fix or produce parts and tools. A well-trained worker, who has had a formal training outside the firm, finds it extremely difficult to apply his skills in the workshop under the present conditions of work. Under these circumstances, he also finds it difficult to sustain his morale without motivation and incentives.

Vegetable farming

The agriculture section consists of an agriculture manager, a field officer, a farm manager, 2 farm foremen, 47 permanent workers and about 120 casuals. In addition, 380 farmers are reportedly engaged as outgrowers in Kinangop. There are two farms growing vegetables for processing in the plant.

The Naivasha farm has 109 hectares. The work force consists of a farm foreman, an unknown number of permanent workers and 50 casual workers. The permanent workers are distributed between the two farms according to the work required in each farm.

The Malewa farm has 96 hectares and the work force consists of a foreman, a few permanent and 70 casual workers.

The Assistant Field Officer joined the firm in November 1989 after she had worked in the Ministry of Agriculture for five years. Her responsibility is to assist the Agriculture Manager in planning and allocating crops on the farms and supervising the Farm Manager and Foremen.

The Farm Manager joined the firm in January 1990. He is responsible for supervising the foremen and workers on the farms. He also gives advice to his superiors concerning personnel matters, equipment and facilities, and agricultural crops for the farms.

Both the Field Officer and the Farm Manager find that the biggest problem is to ensure a sufficient number of field labourers; permanent and casuals workers are available for work on the farms on a daily base. On the farms, workers are required to do hard manual labour because there is hardly equipment or machinery to work with. Even though there are irrigation systems, they are malfunctioning.

Labour turnover is high because employees are not satisfied with their salary levels and conditions of work. The casual workers are paid KSh 20 per day which is higher than the minimum wage rate of KSh 16, but is not competitive as compared to what they could receive on other farms.

In conclusion, the basic training of employees at various levels is generally inadequate. Although on-the-job training is provided, it appears as if it is not very well-developed and efficient.

(d) Financial structure

Table 7.2.1 shows the financial structure of the company for the fiscal years 1985-1988. The fiscal year commences on 1 July and terminates on 30 June the following year.

Table 7.2.1: PVP's total assets and capital employed by 30 June, 1985-1988
(thousand shillings)

	1985	1986	1987	1988
Assets				
Fixed assets	14,654	13,651	15,325	15,798
Stocks	-	-	2,092	9,225
Cash/bank deposits	83	132	391	477
Debtors	-	26	91	448
Total Assets	14,737	13,809	17,899	25,948
Capital employed				
Contributions by ICDC	16,677	18,854	26,990	42,724
Loans	2,102	2,365	2,693	3,034
Creditors	124	634	1,472	4,897
Accumulated losses	(4,166)	(8,044)	13,258)	(24,707)
Total capital employed	14,737	13,809	17,897	25,948

Source: PVP
Note: The 1987-88 figures are based on PVP draft accounts.

The accounts for the period 1988-89 were not available to the mission nor were PVP's financial statements for the period 1 July - 31 December 1989.

Fixed assets and stocks constituted 61 per cent and 36 per cent of total assets respectively. In total, they amounted to 97 per cent of total assets. The company does not have access to overdraft facilities and relies on ICDC for financing of its operations.

The composition of the fixed capital as of 30 June 1988 was as follows:

Table 7.2.2: Composition of fixed capital: 1988
(thousand shillings)

Type of capital	Book value	Per cent of total
Factory building	5,068	32.1
Agricultural land	2,122	13.4
Tractors and vehicles	556	3.5
Irrigation	1,550	9.8
Factory machinery	6,214	39.3
Office equipment	288	1.8
Total	15,798	99.9

Source: PVP

The company's machinery only represented 39 per cent of fixed capital in 1988. However, the relative importance of the machinery is much less, if one takes into account that the land for agriculture and the industrial site are probably greatly underestimated.

Reports from ECA suggest that the quality of the products sold in 1989 from the stocks was low. Circumstantial evidence suggests that the value of the stock was significantly lower than those provided in the books.

Since the company was formed in 1984, it has always been operating at a great loss. For example, in 1987-88, recurrent costs were 40 per cent higher than revenues. ICDC has covered these losses by "share contributions in advance". In 1988, these amounted to 43 million shillings and greatly exceeded the book value of the company which was 26 million shillings. A financial restructuring of the company is clearly one important pre-condition for the company's successful rehabilitation.

(e) Buildings and installations

General

Most of the construction of the buildings was started in 1975. At the same time the processing building from the 1960s was converted to a workshop.

The factory has three lines with a total, nominal processing capacity of 105 tonnes of raw vegetables/24 hrs. A cold store for fresh vegetables, a ware house for finished products, the required installations for utilities and the administration of the factory are included to facilitate continuous operation, given that sufficient raw material is available. The site layout is illustrated in Figure 7.2.2.

Insufficient maintenance over the years and lack of spare parts has reduced the available dehydration capacity to about 50 per cent of installed capacity. One 55 tonnes/24 hrs dehydration unit is operational, one 25 tonnes/24 hrs unit is heavily cannibalized and the other 25 tonnes/24 hrs unit is not operational at present.

Although most of the different machines and installations in processing lines II and III, used for preparing the vegetables before dehydration, are in workable condition, or could be repaired quite easily, the plant has for all practical purposes, only one processing line.

In order to avoid deterioration, the vegetables should be stored in the cold room between the time they are received at the factory and the time when they are to be processed. However, the refrigeration installations are not functioning and rehabilitation works, which were started earlier on in 1989, were never completed. The cold store is designed for storage and handling of the vegetables particularly the root crops in ventilated boxes of about 1 m^3. A forklift truck is essential for taking the boxes in and out of the cold store for emptying into feeder hopper of the processing line. The forklift truck however, is beyond repair and handling of the raw material is done entirely by hand. Figures 7.2.3, 7.2.4 and 7.2.5 illustrate processing lines, I, II and III respectively. Comments on each line are given under Mechanical installations below.

Major buildings

The buildings have concrete super-structures, concrete block walls provided with ventilation, and corrugated iron roofs. Transparent corrugated plastic sheets are distributed in two rows on the roof of the processing building and the warehouse to provide sufficient light in the working areas. The section for preparation of vegetables in the processing building has tiled walls up for about 2.5m high. The tiled floor in the processing building has steel grill covered gutters to drain off process and cleaning water.

The cold store is designed to maintain a temperature of +4°C. Insulation in walls and ceiling is limited to 100mm rock wool or thereabout. There is no insulation under the concrete floor. Interior walls are clad with galvanized steel sheets.

All buildings are generally in good repair with the exception of the galvanized steel roofs which are badly corroded in places and also the roof gutters. These need to be repaired at the earliest opportunity, especially the warehouse roof and the roof of the processing building.

The overall approximate dimensions of major buildings are:

Cold store	-	19m x 19 m
Processing Building	-	24m x 100m
Warehouse	-	24m x 60 m
Boiler House	-	12m x 16 m
Warehouse, Bags seed	-	9m x 18 m

Service buildings

i) Scale house/Weighbridge, laboratory

The weighbridge capacity is 40 tonnes. It has an Avery scale equipped with registration cards for gross weight, tare weight and net weight. The installations appeared to be in good order.

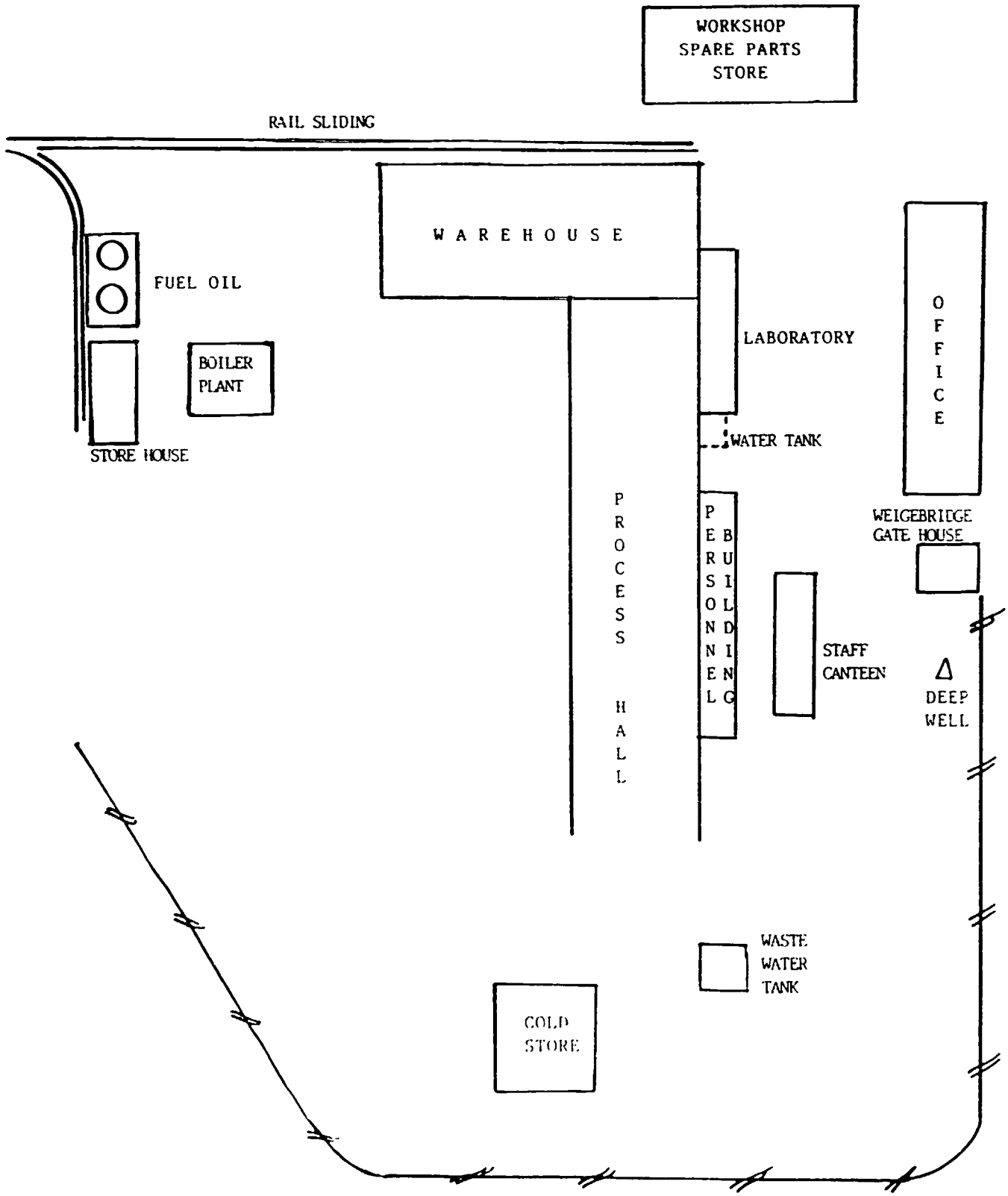
The laboratory is located adjacent to the processing building. It includes laboratory space and a store for keeping reference sample bags.

ii) Personnel facilities

The premises for toilets and locker rooms are adequate for the current number of permanent workers. They are divided in one section for men and one for women. Major parts of the walls in the toilet room are tiled, toilets are of Asian type, and wash basins of elongated trough type, provided with a number of taps. The sanitary conditions are not of acceptable standard. For instance, the Asian type toilets are not suitable for the food industry. In the outside corridor, separating the men's and women's sections and leading to the processing hall, there are two hand basins one of them with a cold water tap.

The arrangements for personal hand hygiene in the processing hall are inadequate. There are all together three washbasins, all of them close to processing Line I, out of which two have a liquid soap dispenser and one in the final product sorting area, has an air hand drier. Personnel working on any of the other two processing lines have no immediate access to hand washing facilities.

Figure 7.2.2: The site layout



iii) Power room

This includes the main electrical switch boards and a stand- by generator capable of generating electrical power only to run the driers in case of power cuts. The generator unit is not operable and at present dismantled.

iv) Staff canteen

The staff canteen was put up around 1985 as part of the rehabilitation efforts. It is a separate building with a kitchen, adequate store space and a cafeteria with a number of tables and chairs. Here, tea is served once to every shift. No cooked foods or snacks are served to the employees.

v) Workshop

This is located in the old processing building, built in the 1960s, which is situated close to the warehouse. The workshop has adequate space for its purpose but is disorganized. It is inadequately equipped with tools and the workshop machines are mostly out of order.

Rewinding of electrical motors is done in a separate part of the workshop.

The spare parts store is simple and could be improved, however, it is adequate, considering the current general shortage of spares.

vi) Fuel tanks

These are situated reasonably close to the boiler point unit. The tank capacity for heavy fuel oil is 2 x 100 m^3 and the tanks with accessories are placed on a concrete slab surrounded by a concrete wall, about 1m high.

Miscellaneous

There is a waste water tank for processing and cleaning water, including tubing for transfer of waste water to the adjacent Naivasha farm where it is used for irrigation.

i) Deep wall including pump

Details regarding depth, water analysis and capacity were not available. However, the capacity of the well is reportedly sufficient for the needs of the factory and the quality was said to be good.

ii) Buffer water tank

This is made from concrete and is located close to the processing building and reportedly sufficiently large as a buffer during periods of high water consumption.

Administration and office building

The premises are sufficiently large to accommodate required administration personnel. There are signs of inadequate maintenance such as worn painting on doors and floors, worn floor covers, and so on.

Roads, railway, drainage

All roads and communication areas on the factory site are tar- sealed as a result of the rehabilitation efforts prior to re-opening of the factory in 1986. One railway siding at the warehouse and one at the storehouse/fuel tank area facilitates easy rail transports of both incoming goods such as bags, agricultural inputs and fuel oil and shipment of finished products.

The factory site has one main storm water drainage canal which appears to be sufficient. Sewage from toilets is treated in a septic tank which is emptied by the municipality. No effluent from this system is connected to other drains.

Mechanical installations

The following presentation is concerned with Lines I, II and III in the processing building and installations in the warehouse, the cold store and the boiler plant.

The main features of processing Line I are illustrated on Figure 7.2.3. This line is commonly referred to as the carrot Line. The different machines used for preparing the vegetables before drying are connected by a tilted screw conveyor or a belt conveyor. The tilted screw conveyors are provided with piping and nozzles for spraying water. Hence, for all practical purposes it could be said that the carrots are washed and cleaned in stages from the soil remover hopper to the trimming/sorting table. The attachments for tipping of the boxes by a forklift truck into the feeding hopper are missing. The soil remover hopper lacks the belts on the outlet rollers and the first drum washer does not work since the motor is out of order. Hence, the carrots are fed by hand into the tilted screw conveyor feeding the vertical washing unit. The pre-cleaned product is now fed into a batch steam peeler which is a cylinder type machine manufactured by Paul Kung & Co. (FRG) in 1974. It operates at a maximum pressure of 175 Psi (3 BAR) and was last inspected on 3rd September, 1980. The automatic control unit is out of order and the peeler is now adjusted and controlled manually. Renewed inspection and testing should be arranged at the earliest possible opportunity.

After the second horizontal washer, the product is fed onto a conventional sorting/grading table with conveyor belts. At the time of the mission's visit, 30 workers were engaged in sorting and trimming the carrots which were of low quality green spots, splits, unsatisfactorily trimmed tops and decay cavities now steamed and washed away. Rejects were dumped on the floor, taken out in baskets or crates and subsequently sold as animal feeds.

It is essential at this stage to point out the almost impossible tasks of sorting out a top quality product for dehydration from sub-standard raw material, given the way the products are stored and handled.

The carrots now pass through an Urshell dicer before entering the blancher, which operates at 90°C, and into the belt drier. This is a continuous cross current drier manufactured by Buttner-Schilde-Haas AG (FRG). The drier has basically three temperature zones, starting out from 85 - 90°C moving down to 70°C and ending up at 60°C after about six hours when the dehydration process is completed. The drier has a rated capacity of 3 tonnes of raw material/hr. Documentation or manuals have not yet been found by the new production manager. Hence, detailed specifications regarding steam consumption, air velocity in the different sections of the drier, evaporation rate and so on cannot be quoted.

At the time of the mission's visit, the temperature in the second and third zones was 5 - 10°C above the levels mentioned above. The temperature of the product is not tested at any point by routine inspection but an increase of air temperature by 10°C at the final stage of the dehydration process suggests that the product temperature is higher than is intended. However, a recent test of outgoing material temperature showed 54°C and modified routines for testing and monitoring the temperature of the final product is contemplated, in addition, to control of moisture content which varies between 5 and 7 per cent.

There is no conveying system between the drier outlet and the following section for final sorting and grading of the product. Instead the carrots are collected in small bins, temporarily put in bags, and later emptied in the elevated buffer hopper before the sorting line. The buffer hopper serves three sorting lines, each manned by 6 workers. Like on the rest of the line, the sorting is done in three shifts when primarily off- coloured pieces are removed. This is a tedious process and the average output per hour, illustrated in Table 7.2.3 is low.

Table 7.2.3: Performance in the final products sorting section

Shift	Number of workers	Total output	Total rejects		Final product per hour/worker
			kg	per cent	kg
A	17	300	6	2	2.16
B	19	320	10	1.4	2.16
C	22	420			

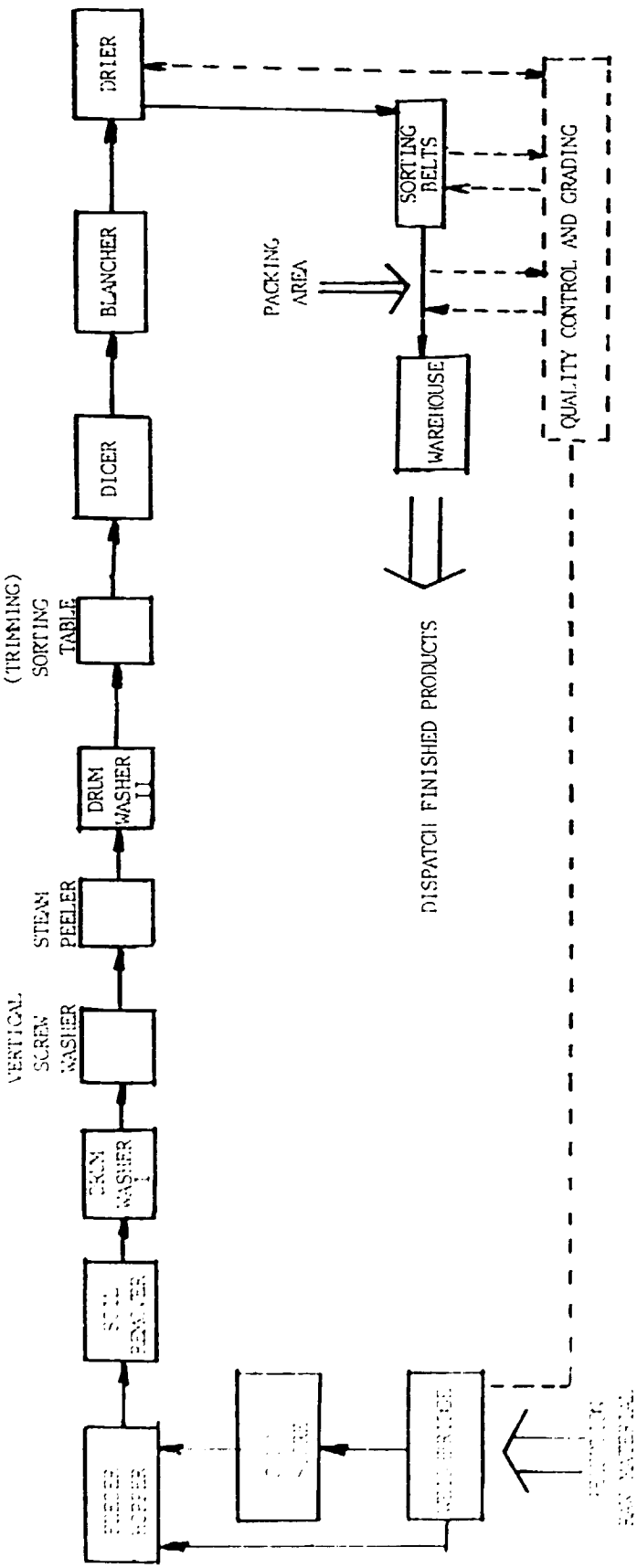
Source: Ledger at the sorting section PVP.
Note: Percentage share of respects UN total output.

The sorted final product is collected in buckets and subsequently emptied into bags - (black polythene inner bags and multi-layer outer paper bags) of 20 kg. Each bag receives a number which includes date of processing. Samples for quality control are taken after the products have been through the drier, and at the bagging station. The quality control procedures are described more in more detail in the section on quality control below. Bags are now transferred to the warehouse.

The performance of processing Line I can be assessed by the actual figures for the period, 16 January 0600 hours, through 17 January 0600, when 1,441 kg. of finished dehydrated carrots were produced. These figures are considered to be fairly representative of current operational patterns.

Based on the average conversion ratio for 1989, 4.7 per cent, about 30.7 tonnes of raw material, was processed in 24 hours. This ratio is significantly lower than results previously achieved which, according to available information, was 6.5 per cent.

Figure 7.2.3: Processing Line I



A comparison with the rated drying capacity of Line I gives the following result per 24 hours:

	Raw material Tonnes	Ratio	Final Produce Tonnes	Difference Tonnes
Achieved	30.7	4.7	1.441	6.5
Produced	6.5	1.995	0.554	
Full capacity	55.0	4.7	2.585	1.144
	6.5	3.575	1.437	

Source: Mission's own estimates:

The average input of raw material was 1/3 tonnes/hr which is 1.0 tonnes less than should have been the case. Assuming that the forklift truck and the three first stages in the vegetable preparation line had been operational, the output per unit of time would have improved by about 80 per cent. Further assume that the quality of the raw material had been first class and that the losses of soluble dry matter in the blanching process were reduced through introduction of sugar in the blanching water, the production of dehydrated finished carrots would then have increased by 100 per cent, or slightly more depending on, for example, the dry matter content in the carrots.

This exercise illustrates the order of improvements that can feasibly be done. Given that sufficient quantities of good quality raw material is available the annual production of dehydrated vegetables on Line I could be increased significantly with only modest investments. The raw material supply is crucial and can only be ensured through forceful measures on the company farms and by organizing and implementing a more adequate outgrower programme.

Provided an appropriately phased overall cropping and harvesting programme is adopted for vegetables required on the market, the annual production from Line I only would be of the order of 860 tonnes of dried vegetables. This estimate is based on 20 per cent down-time for repair and so forth, and assuming 300 working days per year. If the processing line is operated as at present, the annual production would be about 350 tonnes of dried vegetables.

The drier in Line II is of the same manufacture as Line I but with a capacity of 25 tonnes of raw material per 24 hours. However, this drier is completely cannibalized and future rehabilitation should not be considered.

Figure 7.2.4 illustrates the product flow using the Line I drier since Line II's drier is cannibalised.

The Line II is primarily used for green beans and cabbages. These regrettably are loaded by hand into the spray batch washer because the feeder hopper with mechanical device for emptying the transport boxes is not functioning. From the batch washer, the beans are conveyed to a three-drum snipper machine. This machine has only one set of snipper segments which are sometimes too large, depending on the size of the beans, resulting in unduly

high losses. The vibrating conveyor at the drum outlets is working at too high a speed. The reason for this appears to be that the wrong size pulley has been used as a spare. Correction of this practice is essential, or the conveyor will soon break down. The beans are now conveyed to a cutting machine, and these to the blancher before being fed to the drier.

In the case of cabbages, the product passes a slicer and a batch washer before entering the blancher. Hence the bean and cabbage processing lines use some common equipment, although a few machines are specific to each individual product. The connecting conveyors are mobile and so are some of the preparation machines.

After the drying process, in this case on the Line I drier, the product is subject to final sorting/selection prior to packing.

Apart from the comments made above regarding some of the equipment, everything appeared to be in operating condition.

The flow diagram for Line III is illustrated in Figure 7.2.5. Onions, leeks and dill are the main products which implies that a variety of equipment is used to prepared the vegetables before drying. The lines are not put up permanently, but combined depending on which product is to be prepared. Some operations are done manually - for instance, trimming of onions, sorting of dill and trimming/separation of leeks.

The drier is of the same type as the Line II drier which was cannibalized, primarily in order to make the Line III drier operational. At present, however, this drier is out of order due to break-down of conveyor chains. After drying, the onion flakes are sorted and packed.

The dill is rubbed by hand on a sieve, then fractioned in a vibratory separator, and finally subject to magnetic control before packing to ensure that no metal particles contaminate the product. The leeks are also sorted after the drying and prior to packing. All packed and labelled products are transferred to the warehouse. Sampling for quality control is organized and carried out in the same manner as described in Line I.

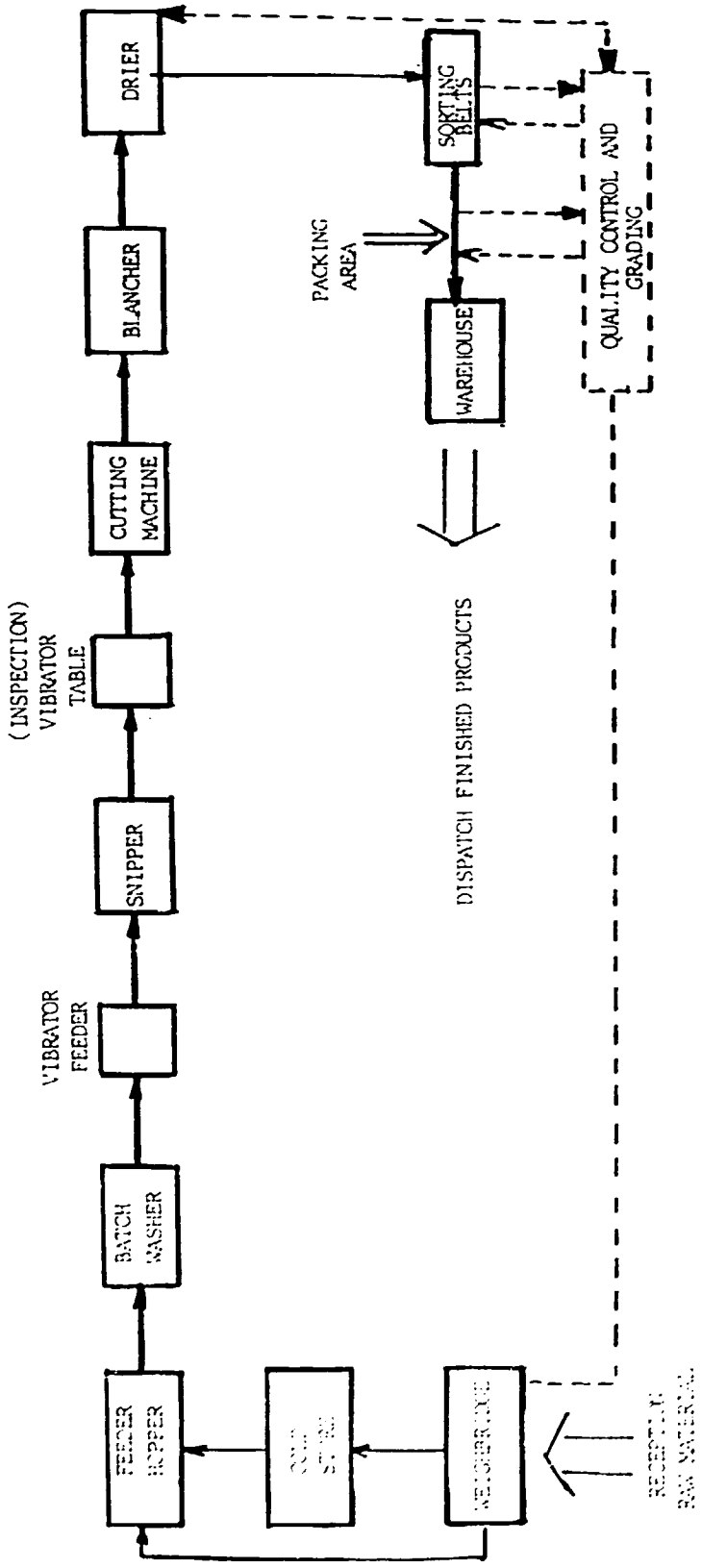
These processing lines were not in operation at the time of the mission's visit but equipment and conveyors alike were reportedly in operational order.

Material handling

The deliveries of vegetables are dumped on the floor in the processing building and then loaded by hand onto the processing line. The crates of about one m3, which are intended to be used for intermediate storage in the cold room and for transport to the processing lines, are not used. This is because the forklift truck is defunct. As a result, the feeding capacity onto the processing line is inadequate in relation to drying capacity and the dehydration process becomes uneconomical.

Hence, feeding of the processing line evenly at a sufficient rate is important. This cannot be done manually without a buffer bin with a feeding-out device. Repair of the Line I feeder hopper, soil remover, washer No. I and the connecting conveyors should be done as soon as possible. This would significantly increase the overall processing capacity, given that the quality of raw materials is also improved.

Figure 7.2.4: Processing Line II



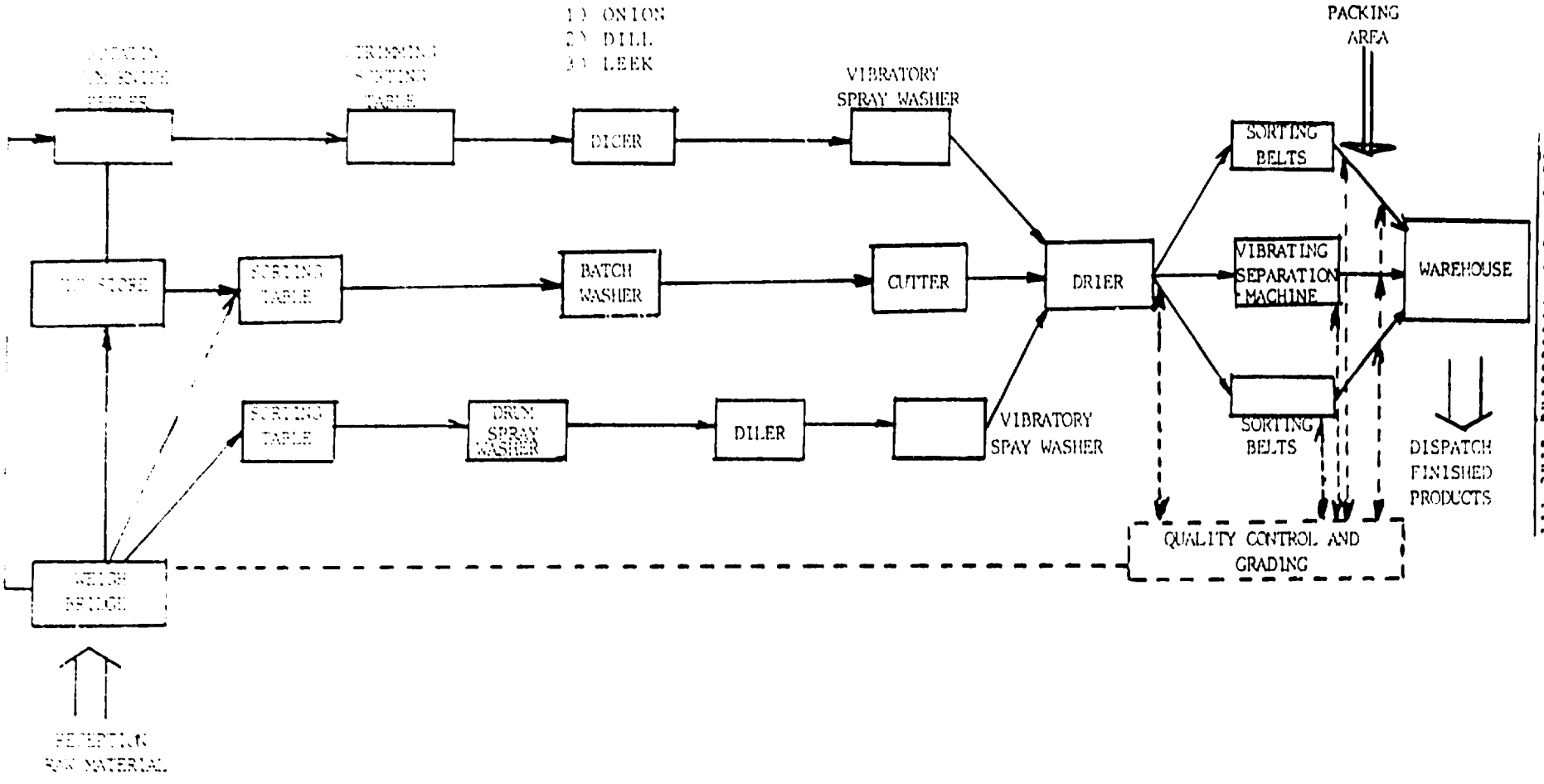


Figure 7.2.5: Processing line [illegible]

By introducing a mobile conveyor to the top of the feeder hopper, manual loading of Line I can continue but with satisfactory capacity. In the medium term, the rehabilitation of the cold room should be completed, a forklift truck acquired and a sufficient number of storage handling crates repaired. In the long term, new crates would be needed when crate handling is introduced in the entire handling transport chain from the producer to the processing feeder hopper. This would facilitate rational handling of products, reduce damages, and thus also improve overall quality.

i) Warehouse

The equipment in the warehouse is limited to a scale, a plastic bag heat-sealing device, a hand operated bag sewing machine and a fumigation unit. This is a vacuum chamber with a circulation system of the fumigant manufactured by Degesh, FRG. All equipment is reportedly operational, but the fumigation unit has not been used since the 1970s. Handling and stacking of the bags is done manually using a hand trolley palletizer.

ii) Cold store

The refrigeration unit has two new Searl-Bush compressors with 30 hp electric motors, installed in 1987. Freon is used as the refrigerant. The compressors have not been used and the plant is not operational because the installation works were never finalized.

iii) Boiler

The boiler is manufactured by Standard Kessel, Duisburg, FGR in 1974. The heating furnace is 275 m^3, the maximum fire output of 8.9 G.cal/hr and the maximum boiler output, 1,400 kg/hr. With a maximum working pressure of 12 bar. The unit was subject to inspection, including a hammer test, on 5 January, 1989 and a steam pressure test on 9 January, 1989. A certificate for 12 months was issued on 13 January 1989. The required annual inspection will reportedly be arranged very soon.

Steam is conveyed to the processing building in insulated tubings. At the time of the mission's visits, there was a leak in the main trunk which is likely to have caused considerable losses, and a number of the gauges on the boiler were out of order.

Quality control

The routines for sampling and the subsequent analysis are as follows:-

(i) Sampling of raw material deliveries at the weighbridge; 25 kg. samples regardless of quantity of product. The entire sample is sorted by hand and evalualated for:

- Size
- Perfection of trimming (root crops, onions etc)
- Splits
- Foreign matter (washing)

Trimming is done if required and total rejects added up and expressed as a percentage of the total. Payment to the producer is done on the basis of calculated net quantity. At this stage no analysis is carried out for dry matter content as a basis for payment.

(ii) Sampling before processing for determination of dry matter content.

(iii) Sampling in the finished products area. These samples are taken every hour for reconstitution tests and from every bag. The samples from the bags are mixed to a master sample on a day-to-day basis and analyzed for:-

- Moisture content
- Rejects (picked by hand)
- Colour
- Size of cuttings, uniformity
- Microbiological analysis including:

- Total count
- E. Coli
- Staphlycoc Aereus
- Bacilleus Cerius
- Yeast and molds

If requested by the buyer, the test programme may be modified. All samples are kept for reference until the stock has been sold and dispatched. The above mentioned procedure reflects the current situation as described by the present laboratory staff. It is not clear, however, if the same routines have been implemented in the past.

The laboratory is equipped with all apparatus necessary for the analysis carried out at present. It is clear from the list that rehabilitation of the laboratory equipment is necessary, but the costs involved are also minor.

Plant maintenance

There has been no strictly scheduled maintenance programme in the past. On the contrary, apart from the rehabilitation efforts in the mid-1980s, it appears as if maintenance has been done primarily as a consequence of break-downs. Since the beginning of 1990, a scheduled prevention maintenance programme has been introduced. A weekly 24 hour maintenance shift has been adopted, running from Sunday morning to Monday morning. A total of 25 technical staff comprise the maintenance team which covers electrical and mechanical engineering and also, to some extent, civil works. About 75 per cent of the maintenance staff are said to be properly trained, while the remaining 25 per cent should be classified as helpers. The qualifications of the maitenance crew is discussed in section 7.2 (c), Human resources.

The acquisition of spare parts has hitherto been done by administration staff members, with little or no participation from maintenance people. This is likely to be one reason why the appropriate quality of, for example, gaskets, gears and so forth, have not been purchased. The sub-standard spares, which have been available in the past, have reportedly led to unreasonably frequent break-downs and unnecessary production stops. The system of spare parts procurement has been changed recently and it is anticipated that the frequency of break-downs will decrease.

In addition to the scheduled preventive maintenance programme, the processing equipment are subject to running maintenance during operation. This includes mainly greasing, checking of oil, and repairs in case of break-downs. Preventive maintenance and cleaning, and mechanical or electrical break-downs were responsible for 14.1 per cent of and 7.3 per cent respectively of down tune in 1989. This represents a total of 1,934 hours according to available figures.

Plant hygiene, vital considerations

A pre-condition for successful operation of a food industry is that the routines for plant hygiene and personal hygiene of all staff engaged are meticulously designed and implemented. No statistical information has been obtained from PVP regarding results from microbiological tests of the different products. However, in the marketing report from ECA dated 10th July, 1989, an account is given of the microbiological status of a number of consignments of different dehydrated products, and samples. These may not be representative for all products produced in a year, but they are indicative of the fact that hygienic conditions are not acceptable. A few areas are obvious. The presence of E. Coli and Staphlycoc Aereus is a sign of likely faecal contamination. This may have originated from irrigation water applied to the vegetables, especially if overhead irrigation is used. The process water may also be the source of the difficulties or it may be caused by unsatisfactory personal hygiene.

The sewerage system from the factory toilets have reportedly no connection whatsoever with the waste water system transferring the plant process and cleaning water to the irrigation ponds. But it is possible that the waste water from the plant is in fact contaminated either from the raw material or personnel working in the plant. In this case irrigation practices must be carefully examined.

The personal hygiene of the workers is, however, a more likely source of contamination and reference is also made here to the section on Personnel facilities, where comments are made on the inadequate personal sanitary facilities at the plant. The chlorinated rinsing troughs at the plant entrance from the toilet/locker section and the handbasins with chlorinated water provided to rinse the hands before commencement of work at the beginning of a shift, or after visits to the toilets, are certainly essential but insufficient.

Cleaning of the personnel facilities is the responsibility of the personnel section. Cleaning is inadequate at present. Cleaning can continue to be the responsibility of the personnel section but it should be supervised by the Production Manager and acceptable to him.

However, to facilitate good personal hygiene, the toilets should be changed. Individual sanitary-ware wash basins should be installed including liquid soap dispensers and warm air hand driers. All personnel handling the finished products should wear latex, or plastic protection gloves to ensure that the product is not contaminated through direct human contact.

The details of these matters must be looked into and implemented at the earliest possible opportunity. Strict rules must be adopted, implemented and controlled. The close human contact with the dehydrated products also warrants the introduction of a system of medical check-ups of all personnel. The above actions are essential elements in any programme aiming at future continued operation of the PVP processing plant.

At present, the plant is cleaned with water on a day-to-day basis and a napsack sprayer is used to apply chlorinated water in areas particularly apt to propagate bacteria and other organisms. This does not appear to be sufficient under present circumstances and a more dynamic and effective cleaning and hygiene programme should be elaborated and enforced.

(f) Inputs

Raw Materials

The fresh vegetables are supplied to the dehydration plant from two company operated farms, the Naivasha farm and Malewa farm, and from a number of outgrower farms.

Naivasha farm

This has a total area of 109 hectares (240 acres) of flat land which is located about 2 km from the plant. Due to water logging and salinization of the soil only about 45 hectares (100 acres) are currently cultivated of which 38 hectares (85 acres) are planted. The salinity of a large portion of the soils limits the possibilities of a diversifed cropping pattern. In fact, on parts of the farm only leek, which is fairly salt-tolerant, can be grown successfully. No information was obtained regarding the crop yields. The farm is provided with an overhead sprinkler irrigation system using also process and cleaning water from the processing plant. If this is contaminated by bacteria, and/or other organisms, the hygienic quality of the vegetables may be adversly affected. This is particularly the case with, for example, cabbages. However, other vegetables could be contamination by pathogenes if harvested soon after being irrigated.

The farm is generally poorly managed. Silt and plant growth have clogged the ditches which are filled with stagnant water. As a result large parts, if not all, of the farm are inadequately drained and no attempt would prove successful to leak out the salt from the soil by application of large quantities of water. If the drainage system is not re-installed and improved the salinization process will continue.

Malewa Farm

Malewa farm is located about 4km from the processing plant. The total area is 96 hectares (211 acres) which slopes gently. The soil appears to be generally friable with few exceptions only. About 69 hectares (152 acres) are presently under cultivation while the remaining 27 hectares are idle, not even fallowed. The farm has an overhead sprinkler irrigation system using water from a nearby river. Break-downs of the irrigation pump motor reportedly occurs from time to time but there is no spare motor and it takes a long time to get it repaired. For example, the irrigation system has been out of order since December and the farm manager or the agricultural field officer did not

know when irrigation of the crops could be resummed. The main crop on this farm is carrot, at least at present, but some beans are also grown. At the time of the mission's visit to the farm the overall impression was that of mismanagement. Carrot crops were over-ripe and had deteriorated in quality, crops in the emerging stage were wilting since they could not be watered, and weeds covered virtually every section of the farm.

Operation of the farms

Although production is carried out according to a plan this does not seem to be based on a crop rotation programme aiming at maximum performance. The present farm manager was employed only two weeks before the mission's visit and had obviously not had a chance to prove his capability. His resources are, however, very limited and it cannot reasonably be expected that he will be able to change the current, almost chaotic situation resulting in very little output from the farms. In addition to the farm manager, two foremen and one worker are permanently employed. There are numerous problems in engaging casual labourers who are paid KSh 20 per day. The company has three tractors, in total 225 hp, which are not available to the farms at all times. The procedures to get spare parts, inputs and casual labour is bureaucratic, splits up responsibilites, and hence does not promote efficiency at any level.

Out of the total available area, 205 hectares, only 107 appear to be cultivated and planted at present. Detailed data were not obtained regarding crops, harvests timing, and so on. It would seem, however, that two crops are not regularly harvested per year, probably on the order of 1.8 or even less. The current cropping intensity based on total hecterage would thus come to about 0.9.

Some data:

Soil preparation:	disc ploughing, 3 x disc harrowing, roller compaction.
Planting:	Single row hand operated drill
Fertilizer:	about 110 kg di-amonium phosphate/hectar
Weed control:	pre-emergence herbicides
Pest control:	limited use of insecticides as required, some use of fungicides especially on beans and leek.
Irrigation, normal:	3x2 hr/week day 0-20, estimated total water application 50 mm/week; 2x3hr/week day 21 - 4 months - 50 mm/week.
Harvest:	carrots; tractor mounted lifting device - hand picking, beans, leek; hand picking.
Expected yield:	carrots, 18 tonnes/hectre beans; 3.5 tonnes/hecter

It is concluded by the mission:

- that the option of efficient semi-mechanized vegetable production has not been exploited, and that the current methods used are inefficient.

- that the poor organization, conditions of work and lack of incentives at all levels does not promote farm development and better production.

Outgrowers

These are mainly located around Lake Naivasha and in the Kinangop area, about 25 km from the factory. The farms around the lake are larger, irrigated and produce reportedly on a contract basis. No information was available regarding number of farms and area of production. In Kinangop the farms are small cultivating 1 or 1.5 hectares at the most. They are rain fed and use largely traditional cultivation practices. The problems are mostly related to lack of seeds, inputs and advisory services throughout the year, in addition to lack of transport which mostly has to be arranged by hiring vehicles. The farmers have commonly no cash which makes the system cumbersome, despite the fact that PVP pays for the transport and deducts the cost when paying the farmer for his deliveries. No contract exists but an agreement is reportedly reached from time to time. However, there is no firm commitment from PVP to purchase the crop at a pre-determined price. As a result the farmers sell to the fresh market whenever possible and when prices are more favourable.

In practice, the price ultimately paid to the farmers by PVP is not attractive and the payment is invariably delayed. Interviews with a number of farmers reveals that they accept payment within two weeks of delivery. There was no information available on present and potential out-growers in the area.

Green beans are currently procured also from other areas such as Njoro, at a distant of about 80 km and fror Kericho about 160 km away.

The following lists some of the current prices for vegetables paid to farmers:

Beans	4.50	
Cabbage	0.60	
Carrot	0.80	
Courgettes	1.50	
Onion	2.90	beginning of season
	2.00	end of season
Potatoes	1.40	

Supplies of vegetables in 1989

Raw material deliveries in 1989 are given in Table 7.2.4 They are not entirely consistent with the raw material input quantities shown in Table 7.1.3 but the differences are small. Had the entire plant been operational, 2.100 tonnes of vegetables would have been supplied per month, assuming 25 days operation per months, and 80 per cent plant utilization.

Since the available capacity in the plant has been reduced to Line I and Line III, for most part of the year, the demand for raw materials is calculated at 1,600 tonnes/month. Again, the actual supplies have been on average, 450 tonnes/month corresponding to 28 per cent of required input with variation between 110 tonnes in June and 1,056 tonnes in October. The sizable fluctuations throughout the year indicate that the planning of raw material supply has been grossly inadequate.

High quality raw material is a prerequisite for a good finished product. Moreover, this is of paramount importance for success on the market, and especially on the world market where competition is fierce. Table 7.2.5 illustrates the quantities of different qualities of raw materials received in 1989.

Table 7.2.4: Deliveries per month of raw material, 1989
(tonnes)

Month / Crop	Onions	Beans	Carrots	Cabbages	Courgettes	Cauliflowers	Tomatoes	Dill	Potatoes	Kale	Capsicums	Turnips	Swedes	Broccoli	Monthly total
January	121.8	34.4	40.8	315.9	-	-	-	9.2	1.8	-	4.0	-	-	-	527.9
February	126.5	7.8	68.2	308.6	-	-	-	-	-	-	-	-	-	-	511.1
March	94.6	1.4	52.8	91.2	10.9	-	-	-	6.4	-	-	-	-	-	257.3
April	-	34.4	15.3	22.1	53.5	-	-	-	-	-	-	-	-	-	125.3
May	-	65.8	35.3	17.6	49.9	8.0	-	-	-	-	-	-	-	-	176.6
June	-	30.3	-	24.9	-	31.8	-	-	11.4	-	-	12.0	-	-	110.4
July	-	10.4	82.3	21.8	-	17.1	-	-	31.2	-	-	-	71.9	-	234.7
August	-	92.4	134.8	179.6	-	-	12.8	-	341.1	-	1.2	-	-	-	761.9
September	-	129.5	170.4	214.6	-	-	-	-	189.0	4.6	-	-	-	-	708.1
October	26.7	79.1	386.2	383.6	-	-	-	-	178.4	-	0.2	-	-	2.2	1056.4
November	17.6	36.2	274.6	305.3	-	-	-	-	-	-	-	-	-	-	633.7
December	52.8	48.6	151.3	54.4	-	-	-	-	-	-	-	-	-	-	307.1
Total	440.0	570.3	1,412.0	1,939.6	114.3	56.9	12.8	9.2	759.3	4.6	5.4	12.0	71.9	2.2	5,410.5

Source: PVP production data.

Table 7.2.4: Deliveries per month of raw material, 1989
(tonnes)

Table 7.2.5: Quantity and quality of raw material

(tonnes)

Crop	0-5% Grade I	6-20% Grade II	20-50% Grade III	Rejects	Total	Per cent rejects
Onion	5.1	225.7	153.6	55.6	440.0	12.6
Beans	130.5	158.3	212.6	68.9	570.3	12.0
Carrots	215.4	368.3	632.7	195.6	1,412.0	13.8
Cabbages	319.8	832.8	584.3	202.7	1,939.6	10.5
Cauliflowers	-	6.3	40.3	10.3	56.9	18.0
Courgettes	-	21.2	73.3	19.8	114.3	17.4
Tommatoes	-	-	10.4	2.4	12.8	18.7
Dill	-	-	7.4	1.8	9.2	19.3
Potatoes	389.6	164.1	147.7	57.9	759.3	7.6
Capsicums	-	1.1	3.4	0.9	5.4	15.9
Turnips	11.5	-	-	0.5	12.0	4.0
Swedes	49.6	18.5	-	3.8	71.9	5.2
Broccoli	-	-	0.5	1.7	2.2	80.0
Total	1,124.1	1,797.0	1867.1	622.3	5,410.5	11.5

Source: PVP production data.

The grading of the raw material is done only on the basis of percentage rejects including foreign matter and does not consider other criteria such as stage of maturity, texture, dry matter content, and so on. Thus Grade I accepts total rejects up to 5 per cent, and Grade II from 6 to 20 per cent. Deliveries with over 50 per cent rejects are not accepted. The quality is determined on the basis of the sampling discussed earlier in the section on Quality Control. It should be noted, however, that large volumes of rejects, sub-standard raw material, are in fact fed into the processing line. In 1989 an estimated 914 tonnes of rejects were processed, more than 15 per cent of the total input. According to PVP about 10 per cent rejects or 540 tonnes are sorted out from the total input of raw material in the preparation section. Assuming, that about 5 per cent is removed in the cleaning/washing operation on the line, the remaining quantity, approximately 350 tonnes, is dried and very little is sorted out at a later stage. Based on information in Table 7.2.9 it is calculated that these 350 tonnes correspond to 18.5 tonnes of finished product, out of which between 1.4 and 2 per cent are sorted out (Table 7.2.3) about 1.7 per cent or 0.4 tonnes. The remaining, approximately 18 tonnes of low grade product, is blended into the finished product at a ratio of roughly 6 per cent. This exercise illustrates the impossible task of sorting out a choice grade product from low grade raw material. In addition, about 80 tonnes of fuel oil, worth some quarter of a million Kenyan shillings is wasted on material which should not have been processed in the first place.

Future raw material requirements

The future demand for vegetables as raw material for PVP depends on the ultimate decision as to the exact form of plant rehabilitation discussed in section 7.3. Consumer groups are becomming increasingly aware of the importance of high quality food, free of all residues from crop protection agents and air and water pollution. The supply area of PVP does not suffer from any pollution and chemicals have not been used extensively hitherto. This is a situation which must be maintained and exploited to formulate an image about PVP products. A pre-requisite for success is obviously that the processing technique used in a future rehabilated PVP plant is designed to retain the high quality of the raw material in the finished product.

Table 7.2.6 shows estimated demand for raw material at the various stages of the rehabilitation process. It is assumed here that the average crop yield is 30 tonnes/hectare which corresponds with the estimates made earlier by FAO.[1/] The size of outgrower farms vary from one area to another. For instance the farms surrounding Lake Naivasha are considerably larger, on average, than the farms around Kinangop.

The calculations are based on the assumption that the out-grower farms grow vegetables for supply to PVP on 0.5 hectares each.

Table 7.2.6: Estimated demand of raw material hectarage and number of outgrowers

Rehale Phase	1	2	3
Operational Lines	I	I+II	I+II+III
Raw material tonnes	16,500.0	24,000.0	31,500.0
PVP farms:			
TOTAL 205 Hectares			
Cropping intensity	1.2	1.6	2.0
Harvested hectares	240.0	330.0	500.0
Total food, tonnes	7,200.0	9,900.0	15,000.0
Out-growers:			
Total supply tonne	9,300.0	14,100.0	16,500.0
Total hectarage	310.0	470.0	550.0
Number of contract farms	620.0	940.0	1,100.0

Source: UNIDO Mission estimate

This preliminary estimation is further based on the assumption that a future rehabilitated PVP processing plant, where the rehabilitation is done in stages has the original processing capacity of 33,000 tonnes of raw material per year. Other rehabilitation/development scenarios may be decided and this is discussed in section 7.3. It is expected that rehabilitation of the farms is commenced at a very early date allowing for gradual increased production regardless of the future of PVP as a company.

1/ FAO: Banker's Programme, Investment Centre, Rehabilitation of raw vegetable production in Pan African Vegetable Products Ltd., Project brief, 23 October 1981.

Table 7.2.6 illustrates the extent to which out-growers will have to be engaged under the assumed circumstances. A firm relationship will have to be established with these farmers built on mutual respect and trust. Such conditions can only be achieved by embarking on a well formulated out-growers co-operation and development programme. This should incorporate supplies of inputs,qualified extension services, transport and credit facilities - both for short term and long term requirements and investment in irrigation equipment. Quality criteria must be established for all products and the appropriate rules for payment confirmed in contracts with the individual farmers. A basic issue is that farmers must not be exploited, but must receive a fair price for their product which is linked to an incentive system focused on increased supplies of guaranteed high quality.

(g) Product range

Pan Vegetable Processors Ltd. produces several types of dehydrated vegetables such as: carrots, cabbages, french beans, potatoes, leeks and onions. As can be seen in the breakdown, approximately 70 per cent of PVP's output is exported.

The current breakdown given below, is for the company's annual production for 1989:

Product	Volume (tonnes)	Value (KSh)	Value of exports (KSh)
Carrots	65	2,834,000	2,820,048
Cabbages	50	1,090,000	1,050,000
French beans	25.5	2,445,960	2,445,960
Potatoes	39	1,614,600	1,592,244
Leek	7.6	48,600	48,600
Onions	33.5	3,350,000	---
Total:	220.6	11,383,160	7,956,852

Source: Sales department at Pan Vegetable Processors Ltd.

The company has also a small relatively insignificant production of swedes, turnips and capsicum which are grown on the company's own farms. The exact numbers were not available at the time of the mission's visit.

No major alterations are contemplated in regard to the product range. In order to expand the local market an introduction of dried soups and tomato purée could prove to be profitable.

(h) Plant performance and economic performance

Plant performance

The plant was set up to produce dehydrated vegetables for the export market. The originally installed capacity of the plant was 33,000 metric tonnes per year. It appears, however, that not more than 15-20 per cent has been achieved since the plant resumed production in 1986. At present, two out of three production lines are non-operational. The overall performance of the plant has been very poor throughout as will be discussed below.

Statistics from operation of the plant during the period January - December 1989, provides valuable data reflecting the current shortcomings of the plant.

Table 7.2.7 presents details the reasons for down-time. As can be seen from the table, lack of raw materials is by far the most serious factor impeding plant performance, responsible for 68 per cent of total down-time. With acceptable management, organisation of the company farms and a reliable outgrower system, this figure should be zero.

Reconstruction of the company farms and the organization of an efficient outgrower system is a key issue in a PPVP rehabilitation programme.

Table 7.2.7: Plant down-time 1989
(hours)

Reasons	Line I	Line II	Total	Per cent of total
- Lack of raw material	3,125	3,108	6,233	68
- Planed maintainance and cleaning	648	648	1,296	14.1
- Mechanical and electrical break	303	371	674	7.3
- Fuel shortage	244	212	456	5.0
- Crop change	192	103	295	3.2
- Power cut	54	50	104	1.1
- Re-drying	16	94	110	1.2
Total down-time	4,582	4,586	9,168	67.1
Time utilized	2,246	2,242	4,488	32.9
Rated production time	6,828	6,828	13,656	100.0
Per cent utilized	32.9	32.8	32.9	-

Source: PVP, Production data.

The time for preventive maintenance and cleaning appears to be, on average, about 12 hours per week. This should be assessed in relation to the number of hours the plant has been actually producing, on average, 43 hours per week. In this perspective the figures for preventive maintenance and cleaning time are high.

At first instance, the down-time due to technical faults may not seem high. But in comparison to the time the plant has been running, the down-time for break-downs on the basis of 80 per cent utilization of available time would have been well over 15 per cent. Most of the break-downs experienced during the year were related to the driers, in particular the gear boxes and the drive belts. This was reportedly especially the case during the period September - November. This is not surprising because raw material intake during the year had a peak from August to November. This is a clear indication that the drying section is the weakest link in the plant and that the frequency of break-downs here is likely to be augmented substantially if capacity utilization is increased. Since increased capacity utilization is a second key issue for acceptable performance, the question must be addressed whether there are options to introduce alternative processing techniques. Production stops because of fuel shortages are entirely unacceptable and appears to be due to either lack of funds for purchase of fuel oil or inability to order in time.

Production stops are probably due to inefficient management or lack of finance. However, an analysis of fuel consumption over the year in Table 7.2.8 illustrates clearly that energy consumption in PVP, hence the burning of fuel has been extraordinarily high for most parts of the year. A major reason is under-utilization of plant capacity caused by lack of raw material. It also indicates that the overall design of the plant does not allow for partial operation of the processing capacity without serious adverse influence on production costs.

Table 7.2.8: Boiler fuel consumption, 1989

Month	Fuel litres	Boiler running hours	Finished production Kg	Rate of consumption Lts/Hr	Lts/Kg finished product
January	110,645	375	18,168	295	6.1
February	113,752	329	18,849	246	6.0
March	77,916	306	15,476	254	5.0
April	30,211	136	4,244	221	7.1
May	52,596	188	7,075	279	7.4
June	35,993	151	4,615	238	7.8
July	53,044	195	13,652	272	3.9
August	165,550	546	63,845	303	2.6
September	177,432	497	43,755	357	4.1
October	228,994	583	54,932	393	4.2
November	158,694	502	25,724	316	6.2
December	79,962	364	15,527	220	5.1

Source: PVP, Production data.

Table 7.2.8 gives data on fuel consumption, hours of operation, quantity of finished product and fuel consumption per kg finished product. Had the oil consumed per kg finished product, on average, been at the same level as for the period July to October, the overall consumption of oil would have been about 225 tonnes or in value terms KSh 675,000. The idea of maintaining an acceptable level of energy consumption is to ensure adequate raw material supplies at all time, or failing this a different processing technique would need to be introduced.

Changing from one product to another has reduced the time for efficient production by 3.5 per cent. From an operations analysis point of view it is of more importance to relate the down-time for crop changes to total time utilized. When this is done, a figure of 8.5 per cent is arrived at, which is quite high. The number of changes will have to be reduced through better planning of raw material supply. In particular this will allow for longer periods of sustained operation with one and the same crop. However, this will be difficult under present circumstances where only one drier is working.

The power cuts are costly, especially at present where the stand-by generator is out of order. The number of production stops in not known. Each power cut of any length of time may entail a total loss of about 900 kg of finished product, or at the best, partial loss and substantial degradation of product quality. At an average export price of US$ 2.64/kg, (weighted average PVP/ECA CONTRACT 1989-90) one single power cut may result in a loss worth about KSh 50,000 at current rates of exchange.

It is understood that the re-drying responsible for 1.2 per cent down-time does not occur very often. In this case it was a matter of reducing the moisture content a few per cent since the buyer had requested a processed product requiring lower moisture content to avoid caking. It is arguable whether a case like this should be included under down-time.

Table 7.2.9 gives an account of raw material input, finished product and conversion ratio. The normal conversion ratio here is the average result registered in earlier years of operation, which then refers to what can be obtained. It is noted that with the exception of potatoes, courgettes and swedes, which represent 33 per cent of total output, the conversion ratio has been substantially lower than expected. Irrespective of the reasons, it is concluded that the poor conversion ratio experienced in 1989 resulted in losses of about 60 tonnes of finished products. Assuming again an average export value of US$ 2.64/kg, the overall losses, above what is expected in the dehydration process, are estimated at KSh 3.2 million.

Table 7.2.9: Raw material input, finished product and conversion ratio, 1989

Crop	Raw material tonnes	Finished product tonnes	Conversion ratio		
			Per cent actual	Normal	Difference per cent
Onion	440.1	21.0	4.8	7.0	-31.4
Bean	559.7	32.9	6.0	6.5	-7.7
Carrot	1,410.4	66.7	4.7	6.5	-27.7
Cabbage	1,931.0	65.7	3.5	5.0	-32.0
Potatoe	759.2	88.0	11.5	11.0	+4.5
Conrgette	100.2	3.6	3.5	3.5	-
Din	9.2	0.4	4.1	5.0	-18.0
Nurmp	12.0	0.5	4.7	-	-
Swede	71.9	4.0	5.6	5.0	+12.0
Kale	4.5	0.2	4.2	5.0	-16.0
Capricum	5.2	1.6	3.2	3.5	-8.6
C/flower	56.9	2.0	3.6	-	-
Totamoe	12.8	0.3	2.4	-	-
Broccoli	2.2	0.05	2.2	-	-
Total	5,375.3	286.9	5.3	-	-

Source: PVP, Production data.

The capacity utilization calculated from raw material input in relation to rated processing capacity is 16.3 per cent.

Summary of plant operation constraints

- lack of raw material is a major reason why the plant output is only about 35 per cent of available processing capacity or 16.4 per cent of installed capacity.

- technical break-downs occur mostly in the driers which are the weakest points in the processing lines.

- the energy consumption is prohibitively high to a large extent due to operation of the driers with too low input of raw material per unit of time relative to designed capacity; savings of about 225 tonnes of fuel oil worth KSh 675,000 over the year should have been possible.

- the defunct stand-by generator may have caused losses up to KSh 50,000 each time there has been a power cut, depending on the duration of power cuts.

- poor conversion ratio in the dehydration process has resulted in the loss of about 60 tonnes of finished product worth about KSh 3.2 million.

- the hygenic standard of the finished product is inadequate; the reasons for this include, unacceptable facilities and routines for personal hygiene and the lack of conveying systems for finished products which increases the human contact with the final product, hence the likelihood of contamination.

Economic performance

The company does not have updated estimates on production costs by product. In January 1989, PVP reached an agreement that ECA in UK would market all its export products. Data are available for the period 1989-90 on 16 of PVP's products. The following Table 7.2.10 compares the prices charged to ECA and the estimated costs of PVP's most important products for the period 1989-90.

Table 7.2.10: Comparison between ECA prices and company estimated costs, 1989-1990
(Shillings)

Product	1. ECA price	2. PVP cost	3. ECA mark-up, per cent 3=(1./2.-1)*100
Carrots	44	35	25.7
Cabbage	48	40	20.0
Green beans	104	93	11.8
Leeks	62	41	51.2
Potatoes	38	47	-19.1

Source: PVP

In order to be profitable, the company would also have to cover fixed and marketing costs and include a profit margin. The difference between the ECA prices and PVP's costs are far too small to permit PVP to be profitable. In addition, PVP's actual processing costs have been much higher, because production has been smaller than planned and because of the inefficient way the plant has been run, resulting in higher costs per unit of output.

One explanation for low production levels has been the difficulty the company has experienced in obtaining raw materials from the farmers. There are several reasons for this. One important factor has been the inability of the company to pay the farmers promptly. When the former company was closed in 1982, many farmers did not get paid for products delivered. As a result, farmers are reluctant to grow vegetables for the plant. Morover, the price paid to farmers may not be sufficiently attractive during certain periods of the year when other market outlets become more interesting. Finally, it is difficult for the farmers to obtain timely inputs, such as seeds and fertilizers, and to deliver the produce to the factory. The previous company provided both inputs and transport to the farmers. The present incentives offered to the farmers are less interesting than those given by the previous company.

There are no data on production costs for the two farms operated by the company. Still, the low level of land utilization and improper farming practices suggest that vegetable production costs are very high on PVP's farms in relation to those of most farmers in the region.

The low quality of output of dehydrated vegetables has resulted in market rejections of PVP's products, which in turn, have reduced revenues for the company.

In order to be profitable the company must be able to identify products with the highest profit margins and concentrate its efforts on these. It has to arrange for the timely delivery of high quality vegetables to the plant. The contracts to be arranged with the farmers, including various services to the farmers, must be sufficiently interesting to them so that vegetables prices paid to the farmers can remain compatible with the profitable operation of the plant. The plant must use its installed capacity fully and produce products which meet the quality requirements of the world markets. The company has failed on all accounts and the result has been continous losses as will be analyzed below in Table 7.2.11.

Table 7.2.11: Profits and loss accounts
('000 shillings)

	1985	1986	1987	1988
Sales	559	1,477	529	3,822
Other income	-	-	-	161
Total income	559	1,477	529	3,983
Cost of sales	1,039	1,217	843	5,581
Salaries	292	891	832	3,208
Repairs/maintenance	142	220	529	1,453
Others	1,141	1,283	1,478	3,131
Depreciation	2,110	1,745	2,061	2,060
Total cost	4,724	5,356	5,743	15,433
Loss	4,165	3,879	5,214	11,450

Source: PVP

As can be seen from Table 7.2.11, losses have been high and have increased substantially since the company resumed production in 1986. Unless drastic measures are taken ICDC will have to continue to supply PVP with new funds each year to cover the losses.

Although the final accounts for 1988-89 and for the first 6 months 1989-90 were not made available to the mission, current data indicate that the situation has not improved in 1989. In fact, losses have probably increased even more.

In January 1990, ECA went under receivership in the UK. PVP has thus lost its only organized market outlet to world markets. It seems highly doubtful that PVP will be able to market most of its produce in the near future. If this assessment is correct, the company will be building up stocks of finished goods. As these stocks have a limited shelf life, there is a danger that the products will deteriorate rapidly in quality, thus rendering them next to worthless.

(i) Markets and competitors

Pan Vegetable Processors Ltd. (PVP) is the major producer of dehydrated vegetables in Kenya, except for a small company in Kiganjo near Nyeri. This other company has a share of the local market of less than 5 per cent.

The local market is mostly geared towards fresh vegetables hence the demand for dehydrated vegetables is very small and the majority of the company's production is therefore exported.

The competition on world markets is very strong mainly from frozen products. In addition, PVP's products are of relatively low quality and high price, approximately 40 per cent higher than its competitors.

Local sales are limited to schools, hospitals, the National Youth Service and the Government.

Before its collapse in 1982 the company - then called Pan African Vegetable Products Ltd. - used, for all intents and purposes, only one sales outlet on the international market: Bruckner-Werke AG in Hamburg, West Germany. This company acted as a partner and minority shareholder in PVP.

Bruckner-Werke is one of the major European companies operating in the world market for dried vegetables. This company purchases dried products from all over the world and, after re-processing, grading and packaging, sells a sophisticated mixed product to soup makers, caterers, canners and retailers.

The co-operation between Bruckner-Werke and PVP was not always a happy one. PVP complained about low prices and Bruckner- Werke about the low quality of PVP's products (see also below).

The collapse of PVP in 1982 terminated this co-operation with the Bruckner-Werke.

When production was taken up sporadically in 1987, the quality of the products was very low and the company faced great difficulties in marketing the production. In late 1988, PVP teamed up with E.C. Arnold Ltd. (ECA) of Heckington, Lincolnshire, England in order to have them act as their sales representative in European markets. An agreement was signed in January 1989 in which ECA was to:

- sell the redundant stock held at PVP warehouse
- produce a production plan for PVP for the first six months of 1989
- establish a sales forecast for ECA for PVP's 1989/1990 crop

The majority of the stock was shipped to E.C. Arnold Ltd. The initial shipments were of the required quality and therefore sales was achieved. However, subsequent deliveries did not meet the agreed quality requirements.

PVP's production plan for the first six month never met assumed targets. Production, mainly of cabbages with some beans and carrots, was much lower than was expected. This caused delays in providing trial quantities to customers who were prepared to place forward contracts.

E.C. Arnold did actively promote PVP by attending a number of exhibitions and making several foreign trips, visiting agents, food fairs, and exhibitions. The result of E.C. Arnold Ltd.'s promotion activities on behalf on PVP was positive and apparently a number of contracts was agreed. Considerable amounts of money was spent by E.C. Arnold Ltd. on these promotion activities.

In the agreement with E.C. Arnold Ltd., during the first six months, E.C. Arnold Ltd. was to distribute PVP's products in USA, France, Austria and Switzerland. E.C. Arnold Ltd. was to cover directly, through their export department, Holland, Belgium, Scandinavia and Ireland.

E.C. Arnold Ltd. went bankrupt in the beginning of January 1989.

The available material shows that there may have been major problems between E.C. Arnold Ltd. and PVP in the areas of production and quality control. The same complaints that were made by Bruckner- Werke regarding substandard products and irregular deliveries were also made by E.C. Arnold Ltd. before they collapsed.

As a result of follow-up meetings related to PVP, the mission was informed that the Nairobi based firm Ex-Ken, an exporter of dehydrated vegetables, has had business relations with PVP since 1987.

The major events in Ex-Ken's relationship with PVP can be summarized as follows:

- Ex-Ken signed an agreement with a European importer of dehydrated French beans for the delivery of 100 tonnes of dehydrated beans during 1987.

- In a contract between PVP and Ex-Ken. dated 22 July 1987, it was agreed that deliveries should be carried out as follows:

18 October 1987	24 tonnes
12 November 1987	24 "
30 November 1987 (at the latest)	24 "
22 December 1987	16 "

- PVP managed to deliver only 8 tonnes of dehydrated French beans in 1987. The European buyer made three trips to Kenya in 1987 to assist PVP in the processing of beans.

- The contract included a paragraph where PVP agreed to replace any consignment, at no extra cost, in case the product was rejected due to deficient quality; no complaints were made about the quality of PVP's products.

- The contract gave Ex-Ken first right of refusal to re-negotiate for the purchase of beans for 1988.

- A new agreement was entered for 1988 for the supply of 100 tonnes of dehydrated French beans; the total deliveries for that year amounted to 24 tonnes.

- For 1989 there was no formal contract but reportedly an understanding that PVP should supply 50 tonnes of dehydrated French beans during that year; a total of 16 tonnes were delivered.

- Ex-Ken came to the conclusion that the inability on the part of PVP to deliver products according to agreements was due to lack of raw material, shortage of fuel oil and manpower. As a consequence, and in an effort to facilitate the deliveries from PVP, Ex-Ken purchased and paid for fresh beans which were delivered to the plant, arranged for supply of fuel oil and advanced payment, and forwarded payment that was used for the workers wages. The amounts thus paid up were deducted from the money paid to PVP for delivered products.

In addition, in a telex from a German importer to Ex-Ken, dated 12 January 1990, there was a " firm order for 5 tonnes of dehydrated cabbage" a delivery which had been signed by Arnold Ltd. The telex also included "order for all stock and all further production for reliable accounts".

This message must have arrived before, or at the time PVP were informed about the collapse of E.C. Arnold Ltd. The offer was reportedly communicated to PVP but rejected.

This episode shows:

- that PVP has had great difficulty upholding commitments for deliveries of contracted products;

- that PVP can produce a product acceptable to the European market; and

- that PVP has demonstrated lack of flexibility to exploit possible market outlets.

On account of the present situation, a dialogue between PVP/ICDC and Ex-Ken may be rewarding in the efforts to find a solution to the PVP's marketing problems.

According to market research made at Bruckner-Werke and E.C. Arnold Ltd., the market in Europe for high quality dried vegetables is very good but extremely quality conscious.

If PVP is to have a chance to compete on the world market there has to be improvements in various parts of its production. There are several bottlenecks that have to be removed. One of those is in the field of quality control, a problem area which has also been pointed out by PVP's previous representatives in the UK and Germany. The product lines also require major urgent attention. The problem here is not only a question of volume but also of reliability of deliveries. A customer must be able to rely on the agreed delivery times and quality specifications.

In the case of marketing, PVP has been relying on only one major distributor, on the export market, both before and after its collapse in 1982. This implies a substantial risk on PVP's part, as the experience in 1982 with the collapse of E.C. Arnold Ltd. has so painfully proven. The company is now building up a stock which might be very difficult to sell since it is of very low quality and tends to deteriorate quickly.

There is also another company, Deco Foods Ltd. in Israel which is in the picture. DECO FOODS has placed an order with the company for approximately KSh 9 millon. It is not known to the mission what kind of arrangement PVP has with this firm, or whether this will result in some kind of representation relationship or if the contact with Deco Foods is a 'one-off' event.

What is urgently needed, is to find new sales outlets to replace E.C. Arnold Ltd. in Europe. It is the mission's opinion that not less than three agents should be found. One for UK to follow up the market created by E.C. Arnold Ltd., one in West Germany, and a third in France, another market which has previously been penetrated by E.C. Arnold Ltd.

A fourth market that might prove interesting is the Scandinavian countries. This market has the advantage of not having the tariff barriers of the EEC countries.

It is recommended that PVP makes a survey, with help of the trade commissioners attached to the Ministry of Commerce, in the above mentioned areas in order to find suitable candidates to represent the company on these markets.

One customer who appears to have an interest to continue some sort of co-operation with the company is Brook Bond Ltd., UK. However, it should be investigated whether or not they could act as an agent following up the work already done by E.C. Arnold Ltd.. The same goes for Batchelor Foods Ltd., UK which apparently has also showed an interest in PVP's products.

Although the budget for sales promotion is only KSh 500,000, PVP has taken part in recent food fairs: the Food Fair in Paris,the International Food Exhibition in London, and the Anuga Food Fair in Koeln, FRG. Other international promotion activities are distribution of samples via Kenya's Trade Representations in various countries.

On the local market the company is taking part in Fairs as well as performing demonstrations in various governmental institutions, schools, hospitals, and so on.

The major sales constraints on the local market, is the lack of demand for de-hydrated vegetables.

On the international markets the constraints are: strong price competition and freight costs. Another factor that increases the price on the European market is the tariff imposed by the EEC. Lack of representation and funds for sales promotion adds to the difficulties PVP has to market its products on the international markets.

Packaging is an area which appears to have been neglected and needs urgent attention. Some deliveries to E.C. Arnold Ltd. did contain impurities that could be traced back to damaged or improper packaging.

(j) Policies

In general, PVP being part of the vegetable processing industry, benefits from the current emphasis in Government policies and strategy towards high-value production with export potential, employment creation - particularly the employment of women - and district focus. However, the competitiveness of the company's products, being largely export-oriented, are particularly sensitive to the country's exchange rate, import and export policies and tariff rates. In addition, PVP, in order to process vegetables requires important inputs of imported or locally produced good such as oil products and packaging materials. The prices of these products, depend, in turn, on the exchange rate and import and tariff policies.

The Governments' policies towards agriculture and particularly the support given to farmers and outgrowers in the form of qualified extension services, training and acquistion of required inputs also are important influences of the competitiveness of the company's products.

(k) Constraints

Management and organization

- Lack of qualified and experienced management, including top management;
- High turnover of key management personnel;
- Short length of time the management team has been at the firm;
- Several key positions are vacant and should be filled as soon as possible;
- There has not been sufficient delegation of decision making to lower levels. Because of this, the production of the company has been suffering. The allocation of personnel and inputs, repair of irrigation, equipment and so on has prevented timely and expedient execution of work at the farms.

Human resources

- Unattractive salary structure and working conditions making it difficult to attract and retain key management and skilled workers;
- Lack of adequately skilled labour;

- Lack of technical training on-the-job in the maintenance and repair sections;

- Insecure position of casual labourers;

- A large number of turnovers in the vegetable farms due to low pay;

- Little or no funds for training of any kind.

Financial structure

- The company does not have access to credits. As the company is operating at a loss, ICDC is forwarding cash for payments. The lack of credit negatively affects the company's performance since routine purchases can only been done with serious delays.

Building and installations

- There is only one processing line operational at present; in this line the three first units in the preparation section are defunct rendering this processing line unable to operate at rated capacity.

- The stand-by generator, which is designed to supply electricity to the driers in case of power cuts, is out of order; hence certain quantities of products may be spoilt in case of power cuts.

- The refrigeration installation in the coldroom is not operable.

- The boiler plan, although in working order, cannot be adjusted sufficiently to the steam requirements, significantly below designed plant capacity, hence the drying process is highly energy consuming.

- The extensive manual handling of the product after driers, since there are no conveyors from the driers to the selection table buffer bin and after the selection table, results in excessive exposure of the finished products to direct human contact. This has an adverse effect on product hygiene and hence product quality and market value.

- The facilities for personal hygiene are inadequate with the result that there is a constant danger of contamination of food products, by bacterial and other organism. This contamination may render the product unfit for human consumption.

- A possible constraint for future operation of the plant is the current dehydration technology.

Inputs

- Raw material is not available in sufficient quantities at any time;

- The quality of the raw material is frequently not up to standard, which adversely affects the quality of finished products;

- The above constraints are the results of mismanagement of the company's farms and lack of an appropriately organized outgrowers system.

Product range

At present there are no constraints.

Plant performance and economic performance

- Plant utilization is extremely low; in 1989 it was 16.4 per cent of installed capacity and about 30 per cent of available capacity;
- Energy consumption in the dehydration process is high;
- The quality of the finished product, and especially the hygiene quality, is of sub-standard;
- Recurrent production costs are higher than revenue;
- There is no strategy and operational plans for the development of the company. The company also lacks a clear set of objectives;
- There is a lack of an incentive system.

Markets and competitors

- The company urgently needs a thorough export market survey of the possibilities for its products in export markets;
- The company does not have a sales organization with representatives in Europe;
- There is a lack of knowledge of the domestic market for fresh vegetables.

7.3 Rehabilitation requirements

Management and organization

- All vacancies in middle management level should be filled as soon as possible. In the mission's opinion, the salary and conditions of work at PVP need to be urgently examined and restructured so that adequately trained management can be attracted and retained at the company. This is in order to build up a continuity in experience and efficiency in decision-making and performance. The mission has strong doubts that these changes would be forthcoming if the company remains parastatal. However, the changes may be much more easily introduced if the company were privatized.
- A system of rewards and bonuses should be introduced for performance, punctuality and so on. This is valid for all levels in the company. As it is now, the turnover of personnel especially in middle management level is abnormally high. Most of the management has been employed for only a few weeks or months at the most.

- The bureaucracy is also a serious obstacle in the everyday operation of the company. For instance, purchasing of spare parts and other necessities has to be approved far too highup in the organization, sometimes at the level of the Board of Directors. Instead of obtaining an essential spare part the same day that it is needed, it is sometimes necessary to wait months before the decision is taken and the part can be purchased and replaced. People in the middle management level should be given greater autonomy in order to minimize these kinds of delays, or better, the company should be re-organized into separate profit centres for farms, factory, purchase, sales and administration departments.

Human resources

- Most of the company's current management team are unqualified and incapable of managing in the current crisis conditions. To make matters worse, most of the staff at the supervisory level lack relevant skills. This is largely due to the fact that they lack appropriate training which is unavailable within the company. A particular weakness is that the company's maintenance and repair section does not have the requisite training to provide adequate service for the production lines. The poor salary structure and working conditions at the plant and the company farms has led to a situation where labour tunover is high and workers are demoralized.

- This situation should be immediately addressed by the company. It should make full use of available training facilities and financial support for required skill enhancement. It should consider incentive schemes to motivate the workers. Such schemes may include free meals for each shift, periodic bonus payments and encouraging sports and cultural activities. The company should seek to employ suitably qualified mechanical engineers and also provide systematic on-the-job and formal training in maintenance and repair procedures. The introduction of a system of scheduled maintenance procedures is also called for.

Financial structure

- Given its current financial situation, the company does not have access to credits or additional working capital. The company has been operating at a loss for some time. This lack of access to credits or additional working capital has adversely affected the company's performance; even routine purchases can only be made after considerable delays. Financial restructuring of the company within the framework of the rehabilitation plan is urgently called for.

Buildings and installations

- At present, the company has only one processing line operational. Unfortunately, this line has three units in the preparation section which are not operational. This means that the line is unable to operate at rated capacity.

- There are additional problems. The stand-by generator, which is designed to supply electricity to the driers in case of power cuts, is out of order. Thus, if there are power cuts some products may be spoilt.

- The refrigeration installation in the coldroom is also not in working order.

- Although the boiler pl[illegible]is in working order, it cannot be adjusted sufficiently to steam requirements below designed plant capacity. This means that the drying process is highly energy consuming.

- The extensive manual handling of products after they are dried results in excessive exposure to human contact. This excessive human contact has an adverse influence on product hygiene and hence product quality and market value.

- The plant's facilities for personal hygiene are inadequate. This implies that there is a constant danger of contamination of food rpoducts with bacteria and other organisms. This contamination may render the food products unfit for human consumption. It is also likely that the current dehydration technology will not be suitable for future expanded oeprations.

- From the above, therefore, there is an urgent need to refubish the preparation equipment in processing Line I to allow for full utilization of the dehydration capacity of this line.

- A rehabilitation plan, within the framework of the overall company rehabilitation plant, should be introduced for the processing plant. This plan should include an examination of alternative dehydration technologies as an important component.

- Finally, there is an immediate need to improve the hygienic conditions at the plant.

Inputs

- The fact that raw materials are available in sufficient quantities at any one time is a serious obstacle to production. Also, the quality of the raw materials, when available, is invariably not up to the required standards. This has an adverse effect on the quality of finished products.

- The irregular and unreliable supplies of raw materials and the poor quality of raw materials, when available, can be traced directly back to mismanagement of the company's farms and a poorly organized out-growers system.

- Rehabilitation of the company would require that an appropriately constituted farm development plan be implemented as a matter of urgency. Also urgently required is a properly organized out-growers system which includes extension services, with people with appropriate qualifications, input supplies and credit facilities.

Product range

- The existing product range is not a constraint in the current situation of the company. However, the product mix may need to be re-assessed depending on the results of a market survey as detailed in the rehabilitation scenarios discussed in the next section.

Plant and economic performance

- The rehabilitation requirements for improved plant and economic performance are detailed in the previous sections, Financial structure, Buildings and installations.

Markets and competitors

- PVP is, the only major producer of dehydrated vegetables in Kenya. The market in Kenya is mostly geared towards fresh vegetables, hence the demand for dehydrated products is very small.

- The company has, therefore, from the beginning concentrated its sales on export markets mainly in Europe.

- E.C. Arnold Ltd., the only representative of PVP had after its collapse in 1982, went into receivership at the beginning of January leaving PVP without any sales outlet on its only market.

- The situation is obviously very critical and it is most urgent that PVP finds other representatives in Europe as soon as possible since the factory is now building up a stock of highly perishable products with no possiblity to sell them.

- It is, therefore, strongly recommended that a market study for dried products is performed as soon as possible, mainly for the European market. This study could also include the search for suitable sales agents in the area, or areas which according to the study looks most promising. UK, West Germany and France are likely to be good markets for this type of product. In this regard, UNIDO with the assistance of ITC, Geneva, may be contacted for assistance.

It is also recommended that the market for fresh vegetables in Kenya be investigated. With the farms operating with higher efficiency, part of the production could be sold on the local market thus generating a more steady flow of cash than the export business generally does due to bulk deliveries a few time per year and subsequent irregular cash flow.

- Contact should be made as soon as possible with previous customers like Brook Bond Ltd. and Batchelor Foods Ltd. in order to revive previous business relations.

- Careful attention should also be paid to product quality if the company expects to have any success on the sophisticated European market. Rigorous quality control is for the moment one of the most urgent measures that has to be taken by the company. Earlier comments made by PVP's representatives in Europe indicates that the products coming out of the factory have been of inferior quality. Deliveries have also been irregular and not according to signed agreements. The removal of these inefficiencies should be accorded high priority.

Policies

- PVP benefits from government policies which support exports and production which mainly utilizes domestic raw materials and is relatively labour intensive and based in rural areas. But given that increased exports of processed vegetables requires that price and quality of PVP's products be competitive in world market, it is essential that government authorities are aware of the extreme sensitivity of the prices of PVP's products in export markets to the prevailing exchange rate. If, therefore, the Kenyan shilling becomes overvalued, PVP will find it difficult to compete on international markets. This could have disastrous consequences for the company. In addition, PVP, in order to process vegetables, requires important inputs of imported or locally produced goods such as oil products and packaging materials. The prices of these products depend in turn, on the exchange rate and import and tariff policies. PVP therefore, with the rest of the vegetable processing industry, would clearly benefit from moves to liberalize the country's trade régime and market liberalization in general.

- The proposed changes in the country's tax system, especially VAT, and export and import tariffs would certainly be of benefit to PVP and the vegetable processing industry. PVP's successful rehabilitation would also require additional support to farmers and outgrowers in the form of extension services and training and for the acquisition of needed inputs.

Rehabilitation scenarios

- The company is in serious crisis which has been aggravated by the fact that ECA in the UK was placed in receivership in January 1990, thus cutting PVP off from its main market outlet. Acccording to government officials, socio-economic considerations were major factors behind the establishment of the company in 1984. The discussion below will outline several policy options and their probable effects on the company and on the attainment of the Government of Kenya's development objectives.

i) Alternative scenarios

- The first scenario is to assess the rehabilitation of the company on purely commercial grounds. There are good reasons for liquidating the company. It should be done immediately to minimize losses. The plant should shut down operations as soon as possible. The liquidation of the company would include, selling off the two farms, the estate where the general manager is lodged, the factory buildings and associated land, factory machinery and vehicles. (One of the farms may still be the property of the Government and could then not be sold). However, the proceeds from the sale of the company assets would probably not cover more than a small part of the ICDC contributions to PVP.

The major commercial reasons for liquidating the company are:

- It would require concerted efforts and new investments to rehabilitate the company. According to ECA, PVP's products had a poor reputation in Germany. ECA has made serious complaints about the quality and modalities of PVP deliveries. Without significant rehabilitation and restructuring the company may have difficulties in penetrating export markets. Under present circumstances, the chances for PVP to return successfully to world market for dehydrated vegetables should not be over-estimated. Taking all these factors into consideration, the rehabilitation of PVP on strictly commercial grounds would appear as a risky undertaking with a relatively low expected yield.

- The second scenario would consider social and national development objectives as well. Under this scenario there are important reasons for maintaining the company.

- Vegetable production can be very labour intensive, the input of labour (measured by the number of man days) per hectare can be very high in vegetable production compared to other crops. One of Kenya's major development objectives as outlined in "Sessional Paper No. 1" and in the"Development Plan 1989-1993" is employment creation. Another important development objective is to increase exports. Vegetable production and processing satisfies both these objectives.

- It would appear as if the agricultural land and the climate are particularly suitable for vegetable production in the Naivasha and Kinangop areas. It is likely that a rapid increase in production of fresh vegetables for the domestic market would lead to a severe fall in prices. The combination of good land, climate and farmers experienced in vegetable production, suggests that Kenya has a comparative advantage in vegetable production. Moreover, production peaks occur at times of the year when, for example European producers have little possiblities to produce at low costs.

- Vegetable production in this region should have favourable future prospects and within this context, the company could perform an important role. It can provide the farmers with a secure market outlet for vegetables. Moreover, the company could stimulate improvements in quality and higher yields. In many areas in the industrialized countries the use of chemicals are frequently very high, often in an already polluted environment. Consumers in the industrialized countries may be willing to pay a premium price for high quality products produced with little if any non-organic substances. This trend will probably increase in the future. For this reason utmost care should be exercised to maintain a healthy environment in vegetable production in Kenya.

- The exports of fresh high quality vegetables to Europe could be a growing market for Kenya. Moreover, the market liberalization in Eastern Europe and the Soviet Union may open up a very important market for fresh vegetables. A market survey is clearly needed to assess the export markets for fresh vegetables. Bottlenecks in air freights should be removed.

- The future market prospects for dehydrated vegetables have to be ascertained. Since the inception of the plant in 1975, consumer preferences have changed, incomes have grown and new technological advances have taken place. It has to be thouroughly investigated whether the plant should continue to use the current dehydration technology for vegetables or shift to other processing techniques. The value of the machinery represents only a small part of the assets. For this reason alternative uses of the company's assets should be explored systematically which may include re-orientating the plant towards, for instance, sorting, grading and packing of fresh vegetables for both export and the domestic market.[1/]

- In the near future, the lack of a market outlet for the produce, and the already large build up of stocks, suggests that plant activities should be reduced to a minimum, pending the results of intensive marketing efforts. In the past revenues have not covered recurrent costs. The situation is further aggravated because at the present rate of production, the value of stocks increase at about KSh 2 million per month. If a solution has not been found to the marketing problems within a relatively short time period, tentatively 2-3 months, the dehydration processing line should be closed down. This would allow time to consider appropriate action which takes into account the necessary marketing surveys mentioned above.

- Immediate actions to reduce costs and improve economic performance will be discussed later.

- The third scenario, resembles the second scenario insofar that urgent measures have to be taken to improve the economic performance of the company. The main difference being that the company would not explore possibilities for diversification, and physical rehabilitation of the plant would commence immediately.

ii) Preferred scenario

- It would appear that the second scenario is best suited to contribute to the GOK's development objectives and an outline rehabilitation concept has been elaborated on this assumption. This is illustrated in Figure 7.3 where the time dimension is also considered.

- Three major constraints for rehabilitation efforts are initially addressed, namely the market, the management of the company, and the crisis situation in the two PVP farms.

- The market study should be carried out, at the earliest possible opportunity, and the sooner a formal request is made for UNIDO assistance, the better the timing of the following actions.

1/ But it should be noted that the local market for fresh vegetables is quite competitive.

- The result of the market study is the key to an appropriately designed rehabilitation process for PVP. The market study is expected to provide information on the demand situation for vegetables and vegetable products on the world market, including type of products, prices and competitors. The rehabilitation requirements of PVP can be formulated on the basis of answers to the following questions:

  - What vegetables should be grown?
  - When should they be grown?
  - Which vegetables should be exported fresh and which should be processed?
  - What processing of vegetables should take place (Should the company continue with dehydration or change technology, for example, to freeze drying)?
  - Is there export market demand for vegetables produced with little or no non-organic components?

- Following the completion of the market study, UNIDO should prepare a Memorandum on future actions to be taken. This should then be submitted to the Ministry of Industry and ICDC for consideration and decision. Subsequently a request should be made by the Ministry of Industry on behalf of the GOK to UNIDO for assistance to prepare a detailed rehabilitation plan.

- It may very well be the case that substantial modification will be made in product range and also in the choice of future processing technology. The detailed rehabilitation plan will thus give an account of suggestions for technical solutions, process flow diagrams, outline technical descriptions and cost estimates. It will also contain cost and price calculations necessary to present an economic analysis of the company based on the required investment.

- Due to the crisis situation confronting PVP, no efforts should be spared to expedite all matters involved in line with the time frame given in Figure 7.3.

- The rehabilitation plan for PVP is a working document for the subsequent actions to be taken. In addition, it provides essential background information, data on the future of PVP. For instance, should it be the intention of the Government and ICDC to change the financial structure and ownership of the company, such decisions can then be based on qualified assessments of the appropriate future operations of the enterprise. Potential partners, Kenyan and/or foreign, will also be in the position to make their own assessment and justification of the future potential of the company. Liquidating PVP before a plan of rehabilitation has been made would probably result in heavy losses to ICDC. Waiting until the rehabilitation plan is ready would minimize the losses to ICDC. This is one major reason why the UNIDO mission would favour this scenario. However, in case ICDC does not commit itself vigorously to this scenario the company will certainly fail, and should therefore be closed down as explained in the first scenario.

- When the financial structure and ownership are decided upon, the future management of the company should be constituted to ensure qualified and dynamic leadership. Funding of the rehabilitation must be determined at this stage, but preferably investigated earlier. Close liaison with UNIDO and the request for assistance to identify potential foreign financial institutions, should be made as soon as the plan of rehabilitation is available or even earlier. Actions along these lines are fundamental for decisions on implementation of the rehabilitation and upgrading of PVP.

- Given that the timing presented in Figure 7.3 is followed, the implementation phase could start in about seven months, initially with preparation of the required documents for procurement of equipment.

- The management of PVP is of great concern. Rehabilitation of PVP is not meaningful unless the top management is replaced. It is the opinion of the mission that the present management is incapable of taking any initiatives, or even carrying out the actions under B. and C. in Figure 7.3.

- The mission strongly recommends that ICDC takes action to restructure and replace the PVP management as deemed necessary, at the latest when the plan of rehabilitation is available. This provides ICDC with a leeway of about four months. The appropriate management support must be provided as soon as possible to solve the immediate managerial constraints. Such management support may be available within ICDC or, for instance, the Kenya Institute of Management. Another alternative would be for ICDC to request assistance from UNIDO through the Ministry of Industry.

- PVP should immediately decide whether to continue plant operation or stop production temporarily until a reliable market outlet is identified and deliveries are secured. The consequences of continued production are discussed earlier in section 7.3. The decision may not necessarily follow the two alternatives shown in Figure 7.3 The best solution may be a temporary stop for the period necessary to perform required refurbishing of processing Line 1. This would include:

  i) Repair of:
     - the feeder hopper
     - the soil remover
     - washer 1
     - conecting conveyors or screw conveyors

  ii) Installation of a feeder conveyor from the floor level to the top of the feeder hopper to facilitate manual loading of the feeder hopper.

  iii) Installation of conveyors between the drier outlet and sorting the table buffer hopper.

  iv) Installation of a conveyor between the sorting table outlet and installation of a a bagging-out hopper.

v) Improvement of hygiene conditions in the toilets and washrooms and the routines all of which has been discussed in section 7.2. The hopper and the conveyors to be installed according to (ii) - (iv) may be available in the factory and be used after some modifications. The total cost of refurbishing processing line 1 is probably in the order of Ksh 100,000 - 200,000 depending on the extent existing equipment in the plant can be used.

- Significant and continous losses for the company are made on the farms as a result of mismanagement, which affects both land values and output from the farms. A comprehensive farm development plan is urgently needed. Such a plan should be implemented in stages as far as investments are concerned, and within a short period of time when it comes to management, organization and the status of the agricultural units within PVP.

- Rehabilitation of the farms is expected to be highly profitable regardless of their future use. Farm land, which is well managed in all respects has a much higher market value than if mismanaged. Hence, if the farms are put in good order, it will be an advantage if it is decided to sell the farms. It is the opinion of the mission that the farm units, Naivasha and Malewa farms, should form separate profit centres with budgets of their own. Responsibilities and authority to act must be delegated to competent management teams which should also have obligations to the PVP processing plant in terms of supply of raw material according to a pre-determined plan.

- The proposed farm development plan should be elaborated by the strengthened PVP management and ICDC as soon as possible. The outline terms of reference should include:

- detailed plan for rehabilitation of Naivasha farm drainage system, including leeking out of saline soils;

finance and investment requirements:
  - drainage;
  - irrigation equipment;
  - machinery and equipment;
  - labour requirements;
  - outline cropping pattern and estimated yields;
  - inputs including cost estimates;
  - costing and pricing of vegetable production by crop;
  - financial and economic return calculations.

The plan should be finalized by the end of the third month, subject to consideration by PVP/ICDC. Implementation should commence forthwith.

An organized outgrower system is vital for a rehabilitated PVP factory already from the very onset. The required arrangements can probably be made directly between a new PVP management and the larger outgrower farms around Lake Naivasha. In case of the small outgrowers in the Kinangop area it is the opinion of the mission that HCDA should be requested to plan and implement an outgrower organization. It may very well be the case that such outgrower systems should adopt the main lines of the Horticultural Production Centres successfully established in a few other locations.

Efforts should be made to obtain the necessary funds for the small-scale outgrower system through bilateral aid.

Figure 7.3: Outline of rehabilitation concept

PHASE I.

Month	A. Market study (UNIDO/ITC)	B. Management Support PVP (UNIDO)	C. Farm Development Plan (PVP/ICDC)
0			
1		Decision on managem.	Decision by ICDC
2	ICDC request through Ministry of Industry	Decision on altern. Temp. stop Continue	
3	Commencement study Draft report ready		Submission of plan to ICDC Decision by PVP/ICDC - management - implementation - finance - budget
		Temporary Stop	Renovation line I.
4	Memorandum on future actions to be taken (UNIDO) Submitted to ICDC Decision by ICDC Request by ICDC through Min. Ind. to UNIDO		
5	Preparation of detailed plan of rehabilitation for PVP (UNIDO)		IMPLEMENTATION
6			
	Submission of rehab concept to ICDC		
	Consideration and decision by ICDC		

7 Decision by ICDC regarding PVP future

- financial structure, ownership
- management
- funding
- implementation
- request to UNIDO for feasibility study

8 PROCUREMENT DOCUMENTS (UNIDO)

9 TENDERING

10 CONTRACTING

PHASE II. IMPLEMENTATION

CHAPTER 8: PLANT PROFILE
CERAMIC INDUSTRIES (EAST AFRICA) LTD.

8.1 History of the company

Ceramic Industries (East Africa) Limited is located on Kitui Road in the industrial area of Nairobi and was established as a private family-owned business by an italian entrepreneur in 1968 for the production of crockery.

In 1969 the Industrial Commercial Development Corporation (ICDC) commenced its involvement in the company, after being approached by the family, by initially acquiring 25 per cent of the equity and this was further increased in 1977, when the original family shareholders sold the remaining part of their equity to ICDC and other local private investors.

Throughout the seventies the company, while it concentrated on the production of crockery, was profitable. However, a favourable feasibility study was carried out by the Centre for Industrial Development (CDI) in 1977-78 for an expansion project to diversify into the production of wall tiles and sanitaryware. As a result of this feasibility study, ICDC and the other shareholders agreed to implement the project and in 1979 the company began to expand into wall tile and sanitaryware production.

Unfortunately there were major cost overruns during the implementation of the project with long delays in the importation of machinery and equipment and increases in duty, together with large volumes of imports of tiles and sanitaryware. The cost-overruns and delays had an immediate adverse effect on the operational performance of the company, as did the initial difficulties in selling the new tile and sanitaryware products. These problems caused the company to make losses in the 1981 financial year.

In June 1981 ICDC approved the investment of an additional KSh 2.0 million in the company and Kenya National Capital Corporation (KNCC/KENYAC) also provided an additional KSh 3.0 million to complete the expansion programme.

Since 1981 the company has sustained continuous and increasing losses. These losses have been compounded by technical and managerial problems and a general run-down of the plant due to lack of spare parts and engineering expertise. Exchange rate losses caused by the devaluation of the Kenya shilling has made the company's situation even worse.

A new management team took over the management of the company in August 1985 following the recommendations of an appraisal team appointed by the shareholders in May 1985. A KSh 14.5 million rehabilitation plan proposed by the new management commenced in April 1986 but only KSh 7.5 million was contributed. Most of the cash injection was used for consumables, rather than repairs to the machinery, so that the rehabilitation programme did not make any progress.

Despite some attempts at financial restructuring by the conversion of some ICDC loans into equity and capitalisation of some loan interest payments, the company was still unable to service loans from other creditors and was

finally placed under receivership by KENYAC on 1st August 1988. This decision was later endorsed by another debenture holder, the Development and Finance Company of Kenya (DFCK).

Since August 1988, the receivers, Messrs. Silcock and Shah of Price Waterhouse, have managed the company. The receivers have recruited their own General Manager, Financial Controller, Production Manager, Marketing Manager and Chief Accountant, reduced staffing levels and suspended all loan interest payments, which has enabled them to achieve a small operating surplus. These surpluses have been used to gradually repair some of the machinery. The future of the company is still very uncertain, as it now operates on a three month time horizon. The crucial issues still to be decided upon are whether the company can be sold as an operating entity and the type of financial restructuring, which can be agreed between the receivers and the present debenture holders. If liquidated, especially in their present state, the company assets in the form of machinery and equipment would be worth very little. Only the buildings would achieve a realistic sales price. As the buildings are on leasehold, rather than freehold land, their value would also be downrated.

3.2 Existing situation

(a) Summary of current problems

The major problems still facing the company, which are detailed in the following sub-sections are:

- the lack of technical expertise in all sections of the factory leading to high losses and poor quality in the production process;
- the lack of trained personnel;
- the poor financial structure with a heavy debt loading;
- the poor condition of much of the machinery and equipment due to lack of spare parts and trained personnel;
- the poor control on the quality and supply of the necessary raw material inputs;
- the necessity to firstly improve the quality of the existing product range and introduce new designs and new products progressively;
- the low capacity utilisation leading to high unit costs;
- the monopoly position in the domestic market except for imports, which has contributed to an acceptance of poor quality standards and has progressively led to a less competitive position against these imports.

(b) Management and organization

Ceramic Industries (EA) Ltd. is a parastatal with the major shareholder being the Industrial and Commercial Development Corporation (ICDC).

The company was started in the 1950s by Italian prisoners of war producing crockery. In the beginning of the seventies, the Italians withdrew and ICDC came into the picture by buying a minority share of the company. In 1980, ICDC acquired 100 per cent ownership of the company and a concomitant expansion of the product range was carried out to include sanitary ware and tiles. At the same time, the market was flooded with imported products such as wall tiles, crockery and sanitaryware which contributed to the company's loss of market share. This, together with the devaluation of the shilling, and the bad quality and obsolete production apparatus forced the company into receivership in 1989.

Before going into receivership, the company suffered from many management problems. Managers are appointed by ICDC and some of the appointees were completely incompetent to run a business of this kind. With incompetent top management the problems filtered down to middle management bringing the company into compiete chaos. Maintenance of equipment was neglected and no replacement of obsolete machinery was made.

At one time the previous, expatriate, General Manager - apparently totally incompetent - walked out with one days notice. Among the other managers there was a considerable in-fighting and until recently the company was virtually left with no management at all.

The receiver at Ceramic Industries is G. Silcock, a partner in Price Waterhouse.

Debenture holders are:
- Development Finance Company of Kenya (DFCK)
- Kenya National Capital Corporation Ltd (KENYAC)
- Industrial & Commercial Development Corporation (ICDC)

The bearers of debentures function more or less like a normal Board of Directors and there is good co-operation between them and the General Manager. All activities are reported to them via Price Waterhouse and there appears to by only minor political influence with the operation of the company.

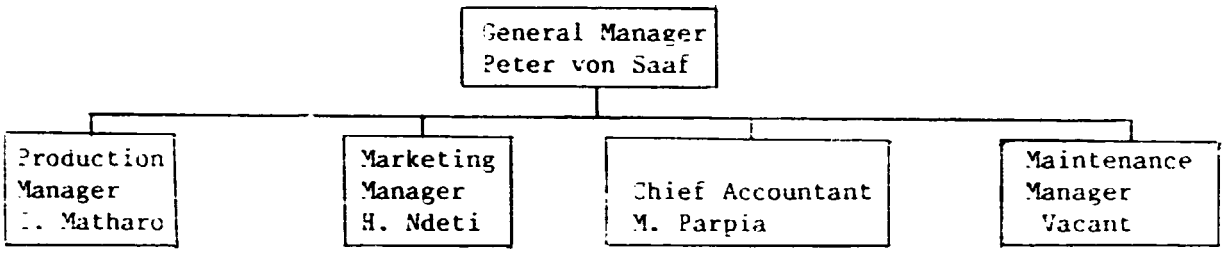
The previous Board of Directors included:

ICDC
DFCK
Mr. W.G. Karuri (Gateway Insurance)
Hon. F.M. Thou (Assistant Minister in Ministry of Industry)
Mr. Charles M. Rubia
Mr. B.W.S. Shigoli

The management team of Ceramic Industries (EA) Ltd. at present consists of General Manager, a Chief Accountant, a Marketing Manager and a Production Manager (see Figure 8.2.1). Given the critical financial condition of the firm the number of middle managers is restricted to a minimum, with vacancies left unfilled. The turnover of the management team is very high.

Figure 8.2.1: Management structure of Ceramic Industries (EA) Ltd.

as of January 1990



Because the company is under receivership, the current management team is a temporary one. All four managers are employed by Price Waterhouse and work on a month-to-month basis. There are only minor changes contemplated in this organization until the matter of receivership is settled. However, it is contemplated that the General Manager will eventually take over more of the responsibilities of production, and that the present Production Manager will then concentrate more on maintenance and servicing of existing machinery. In spite of all the difficulties and the fact that this is only a temporary skeleton staff, the company has not only managed to produce crockery, tiles and sanitary ware but also to sell this production. At present, it has a backlog of orders worth KSh 565,000.

The General Manager Mr. von Saaf, age 48, is a German citizen who has lived in Kenya since 1977. He is a trained banker and has held various posts for German companies in Africa since the mid-sixties. His previous position include selling chemicals with Degussa in Nigeria and as export/import manager in the chemical department of Joss Hansen & Söhne, also in Nigeria. During this time he came in contact with various ceramic companies and suppliers. In 1977, the General Manager joined Bran & Luebbe as Managing Director for their East Africa operations, based in Nairobi. After three years, he left this company to work for Kenya Industrial Estate, with their special energy programme. Since 1986 he has run his own consulting business, Professional Services Ltd, in Nairobi since 1986. He has been hired by the Receiver to be General Manager of Ceramic Industries (EA) Ltd. for the past 2.5 months. The General Manager has no technical experience in ceramics but gives a good impression as a driving and dedicated generalist with a spirit of entrepreneurship. He also appears to have a strong sense of where the company should be heading. In addition, in the short period he has been with the company, he has acquired a firm idea of the company's major problems and potentials.

The acting Production Manager has been working for the firm since August 1988. He is a construction engineer, but had no experience in the ceramics industry when he joined the firm. He learned a lot about ceramics while at factory, but his knowledge is too limited to recognise technical faults on products and to rectify them. This is a serious weakness in the present management structure of the company. His lack of knowledge of ceramics production has meant that this work must be shared between him and the General Manager, which is not a very efficient solution. In the present situation of receivership and lack of funds, there are no plans to fill the position of Production Manager with someone with specialist knowledge of ceramics production.

The Marketing Manager, Mrs. Helen Ndeti, who was trained in the USA, appears to be quite competent and energetic. She works well but sometimes needs assistance in her work. She has a B.A. in Business Administration, emphasizing marketing, from Augustana College in Sioux Falls, South Dakota. She has also obtained a diploma in International Marketing after completing a course arranged by the International Trade Center in Geneva. She has previously worked for the International Crown Services as an Assistant Marketing Manager. Since 1987, she has been working with Price Waterhouse as an Assistant Sales Manager in companies under receivership.

The Chief Accountant, Mr. Mohammed Parpia, appears to be a very able and good worker. His background and formal education was not available to the mission. No information was available on other members of the management at Ceramics Industries.

Other factors contributing to the weakness of the management structure of the company include:

- the lack of a Personnel Manager to take care of administrative matters;
- the absence of a Factory Manager and Ceramicist to ensure the production of quality products; and
- the limited time available to the management to plan (approximately 3 months). Under these circumstances, long-term issues have to make way for short-term expediency and day-to-day survival. The result of this enforced myopia is that the structural issues confronting the firm are not being properly addressed.

(c) Human resources

1. Management

In general, the management team of the company consists of competent individuals that are adequately trained but lack technical experience in ceramics manufacturing. This is particularly true for the General Manager and the Production Manager who are often confronted with highly technical problems which can only be effectively and efficiently handled by a specialist in ceramics manufacturing. However, they have been able to recognize and address the general problems of the company on the basis of their broad knowledge of management and some years of experience in the company.

With regard to the company's marketing operations, the Marketing Manager's general experience in marketing seems adequate for the current market situation, primarily because the demand for the company's ceramic products is greater than what the company can supply. Thus, at present, marketing is not a serious problem for the firm. But as the production capacity of the company is built up and as it considers producing for export, a more experienced Marketing Manager would be needed by the company.

There was not enough information to assess the background of the Chief Accountant. But he is competent and has adequate experience as a professional accountant.

2. Production departments

2.1 Tile

The tile department consists of a superintendent, 3 foremen, 2 machine operators, 2 assistant machine operators and 16 workers

The tile department requires extensive use of machines such as tile compressors, conveyers, mixers and a kiln. This implies that a well organized working system and co-ordination in the plant is important for productivity and also for the health and safety of the workers.

The superintendent who has had 10 years experience in the factory, appears to be competent and well respected by the workers in the plant. He has had 2 weeks of management training given by the Kenya Institute of Management (KIM) also had three months of technical training with respect to the ceramic industry in Indonesia provided by UNIDO training programmes. He keeps good records of production and searches continuously for a better way of doing things to achieve higher productivity. The foremen, machine operators and the rest of workers have no formal training other than on-the-job training.

2.2 Crockery

The crockery department consists of a superintendent, an assistant superintendent, a foreman, 14 section heads, 39 workers and 13 casual workers.

Due to the labour-intensive nature of its work, the crockery department has the largest number of employees in the firm. The department consists of 14 different sections each of which is supervised by a section head. The superintendent has been working in the firm since 1969 and has extensive experience of crockery production, but has not had any formal training throughout his career. Including the superintendent all of the workers except for one has received no external training other than on-the-job training. They have simply acquired their skill through practical work and the supervision given by their senior colleagues. One junior worker has had ceramic industry training in Japan for a half year.

2.3 Sanitaryware

The sanitary department consists of a superintendent, 4 section heads and 14 workers.

The sanitaryware department produces mainly toilet wares and sinks. Although it is the smallest number of workers among the production departments, workers are required to have high skills level to produce products with complex shapes and often of larger sizes. Despite its high skill requirements, no worker in this department has had outside training in the production of sanitaryware. This includes the superintendent. He holds a Teaching Diploma and has been in the present position since September 1989. He joined in the firm as the acting superintendent in the sanitaryware department in 1988. The department consists of six different sections; mixing, moulding, casting, sponging and paraffin test, spraying, and loading and kiln-firing sections.

The employees involved in moulding require especially high skills in the correct methods of preparing the plaster mix and moulding procedure. However, the majority of the moulds in use in the factory are of poor quality and this affects the general quality of all products. The inadequate training and skill levels of the workers results in faulty products.

3. Quality control department

The quality control department consists of a superintendent and 2 assistants.

The employees in this department were trained on-the-job in simple routine quality control checks by the expatriate managers. They do not appear to have the required skills for detailed testing of ceramic materials. The sanitaryware department was completely closed down recently for a two week period when the person responsible for making the sanitaryware slip was on holiday, as the laboratory personnel delegated to carry out this task could not make a suitable slip for casting. None of the staff have sufficient training to carry out the necessary detailed evaluation of all the raw material deposits and to formulate new body compositions based on their technical knowledge.

4. Maintenance department

The maintenance department consists of a superintendent and 4 workers.

Again the maintenance workers have received on-the-job training, but nobody has had formal training in engineering. They appear to have adequate skills in preventive maintenance procedures.

In conclusion, given its precarious financial condition, the firm can offer very few incentives to motivate and retain workers. Salary levels are not satisfactory at any level for plant workers and there has been little growth in salary levels for the last few years.

In terms of human resources, the employees in the production sectors are imminently required to upgrade their skill levels with training that cannot be acquired on-the-job. Equally all the levels of employees need more training to understand their work better and to improve the quality of products. Additional training is particularly required for supervisors such as foreman, section heads and quality control inspectors. This would be of great benefit to the firm in the immediate future.

The firm needs highly skilled experts who can transfer the basic skills and technology of high quality ceramics production to improve the general quality of products. The lack of technical knowledge of the production personnel means that certain production faults occur simply because they are not recognised as such. This can be seen at all parts of the processing lines of every department. On-the-job training by ceramics experts would be of considerable assistance to eliminate the production faults and also to upgrade the quality of products.

(d) Financial structure

Share capital

Upon establishment as a company in 1968, with limited liability, Ceramic Industries was authorized to issue 3,200,000 ordinary shares at KSh 5 each. Authorization was given, also to issue 400,000 preferential participating shares at KSh 5. The preferential shares yield 14 per cent cumulative payments. The total authorized capital base is KSh 18 million.

Currently (as of 31st January 1990), the subscribed capital investment in the company is KSh 16,000,000. The equity issue consists of 2,921,200 ordinary shares and 400,000 preferential participating shares, initially purchased, respectively, at KSh 14,600,000 and KSh 2,000,000.

The present (as of end 1989) distribution of shareholding is shown in Table 8.2.1 below.

Table 8.2.1: Shareholders in Ceramic Industries (EA) Ltd., 1989

(ordinary shares)

Shareholder	Nationality	Particulars	Shares
ICDC	Kenyan	State Corporation	1,385,200
ICDC	Kenyan	State Corporation	631,600
DFCK	Kenyan	Foreign, State Corporation	496,000
ART	Kenyan	State Corporation	200,000
OTHER	Kenyan	Private Individuals	208,400

Source: Financial statements of Ceramic Industries (EA) Limited.

The Government holds, in one way or another, all but 7 per cent of the equity in the company.

The four governmental shareholders are: (1) a wholly government-owned investment institution (ICDC); (2) a financial institution (DFCK) that is owned jointly by the Government of Kenya, the commonwealth Development Corporation, the German Development Corporation and the Netherlands Finance Company; (3) African Retail Traders (ART) a retail and wholesale distributor (ART), and (4) the ICDC Investment Company, which is connected to ICDC. The ICDC Investment Company manages the funds of about 14,000 small financial investors.

Five Directors make up the Board of Directors. The two major shareholders, ICDC and DFCK, each, appoint a Director. Three other Directors serve on the Board. They are V.C. Omoke, Chairman, C. Rubia, and F. Thuo.

The company is a parastatal by de facto ownership, but it was not always in the public sector. Ceramic Industries was an enterprise in the private sector when it was established in 1968. The size of the initial capital investment is not known. As mentioned earlier in this chapter, the company was started by a family of Italian origin, who had settled in Kenya.

About a year after the Company was started, in 1969, the family approached ICDC about investing in the business. As a result of this approach, ICDC became a holder of 25 per cent of the equity in Ceramics Industries. The family sold its holdings of equity in 1977 to ICDC and private investors. When the company went into receivership, about a quarter of the ordinary shares were held by private investors in Kenya and three-quarters by ICDC and its affiliate, the ICDC Investment Company. These investors, especially the private shareholders, reduced their holdings, which were taken up by the DFCK and ART.

The distribution of shares today (1 February 1990) shows that ICDC holds 47 per cent of the issued ordinary shares outright. ICDC holds another 22 per cent through its affiliate, the ICDC Investment Company, on behalf of many investors. However, 7 per cent of the issued ordinary shares are held by private investors. The remaining 24 per cent of the shares are held by DFCK (17 per cent) and ART (7 per cent).

Table 8.2.2 shows the distribution of ordinary shares in Ceramic Industries during the past two financial years, 1988-89.

Table 8.2.2: Distribution of ordinary shares in Ceramic Industries in 1988 and 1989
(per cent)

Shareholder	End of the Financial Year 1987/88	1988/89
ICDC	52.34	47.42
ICDCIC	26.24	21.62
DFCK	-	16.98
ART	-	6.85
Private individuals	22.42	7.13

Source: Financial statement of Ceramic Industries (EA) Limited.

Sources of financing

Ceramic Industries has borrowed heavily from three financial institutions and failed to keep up the required repayments. Unpaid interest has been capitalized. The major debenture holders are the Kenya National Capital Corporation (KNCC), DFCK and ICDC. In the aggregate, the major debenture holders to have claims for KSh 52.7 million on loans, accrued interest, and penalties when the company was placed under receivership. Another KSh 17.2 million is owed to trading creditors and KSh 3.8 million to preferential creditors.

The state of Ceramic Industries' indebtedness can be seen in the balance sheet of 31 July 1988 shown in Table 8.2.3.

Table 8.2.3: Debenture holders creditors and amounts

as at 31 July 1988

KSh)

Holder	Loan	Accrued interest and penalties	Total
DFCK	25,939,977	8,216,074	34,156,051
KNCC	12,568,161	5,964,934	18,533,095
ICDC	2,300,006	1,087,545	3,387,551
Trade Creditors			5,301,931
Sales Tax			11,066,607
PAYE			521,430
NSSF			787,889
Other			1,095,006
Total			75,949,560

Source: Financial statement, 31 July 1988, of Ceramic Industries (EA) Limited.

Assets and liabilities

The company's total assets amounted to KSh 41,226,806 at the end of July 1989. Total liabilities came to KSh 84,618,088. Share capital, at its book value, of KSh 16,606,000 and capital reserves of KSh 24,995,789 were offset by a deficit in the profit and loss account, amounting to KSh 84,[illegible]. Consequently, the net worth of Ceramic Industries on paper in 1988 was minus KSh 43,391,282.

Overall financial position

The market value of the leasehold land, buildings, equipment and furniture is certainly less than the book value, which is reported on the balance sheets. The company is currently indebted to banks and other creditors by about KSh 80 million for loans, accumulated interest and penalties, and trade credits. Annual sales are currently about KSh 18.2 million. Total costs excluding depreciation and interest, are about KSh 16.2 million.

(e) Buildings and installations

The factory consists of two production buildings separated by a 5 metre(m) wide passageway and an office block. A single storey building of concrete block construction with corrugated steel sheet roofing, sized 100m x 25m with 3.5m eaves is used for the production of crockery. Directly in front of this building are situated two 4 tonne capacity liquid petroleum gas (LPG) storage tanks.

A two-storey building of reinforced concrete frame construction with concrete block walls and corrugated steel sheet roofing, sized 100m x 25m is used for the production of tiles on the ground floor. Sanitaryware and the moulds are made on the first floor. The ground floor of the two storey building also contains the grinding mills and slip house for the three

manufacturing units. A spray dryer for the tile plant is situated in the passageway between the two production buildings. The structures of the buildings are generally in good condition but some of the roofing sheets require replacement.

1. Raw material storage

An open area of approximately 50m x 20m is used for storing all of the raw materials for the production of the three products. At the time of the mission's visits, the raw material stocks of quartz, Kissi soapstone, feldspar and wollastonite were very small and are inadequate to provide an input of consistent and known quality to the factory. The stocks of raw material were stocked close together in an area where there was a considerable amount of rubbish. The possibility of cross-contamination between the different minerals is therefore high and in addition, all of the minerals can also be contaminated with rubbish. This would have an adverse effect on the quality of the production.

In relation to the machine and equipment layout within the factory buildings the position of the raw material storage area is at the wrong end of the factory and work is now in hand to provide a concrete storage area close to the milling machines. Although the area is rather small and is far from ideal, it will go some way to improving the raw material storage situation and reduce the risk of contamination.

At the various quarry sites there is no advance evaluation of available deposits in terms of actual volumes or quality at any one site. There is also no testing of deposits on a regular basis prior to delivery to the factory. Neither is there any mixing or stockpiling of any of the materials in a layer formation at the quarries or factory to minimise the natural variations in quality of the raw material inputs. This [illegible] for ensuring continuing consistency, as it does not have precise knowledge of all the incoming raw material inputs. Should any of the raw materials change they will already be in production before it is noticed and the entire factory could be filled with defective items before action could be taken to readjust the body and/or glaze formulations. A solution must then be found to the problem, which unfortunately may be a very time-consuming operation, especially with untrained personnel. This situation has already happened on a number of occasions in the past and is a potential disaster, waiting to happen, which could occur again at any time. The financial implications of such an occurrence would be onerous.

2. Crockery production facilities

The body formulation currently used for crockery production is based on 100 per cent local materials as shown in Table 8.2.4.

Crockery production using the above formulation consists of the following main production activities:

- body preparation
- machine-made production
- castware production
- biscuit firing
- glazing
- glost firing
- decoration and decoration firing

Table 8.2.4: Crockery production - body formulation

Materials	Volume (kg)	Per cent
Ngumba Clay	2,300	34.80
Quartz	2,000	30.30
Kissi Stone	1,557	23.60
Feldspar	43	0.75
Grog (pitchers)	253	3.80
Calcite	50	0.75
Total	6,603	100.00

Source: Ceramic Industries (EA) Ltd.

a) Body preparation

All of the hard non-plastic materials, including quartz, feldspar, Kisii stone and pitchers are first passed through a heavy-duty jaw crusher and roll mill, which reduces the size of the raw material to less than 25mm in size. In comparison to normal European practice this size is too large and primary grinding should be to less than 10mm in size to produce efficient milling in the ball mills. Kisii stone, feldspar, calcite and pitchers are weighed into one of the 7ft x 7ft diameter ball mills in the tile plant building according to the recipe. The volume of water added to the mill is dependent on the visual assessment by the operator. Milling takes place over an 18 hour cycle to a particle size of 65-80 per cent less than 10 microns and a specific gravity of 1.45-1.5 g/cc. The pint weight and particle size are checked by the laboratory staff and the clay slip is transferred to the mixing ark in the crockery building.

Because of its different grinding charactaristics the quartz is milled separately in a 7ft x 7ft diameter ball mill in the tile plant in batches of two tonnes. Again water is added by the operator, with no precise metering and milling takes place over a 20 hour cycle to a particle size of 65-80 per cent less than 10 microns and a specific gravity of 1.5- 1.55 g/cc. After checking the pint weight and particle size the slip is transferred to the 8ft storage ark in the crockery building.

For the milling of the hard materials the factory is equipped with two 7ft x 7ft diameter mills and three 6ft x 6ft diameter mills. One of the latter mills, which is used by the sanitaryware section, is inoperative due to the lack of new lining material and flint pebbles. This must be repaired to provide the additional milling capacity, which will be required, if the production of sanitaryware is to be increased on the provision of more moulds.

One-tonne batches of the Ngumba clay are blunged in the high-speed blunger for a period of 30 minutes, after which deflocculants are added and the clay slip is transferred to the clay storage ark.

Quantities of clay slip and the non-plastic slip are then transferred to the mixing ark according to the required recipe, the measurements of volume being taken by dip stick. The specific gravity is checked by the laboratory personnel to ensure that it is in the range of 1.5-1.6 g/cc and the mixed slip

is then allowed to age for a period of six hours before being pumped over a Richardson electro-magnet and 3ft two-deck sifter fitted with 120's mesh and 100's mesh screens. The screened and magneted slip is then stored in an 11ft wide x 8.5ft high pumping ark with a capacity of approximately 8 tonnes.

The factory is equipped with an Edwards and Jones 55 chamber 3ft x 3 ft plate filter press for the production of filter cakes but this is not operational due to lack of spare parts. With two pressings per day this machine could be capable of 10 tonnes of filter cake material per day but as half of the plates have been broken and never replaced the machine is limited to approximately 5 tonnes per day, even when the other spare parts have been received. In the meantime a small experimental filter press has to be used to supply the factory with its requirements of filter cake material. This 25 plate Edwards and Jones machine is in good condition but can only supply approximately 325 kg per pressing, consequently the machine is operated on two shifts, producing 5 pressings per shift, that is: 10 per day or 3.25 tonnes of filter cake material per day.

The filter presses are fitted with home-made filter cloths and jute backing cloths. This means that the quality of the filter medium could be variable giving rise to possible inconsistensies in the filter cakes and consequent variations in quality of the final product.

After each pressing the filter cakes are stacked on to wooden pallets and covered with polythene sheets, prior to being pugged (that is: extruded) in an Edwards and Jones deairing pugmill (Machine 911863). The machine is in good condition and the vacuum system produces the required maximum vacuum for quality production. The machine is capable of producing approximately 12.5 kg of pugged deaired clay per minute or 750kg/hr using a 150mm diameter die. A daily output on single-shift working, assuming 7 actual working hours in an [illegible] per day. This is [illegible] in excess of the current filter cake production capacity. However two shift working would be required, if the main production filter press was fully refurbished.

Also installed on the factory, but now in a totally dismantled state with many parts lost, is a second pugmill, type: Karl Leimer (1967). This would be uneconomic to repair. A second Edwards and Jones machine, identical to the existing machine, should be purchased once the factory is operating much closer to its capacity. This will then allow clays of different moisture contents to be pugged simultaneously, if required.

Following pugging, slugs of clay with a moisture content of 20-25 per cent are cut from the column by hand and these are then stored in an "aging room", sized 3m x 4m x 3m. Very little aging is actually achieved as the normal procedure is not to build up large stocks of pugged material. The operators simply pug clay on one day and commence using this the following morning. No humidity or temperature control is fitted to the aging room and the clay slugs are simply covered with polythene sheets to prevent the clay slugs from drying.

With the present poor condition of the crockery machines, flatware items require a much softer clay than the holloware items. These products have to be made simultaneously. However, as insufficient stocks of pugged clay with the correct moisture contents are kept in the aging room, the normal practice is to feed one machine from the aging room and the other machine directly from the pugmill. This could lead to greater moisture variation in the clay slugs, production defects and greater losses.

b) Machine made production

Flatware is produced on a Service Engineers' semi-automatic roller flatware machine, which is complete with a feed conveyor for the clay slugs and a wire cutter to produce the bats for the flatware machine. The machine has a defective heating head due to the lack of spare parts. An open gas flame is allowed to burn on the head in an attempt to provide the necessary heating to avoid problems with clay sticking to the steel head. While better than no heating at all, it is an inefficient method and the heat cannot be applied evenly, therefore some sticking and hence wastage still occurs. In addition to this problem, the bat cutter cannot provide a bat of consistent thickness, as there is no drive chain to the conveyor. The operator therefore has to pull the slug of clay by hand, so that the cutter can operate. This leads to distortion of the clay slug and differing bat thicknesses, which in turn leads to an inconsistent operation of the flatware machine giving the possibility of more defects and higher wastage.

The plaster-of-Paris moulds for this machine are made out of the same type of plaster as that used for the casting department and are replaced on an irreguiar cycle every six to twelve months, dependent on the supply of imported plaster rather than on the actual state of the moulds. To achieve consistent high quality products moulds should be changed on a strict replacement cycle before significant deterioration of the moulds occur. However due to the lack of imported plaster-of-Paris, moulds are used far beyond their normal useful life and the quality of the products produced is therefore significantly impaired. Currently only a single type of imported plaster-of-Paris is used for all different mould applications. Case moulds, casting moulds and machine moulds, require different types of plaster to ensure that the life of all moulds is maximised, which thereby minimises the

The flatware dryer (type: Victoria Heating and Ventilating Co., UK) immediately adjacent to the flatware roller machine is approximately 25 years old and requires attention to the heating and control systems to improve the drying charactaristics. The dried ware from the dryer at the time of the mission's visit were not completely dry and showed differing amounts of residual moisture, which then affects the firing schedule of the biscuit kiln. At the time of the mission's visit many of the articles in the dryer had cracked. This could not only indicate a drying problem but could also indicate deficiencies in the body composition and/or body preparation.

The output of the flatware machine together with this dryer is:

- 2,000 plates per 8-hour day with 324 moulds/round, giving a mould cycle of 6.17 cycles/day
- 4,000 saucers per 8 hour day with 486 moulds/round giving a mould cycle of 8.23 cycles/day

The level of utilisation of this machine is less than 50 per cent.

Bowl and ashtray production is carried out on a Service Engineer's semi-automatic 3-mould bowl machine, which is also situated in front of the flatware dryer. No dryer has been installed for this machine, therefore the products are either left to air-dry on racks or they are also placed in the bottom layers of the flatware dryer, which then adversely affects the production of flatware.

The output of the bowl machine varies between 800-1 000 pieces per day, which is approximately 50 per cent of its capacity. Its actual utilization is also currently less than 30 per cent.

A hand-jigger machine is utilised for items such as large vegetable dishes and mixing bowls and can produce 100-150 pieces per 8-hour day of these larger items. Smaller items such as ashtrays can be produced at the rate of 300 pieces per day. The level of utilisation of this machine is less than 10 per cent.

Cup production is carried out with a Service Engineer's automatic roller cup machine, which is a self contained unit, complete with a slug feed conveyor, 300mm pugmill, drying unit, sponging machine, off-take conveyor and handle fixing machine. The heater on the roller head is inoperative, therefore with soft clay the clay sticks to the head and intermittently halts production. To try to compensate for this deficiency the factory uses harder clay than that which is normal for cup making and this could cause quality problems in the product. The machine has many breakdowns and a thorough overall with a complete set of new spare parts is urgently required.

The Edwards and Jones Model 3 sponging machine is inoperative due to lack of spare parts, therefore all cup sponging has to be carried out by hand. This is time consuming and uses far more personnel. It also produces a lower quality product, as many of the cups are distorted by the hand sponging operation. Likewise, the Edwards and Jones handle fixing machine is inoperative due to lack of spare parts and all handles have to be fixed by hand, again increasing labour costs and reducing quality.

[illegible] is worn out and is in an extremely poor state of repair, which is permanently in short supply is therefore being wasted on a continuous basis.

Two handle cutters (Type: S.V. Keeling) are in poor condition, producing poor quality handles. They require new cutter heads and bearings to correct this deficiency.

Four towing units are provided to smooth dried articles, prior to the biscuit firing. Although these are all fitted with ductwork, which is connected to a fan unit discharging directly to atmosphere, this crude dust extraction system is inoperative, placing the health of workers at risk. At any towing station an efficient dust extraction system with a dust filter unit on the exhaust should be mandatory.

c) Castware production

For the castware department a small blunger with 750 kg capacity is used to prepare the casting slip from filter cakes and scrap. Sodium silicate is used as a deflocculant.

Slip is then carried to the bench casting area for the casting of both tableware and giftware items. The majority of the moulds in use are in poor condition and have past their normal useful life, therefore producing poor quality products, which require additional time-consuming fettling. The lack of imported plaster-of-Paris is the reason for not replacing moulds on a strict replacement cycle.

i) Biscuit firing

The factory is equipped with two gas fired intermittent kilns, an old brick-lined kiln (1970) with a capacity of 440 ft³ capable of firing an average of 5,000 pieces per firing (2,500 pieces per kiln car) and a newer (1979) Shelley fibre-lined kiln, with a capacity of 375 ft³ capable of firing an average of 4,500 pieces per firing. As the moisture content of some of the ware entering the biscuit kilns is still quite high, the firing cycles are longer than is normally expected due to the necessity to have a slow increase in temperature during the early part of the firing cycle.

The firing cycle on the old kiln is approximately 40 hours, 27-29 hours firing to a temperature of 1,170 -1,200°C, with 10-11 hours cooling. The kiln is in very poor condition and gives uneven firing resulting in variations in colour and water absorption of the biscuit ware. Firing temperatures have recently been lowered to reduce these variations. In the opinion of the mission it would be uneconomic to rebuild this kiln and it should be replaced with a modern fibre-lined energy efficient kiln with automatic temperature control and safety systems.

The newer Shelley kiln is not operational due to lack of instrumentation. Spares are required for the temperature control system and the flame failure system. The kiln door refractories have become damaged and this in turn allowed the door to overheat and caused damage to the flame failure system fitted to the door. The kiln car seals and concrete foundation also require repair before the kiln is recommissioned. In the mission's opinion it would be economic to fit a new temperature control system to this kiln. Both kilns require new refractory props and bats to refurbish the kiln cars, to ensure that maximum output is possible from the kilns.

Current biscuit output on the old kiln is approximately two firings per week, that is: 10,000 pieces per week. If sufficient dried ware is available the kiln could achieve 3.6 firings per week or 18,000 pieces per week, allowing for one day of maintenance. The current capacity utilisation rate of the kiln is approximately 55 per cent.

If the newer kiln is repaired and is fired on a 40 hour cycle, it would achieve 3.6 firings per week, allowing for one day of maintenance, with a loading of 4,500 pieces the output would be 16,200 pieces per week.

The total potential gross biscuit output with two kilns operating is therefore 34,200 pieces per week.

This output could be increased substantially, if an additional clayware dryer is installed on the factory. If all ware entering the kiln were perfectly dried, then the firing cycle could be reduced, allowing more firings to be carried out per week.

After firing the biscuitware is unloaded into the biscuit storage area, where it is graded, cleaned and checked for soundness prior to glazing. The factory is equipped with a double-spindle brush machine for holloware, a large plate brushing machine and a small plate brushing machine. Although each brushing station is equipped with the ducting for dust extraction, none are connected to an extraction system. This area therefore poses a health hazard for the operators.

e) Glazing

Glazing is carried out at a simple dipping station equipped with a hand operated dryer turntable and also at four operational spray booths. Two additional spray booths are not operational due to lack of spraying equipment. The dipping station tank is not equipped with a glaze recirculation pump and sieve unit. This allows the possibility of considerable variation in the glaze to occur during the course of the day, which would affect the final product quality. Variations in the water absorption of the biscuitware, from 0.5 per cent to in excess of 5.0 per cent, affect glaze pick-up and hence product quality. The spray booths are equipped with an extraction system from which the glaze is recovered.

All glaze is imported and is prepared for use in a 200kg capacity ball mill located in the glaze department.

f) Glost firing

After glazing the ware is loaded into refractory cranks, which are then stacked on to one of the six kiln bases and are fired by one of the four electric top-hat kilns. Two of the kilns are refractory lined and have a firing cycle of 13-16 hours, 7.5 hours up to the peak temperature of 1,040-1,050°C, 0.5 hour soak and 5-8 hours cooling. The other two kilns are fibre lined and have a firing cycle of 12-13 hours with 7.5 hours to 1,050°C, 0.5 hour soak and 4-5 hours cooling.

The capacity of all the kilns is:

- mixed load 1,100 pieces
- all cups 2,000 pieces

All kilns require spare elements and repairs to the refractory linings and one of the two overhead cranes requires replacement. One of the kilns is totally inoperative due to the lack of spare parts.

The maximum glost output capacity on the existing firing cycles is:

2 kilns @ 16hrs = 10.5 firings/week/kiln x 1,100 pieces = 23,100
2 kilns @ 13hrs = 13 firings/week/kiln x 1,100 pieces = 28,600

Total installed glost capacity = 51,700/week

However this must be downrated by one firing per kiln to allow for kiln maintenance, that is:

2 kilns x 9.5 firings/week/kiln x 1,100 pieces = 20,900
2 kilns x 12 firings/week/kiln x 1,100 pieces = 26,400

Total actual glost capacity = 46,800/week

This capacity is far in excess of the total potential biscuit capacity of 34,200 pieces per week, therefore a bottleneck would not be created at this point, if the biscuit production was increased by investing in a ware dryer.

g) Decoration and decoration firing

Decoration of part of the glost production is achieved by the manual application of decals, some of which are imported but the majority are made locally. Some of the decal decorated ware is also lined by hand but the three lining turntables in use on the factory are in extremely poor condition and have no height adjustment, so that perfect lining cannot be achieved even by the four experienced personnel.

Decoration (enamel) firing is carried out in a Shelley electric intermittent kiln with a capacity of 700 cups per firing or 450 pieces of mixed ware. The firing cycle is 4-5 hours to 740°C for low temperature decals and a cooling cycle of 3.5 hours. Some decoration firings are also carried out in the Shelley top-hat kilns but this then reduces the glost output capacity.

It is possible to carry out three firings per day, that is: a maximum of 21 firings per week, therefore the total installed decorating capacity is:

21 firings x 450 pieces = 9,450 pieces/week

Allowing a downrating of two firings for kiln maintenance, the decorating capacity is:

19 firings x 450 pieces = 8,550 pieces/week

This equates to only 18 per cent of the potential gross glost production.

As decorated ware is more profitable than plain ware, serious consideration should be given to increasing the decoration firing capacity, once the biscuit and glost firing sections are operating closer to their capacity.

3. Sanitaryware production

The raw material preparation for sanitaryware is carried out on the ground floor of the two-storey building, after which the clay slip is pumped to the first floor, which contains the sanitaryware casting hall, kilns and mouldmaking facilities. The current body formulation of the sanitaryware mix is now comprised of 100 per cent of local materials as shown in Table 8.2.5.

Table 8.2.5: Sanitaryware production - body formulation

Material	Volume (kg/mix)	Per cent
Quartz	560	28.0
Feldspar	440	22.0
Ngumba Clay	440	22.0
Kisii Soapstone	560	28.0
Total	2,000	100.0

Source: Cermic Industries (EA) Ltd.

Quartz and feldspar, after being jaw-crushed are weighed according to the recipe and then ground together in a single 6ft x 6ft diameter ball mill for a period of 14 hours to a particle size of 50-55 per cent less than 10 micron.

Figure 8.2.2: Process flow - body preparation

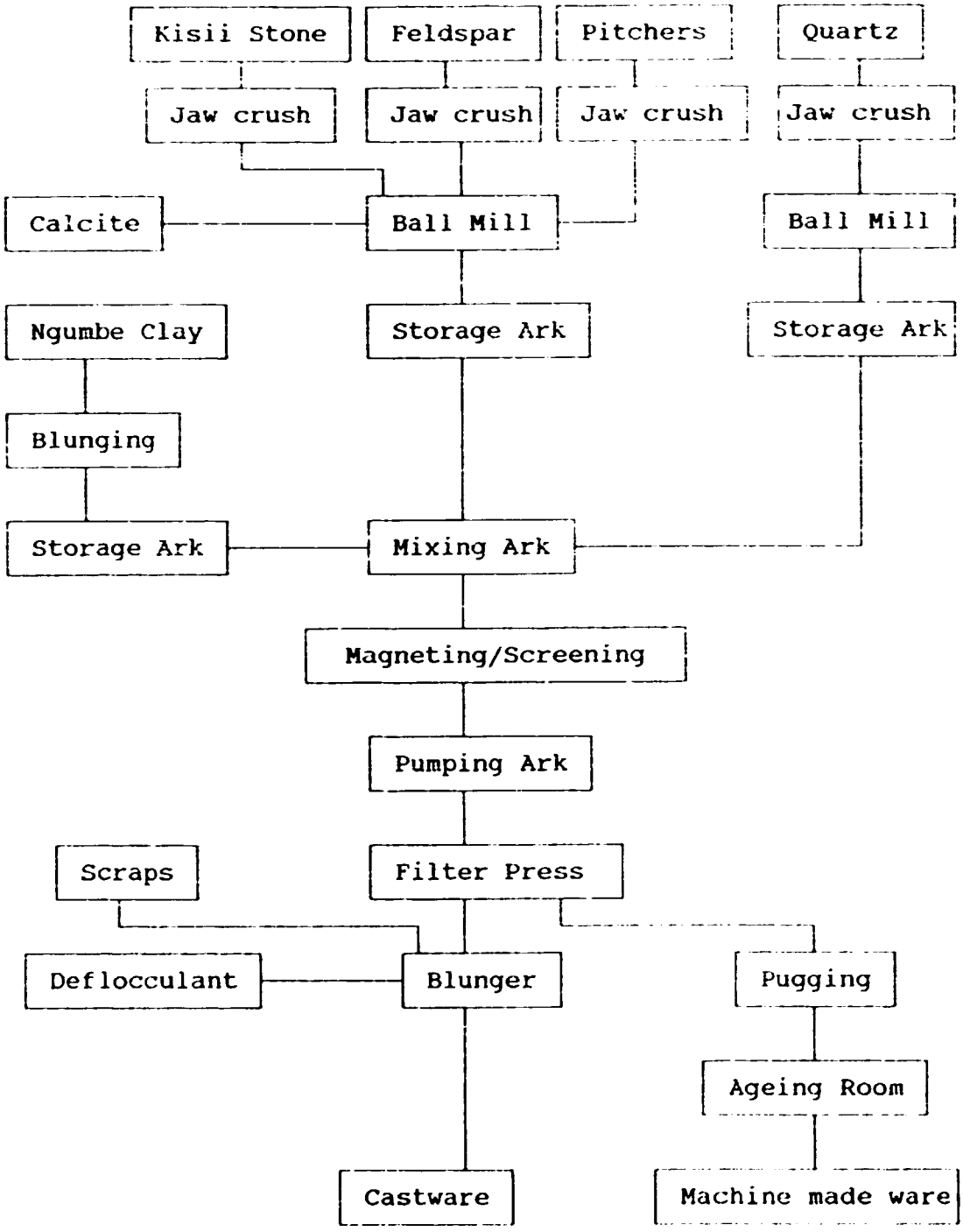
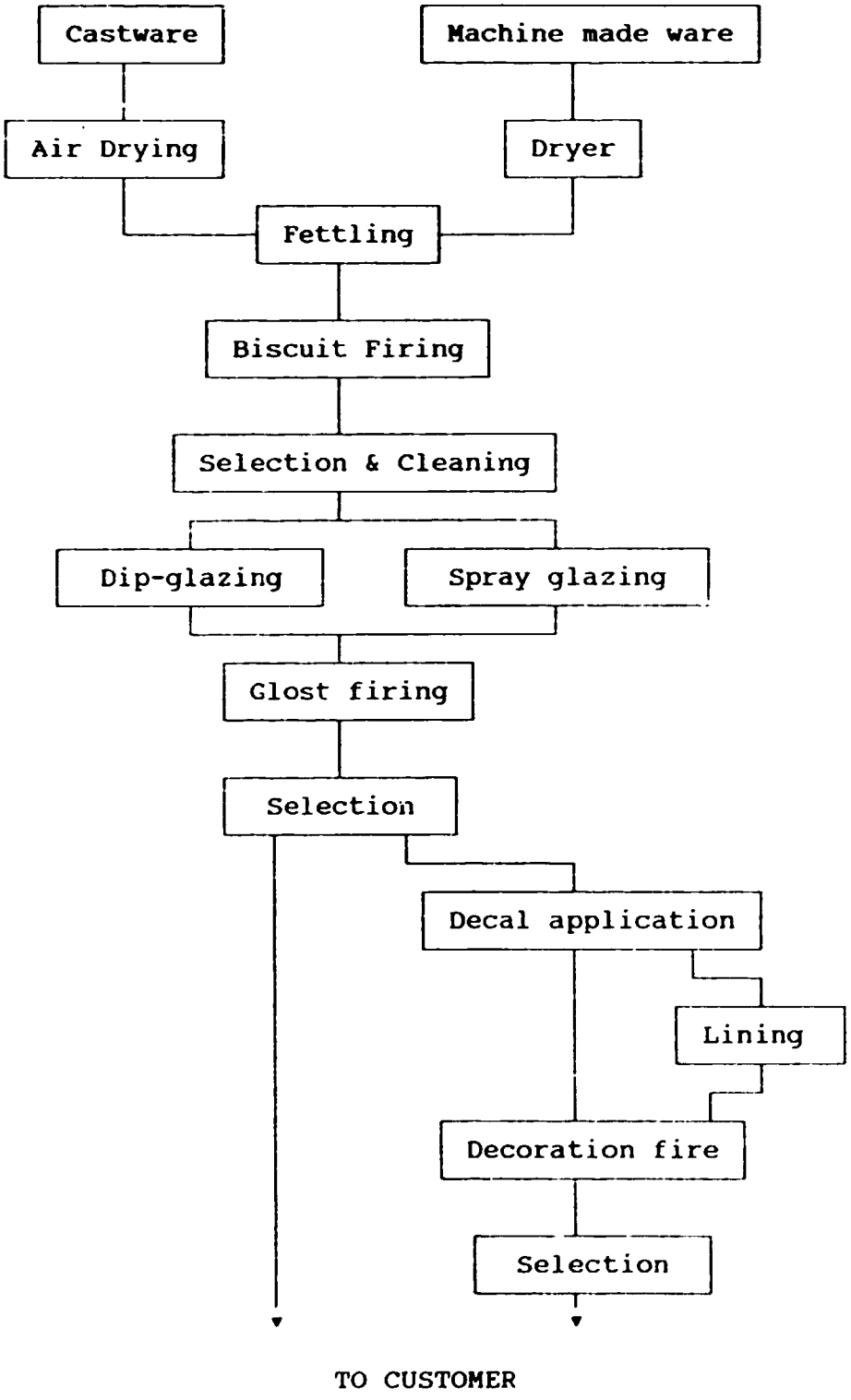


Figure 8.2.3: Process flow - crockery production



Kisii soapstone is ground separately for 17-24 hours to a particle size of 80-90 per cent less than 10 micron, the particle size in both cases being checked by sedimentation before being run off into a mixing ark. Although the sanitaryware section is provided with two ball mills, only one is operational, which means that a complete recipe mix cannot be made on a daily basis. The procedure is to grind the quartz and feldspar on one day and the the Kisii soapstone on the second day with final body mixing on the third day.

The Ngumba clay is blunged in the tiles section high speed blunger and is sieved into a flat steel storage tank, 2.5m x 1m x 0.5m. The slip is then pumped into the mixing ark containing the other constituents of the body recipe and the pint weight is checked and adjusted to 36.4 oz/pint (1.81-1.82 gm/cc) by adding water and 0.3 per cent sodium silicate/soda ash mix (83:17) as a deflocculant. Some clay scraps are also added to the mix at this point and blunged for a further 30 minutes, after which the pint weight is rechecked. The slip is the pumped over a sifter fitted with 80s' and 100's mesh screens and a permanent magnet into a storage ark, where the slip remains for approximately 24 hours.

The final slip is then pumped to one of the two first floor storage tanks, each with a capacity of 540 gallons. While one tank is being filled, slip from the second tank is pumped around the ring main system to feed the casting benches. On the present production levels one tank is sufficient for approximately one day's production. Prior to use the slip is again rechecked to give a pint weight of 36.4 oz/pint, a thixotropy of 35-40°C and a fluidity of 310-325°C.

The casting hall is equipped with six rows of casting benches but one row is not operational due to the lack of working moulds caused by a shortage of imported plaster-of-Paris. Four of the rows each contain 17 working moulds, while the fifth, used for large basins contains 14 moulds, that is: a total of 82 moulds. The condition of the majority of these moulds is very poor, having been used far beyond their useful life and this results in poor quality products being produced.

Filling of the moulds takes place in the morning and the casting times of the different products are as follows:

Closets	50 min
"S" & "P" trap	50 min
Small basin	50 min
Large basin	70-80 min

The filling time of each mould is 3 minutes, rather than the normal 2 minutes because the slip circulating pump (Type: Gosling and Gatten) was originally designed to feed only three lines of casting benches. In 1986 three further rows of benches were installed but the slip pumping capacity was not increased and in addition the pump normally has to run without the six plate springs, which are essential for efficient pumping because such springs cannot be obtained in Kenya and the company has difficulties in importing these necessary spares. As a direct consequence of this slow pumping, all pieces of sanitaryware cast since 1986 have suffered from "casting lines". This defect then has to be cleared by time consuming heavy manual sponging prior to drying.

After the round of moulds has been cast for their specified time they are drained, dried for two hours (12.00pm - 2.00pm) and fettled (2.00pm - 3.30pm), after which they are placed on wooden stillages, where they are allowed to air-dry for three days. Fettling is carried out only with knives, rather than with properly designed spring steel tools and this could result in imperfections and poor quality products.

After drying the items are sponged and tested with paraffin to detect any cracks and the following day are sprayed with glaze. In cold weather however, glazing can only be carried out after two days. Air recirculation fans are only situated above the casting benches on Line 1 (1 fan only), Line 3 (6 fans) and Line 4 (6 fans), which means that the moulds do not dry properly and progressively become more saturated with water during the week. This also means that normally no casting can take place on the Friday of each week on at least 18-20 weeks of the year, that is: casting is only carried out four times per week, therefore with only 82 moulds in use, the maximum gross output is 328 pieces per week. If no casting is possible on a Friday, casting on the Saturday is currently never attempted.

The factory is equipped with two sanitaryware spray booths but only one is used, the second originally being for coloured glazed ware, which is not currently produced.

After glazing the ware is loaded on to one of the nine available kiln cars and fired in a Shelley gas-fired intermittent kiln with three kiln cars per load. A second identical kiln is not operational, as it has been cannibalised for spare parts for the other kiln. The loading capacity of the kiln for different products is:

Closets, small basin & large basin	131 pieces
Small basins only	174 pieces
Large basins only	114 pieces
Closets only	104 pieces

Firing is over a 27 hour cycle, 11 hours to the peak temperature of 1,200°C, 2 hours soaking and 14 hours cooling, after which the products are graded and despatched to the customer or sent to the finished goods store.

On this cycle the installed sanitaryware capacity of one kiln is:

6 firings/week x 131 pieces = 786 pieces/week

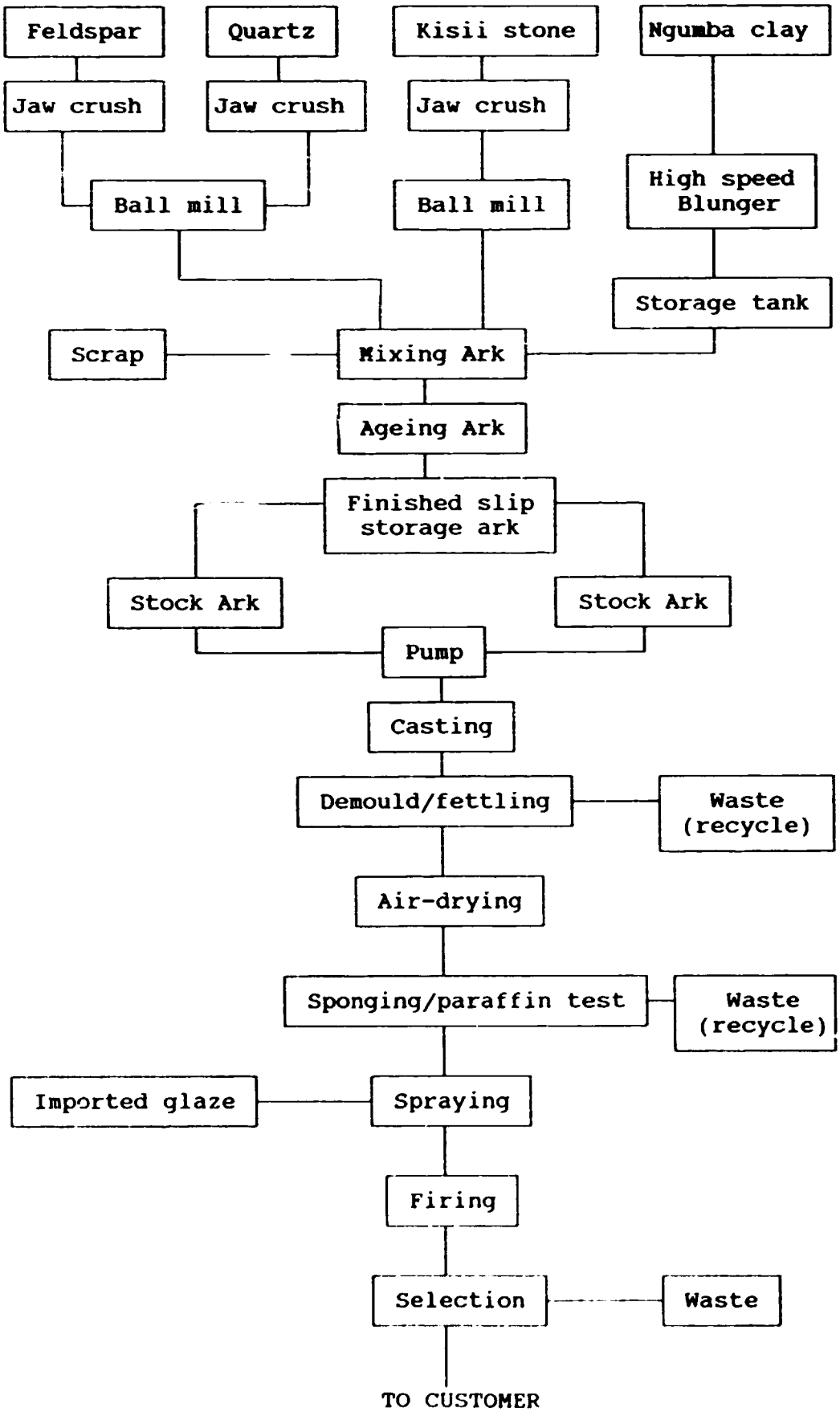
Allowing one day for kiln maintenance, the actual capacity is:

5.3 firings/week x 131 pieces = 694 pieces/week

Currently only two firings are carried out per week, a capacity utilization rate of 37 per cent of the single kiln or 18.5 per cent of the capacity of the two kilns.

With two operational kilns the potential firing capacity is 1,388 pieces/week, which is far in excess of the current casting capability. By moving the mouldmaking section to the ground floor, installing more casting benches, moulds and overhead fans to ensure that daily casting can be carried

Figure 8.2.4: Process flow - sanitaryware



out, a gross fired production of 1,388 pieces could be produced per week, giving a potential saleable output, after waste (10 per cent), of approximately 1,249 pieces per week. During cold weather some heat may have to be introduced into the casting hall by a direct firing dual-fuel gas/kerosene burner to ensure efficient drying takes place, so that daily casting of all moulds can occur.

4. Tile production

The present body formulation for tile production is:

Table 8.2.6: Tile production - body formulation

Material	Volume (kg/mix)	Per cent
Ngumba clay	3,000	60.00
Wollastonite	1,365	22.75
Quartz	1,080	18.00
Kisii soapstone	315	5.25
Grog	240	4.00
Total	5,000	100.00

Source: Ceramic Industries (EA) Ltd.

Wollastonite, Kisii soapstone and grog are weighed and ground together in one of the 7ft x 7ft diameter ball mills, the water being added by visual assessment, rather than being accurately metered. The milling cycle is 16 hours to achieve a particle size of 65-80 per cent less than 10 microns with a density of 1.45-1.55 g/cc. After checking these charactaristics the ground material is transferred to a storage ark. The quartz is ground separately in a 7ft x 7ft ball mill for a cycle time of 18 hours to the same particle size specification. The quartz is then transferred to the same ark holding the wollastonite, Kisii soapstone and grog mix.

None of the ball mills are fitted with revolution counters, which would enable an absolutely precise milling cycle to be established for a particular size range and loading of grinding balls.

The Ngumbe clay is blunged for 2 hours in a high-speed blunger, after which the sodium silicate/soda ash deflocculant mix is added to produce a density of 1.49 g/cc. After being checked the slip is transferred to the clay storage ark. The amount of clay slip required for the recipe, measured by means of a dip stick, is then pumped to the ark containing all of the milled materials and thoroughly mixed. The mixed material is pumped over a sifter unit fitted with 80's and 100's mesh screens to a storage ark.

Slip from the storage ark with a density of 1.6 g/cc, is pumped into the spray dryer unit, which produces 700 kg of clay dust per hour at a moisture content of 8-10 per cent. This is sufficient for the production of 2,600 150mm x 150mm x 6mm tiles per hour. The clay dust is conveyed to storage hoppers, from where it is discharged to the tile presses, as required.

The factory is equipped with two tile presses, a Sacmi four-tile unit, type PE220 and a two-tile unit, type TE 145, which is not operational due to lack of spare parts. The four-tile unit was apparently designed for 3,600 tiles per hour but has been downrated to a pressing cycle of 11 pressings x 4 tile per minute, giving a maximum production of 2,640 tiles per hour. This approximately equates to the hourly capacity of the spray dryer unit.

The maximum installed capacity for an 8-hour day is therefore 21,120 tiles or 105,600 tiles per 5-day week. Current output was stated to be approximately 40,000 per week giving an operating efficiency of 37 per cent.

The tile press has been subject to breakdowns due to the inability of local suppliers to provide die linings on time. Some of the linings provided have been delivered with the incorrect size, despite costing KSh 14,000 + VAT for a set of 14 linings and could therefore not be used. The entire production unit was then closed down. In such circumstances the import of essential spares becomes economical.

After pressing, the tile are stacked into bungs by hand, each bung containing approximately 32-34 tile. The bungs are set on to the kiln cars, which are then placed in one of the two dryers for a 24 hour drying cycle, each dryer containing 28,300 tile. The dryers are designed to dry tiles from an average moisture content of 9 per cent to 0.5 per cent at a temperature of 110°C.

The maximum installed drying capacity for <u>five-day</u> operation is therefore:

2 x 28,300 x 5 days = 283,000 tiles/week

These dryers could therefore easily cope with a two-shift press operation and could virtually cope with a 3-shift operation from the single press, provided the press could be operated at a normal 87.5 per cent efficiency, that is: 7 hours actual operational time in an 8-hour shift.

After drying the kiln cars are withdrawn from the dryer and transferred to the gas-fired Shelley intermittent biscuit kiln, which fires one dryer load of 28,300 tile per firing. A second identical Shelley kiln is installed on the factory but is not operational, as it has been cannibalised for spare parts for the other kilns.

The current kiln cycle time is 35.5 hours; 18 hours to the peak temperature of 1,160°C, 0.5 hour soak and 17 hours cooling. This kiln therefore has the capacity to fire a maximum 4.7 times per week giving a potential gross output of 133,010 tiles per week. However one day must be allowed for kiln maintenance, giving an actual possible gross output of:

4 firings/week x 28,300 tile/firing = 113,200 tiles/week

If the second kiln is repaired the total potential output is 226,400 tiles per week, which is still less than the installed dryer capacity.

Biscuit firing losses on the factory are approximately 2 per cent, which is normal for the industry. The number of biscuit tiles available for glazing would therefore be 221,800 tiles per week.

It should be noted that the manufacturer's designed firing cycle for these kilns is only 24 hours, therefore there is considerable scope for reducing the present firing cycle of 35.5 hours, thereby increasing biscuit output.

After the biscuit firing the tile are passed down the glazing line, which is equipped with a stacker unit, breaking bar to eliminate defective tile, brushing station, waterfall, glazefall, 90° turning unit and a second glazefall. Tile are then hand loaded into cassettes (13 or 14 tile/cassette), which are then stacked on to kiln cars.

The glazing line has a handling capacity of 4,500 tiles per hour, that is: a maximum potential installed capacity of 36,000 tile per day or 180,000 tile per week. Two extra shifts would therefore be required, if the glaze line worked at an average 87.5 per cent efficiency, to handle the potential net maximum output of the two biscuit kilns (221,800 tiles per week).

The glaze applied is all imported and is used at a density of 1.6 g/cc giving a tile coverage of 16g of glaze per tile. At a tile weight of 225g this equates to 7.1 per cent by weight, which is normal for the industry, 7 per cent being standard. A slight saving of 0.25g/tile could however still be made without affecting quality. At a net maximum biscuit output of 221,800 tiles per week, this would save 55kg of imported glaze per week.

Following glazing the tile are glost-fired in two Shelley electric intermittent kilns, each with a capacity of 7,000 tiles. The tile are fired to 1,060°C over an 11.5 hour cycle; 6 hours to the peak temperature with 0.5 hour soak and 5 hours cooling. The maximum potential installed glost firing capacity on this cycle is therefore:

2 x 14.6 firings/week x 7,000 tiles = 204,400 tiles/week

The installed glost firing capacity is therefore insufficient to fire the total potential output from the rest of the tile production line. As one day must also be allowed for kiln maintenance glost output is expected to be:

2 x 12.5 firings/week x 7,000 tiles = 175,000 tiles/week

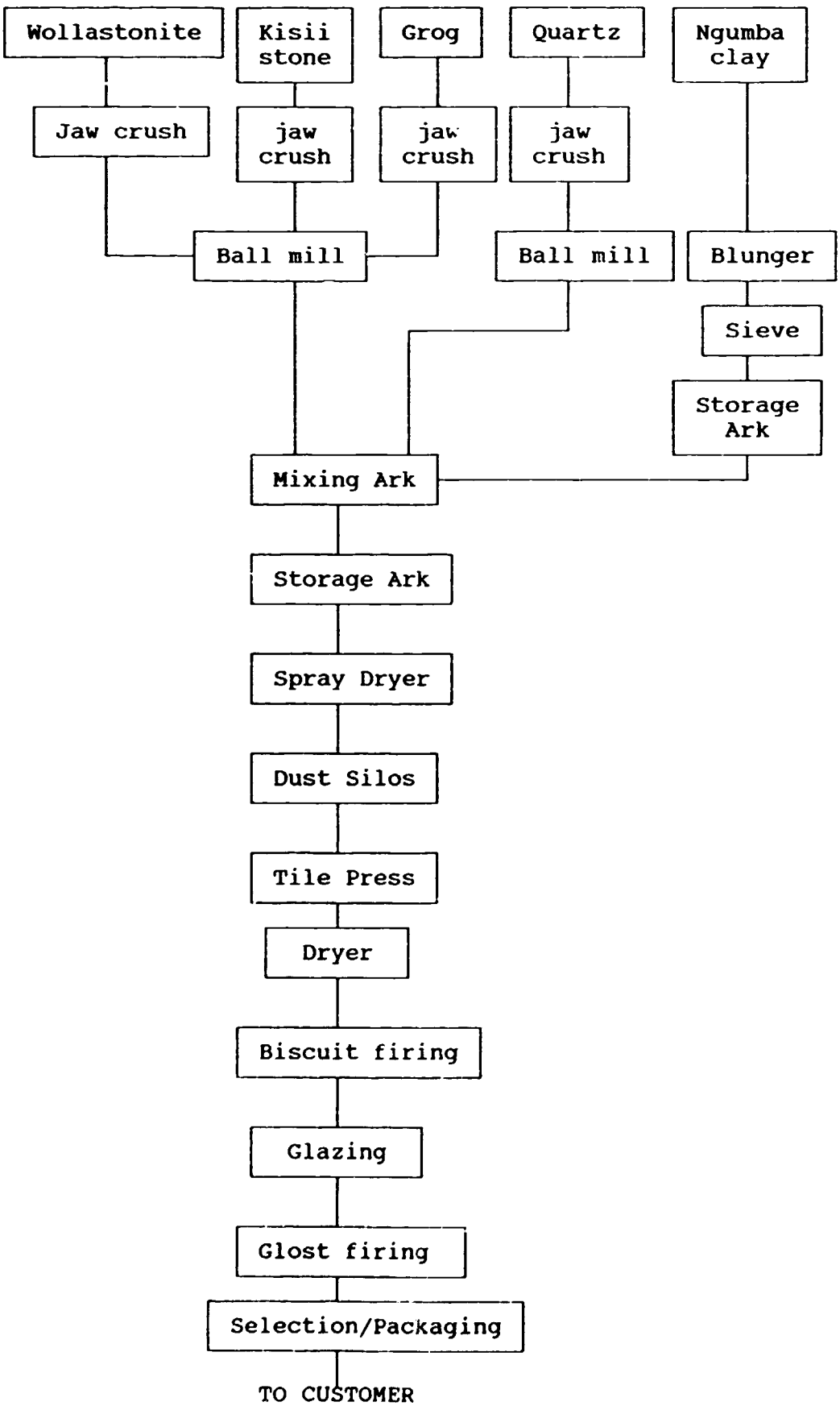
The net saleable tile, after waste, would therefore be approximately 174,000 tiles/week.

After firing the tile are inspected, graded and packaged in cartons, each holding 88 tile. These are then despatched to the customer or sent to the finished stock warehouse.

5. Laboratory

The factory is equipped with a small laboratory for some simple routine testing of the production process, the tests being mainly limited to particle size analysis, pint weight, fluidity and thixotropy of the clay slip. Moisture contents of the spray dried dust and of the dried products are occasionally carried out, water absorption values of the biscuitware are checked and crazing tests are carried out on the glazed ware. The testing equipment installed on the factory includes:

Figure 8.2.5: Process flow - tile production



Kilns and Furnaces test kiln
Impact tester
Torsion viscometer
Stop clock
Speedy moisture tester, type Ashworth
Stirrer
Grinding machine
Autoclave

The factory does not possess other basic laboratory equipment such as a thermal expansion machine, laboratory balance, modulus of rupture machine, penetrometer and a kiln to fire to 1,300°C. A second viscometer would also be advisable, as these measurements are crucial to obtaining consistent slip for the factory.

One serious deficiency in the role of the laboratory is that it has no capability to evaluate or test the raw material deposits on a continuous basis and to advise on changes to the body compositions or glaze compositions on the basis of such tests. Further training of the laboratory staff and the purchase of additional basic laboratory equipment would be a worthwhile investment for the company.

6. Mould-making and design facilities

The factory is not equipped with a plaster blending machine and mixing therefore is carried out with a standard mixer in a small container. At the time of the mission's visit no moulds were being made but it appears that some of the sanitaryware moulds are made with two batches of plaster, rather than a single homogenous mix. This practice will produce moulds of poor quality. Accurate measurement of the water and plaster for the 100:80 plaster-water ratio is essential to achieve moulds of consistent quality.

The mouldmaking section is not equipped with a mould dryer, therefore moulds have to be air dried. A dryer would be advantageous in that moulds would be properly dried before putting them into service. The life of the moulds also tends to be improved.

The factory has no design or model-making facilities and is still using the product designs chosen, when the production facilities were first established. For the Kenyan market the existing basic sanitaryware design is still acceptable, provided the quality of the product is improved. The very high cost of producing a new range of sanitaryware models, block moulds and case moulds would not make this an economic option on this small-scale operation.

The crockery range, however, could be improved by the introduction of a more modern design. This would require either contracting the work to a specialist company, or the direct employment of a designer/modeller by the company together with the purchase of the necessary designing and modelling equipment. Introduction of a new design of crockery would be economic only after the immediate problems with the raw materials, machinery and kilns have been solved and the factory is capable of producing closer to its installed capacity.

(f) Inputs

1. Body constituents

When the factory was first established, it used a mix of local and imported materials for the body compositions for the crockery and sanitaryware products of the factory. The local constituents were quartz, feldspar and wollastonite and the imported constituents were high quality kaolin and ball clays from the UK.

For sanitaryware production especially, where the items are heavy and of complex shape, this is quite normal in many countries, even where they have their own supplies of kaolin and ball clays because sanitaryware production demands that quality clays of known and consistent casting characteristics are used, so that wastage is kept within acceptable limits. Small changes in casting characteristics can lead to massive increases in wastage.

But in recent years, due to the financial pressures under which the company is operating, substitution of all imported clays has now been effected and although initial problems with crazing of the glaze on crockery items appears to have been resolved for the moment by mixing transparent and opaque glazes and adding a stain, the losses on sanitaryware production have increased. Large basins, in particular, have suffered 100 per cent losses and the body composition and casting charactaristics are almost certain to be the main cause of this problem. To make sanitaryware of a reasonable quality with low losses it would be advisable to add some proportion of imported kaolin and ball clay to the body recipe.

Imported kaolin has been substituted by a soapstone from Kisii and imported ball clays have been substituted by Ngumba clay, a local ball clay from the Nyere area, approximately 60km from the factory. While it is obviously extremely important to minimise the raw material input costs, this should not be done to the extent that quality suffers so much that increased wastage eliminates any savings made. This appears to be the case with the production of sanitaryware and if certain articles cannot be produced, such as large basins, orders for matching items will probably be lost also.

Feldspar is obtained from an area close to the Kitoi Garissa road, approximately 250km from the factory and quartz is obtained from surface deposits at Sultan Hamud on the Mombasa road, approximately 75km away. Wollastonite for the tile body is obtained from Kajiado approximately 75km from Nairobi. Feldspar is obtained free of charge except for the transportation cost, while the cost of the other minerals has to be negotiated with the local landowners.

Only small quantities of the various local raw materials are kept on stock at the factory and no stockpiles are maintained at the quarry sites, therefore there is no way of minimising any natural variation in the quality and properties of the materials. This is compounded by the lack of detailed knowledge of the mineral sites, especially about the exact quantities available, the chemical composition and physical properties of the materials and the amount of variation within the deposits. The laboratory facilities of the factory are poorly equipped to carry out detailed raw material investigations and the laboratory staff are lacking the necessary technical expertise to develop new body recipes efficiently. If the necessary raw material samples were taken from the various deposits in a way to give truely

representative samples, much of the analysis and development work could be carried out by an independent laboratory, until such time that the laboratory staff have been trained or strengthened by the employment of a person experienced in ceramic technology.

The Geological Survey Department of the Ministry of Environment and Mines has some detailed information on kaolin and other ceramic minerals but this is only sold to interested parties on a commercial basis and therefore the information was not available to the mission for evaluation in respect to Ceramic Industries (EA) Ltd.

2. Glaze inputs

All glazes are currently imported from the UK (Esmalglass) and are consistent. For a given body formulation, to which the glaze was matched, over a given temperature range no problems should occur provided the glaze is mixed and applied properly. However, serious glaze problems have still occurred at the factory, such as crazing, crawling and pin-holing. Crazing is due to a mismatch of the body and glaze firing contractions, therefore a glaze, which is initially a perfect fit with one body recipe could begin to craze if one or more body constituents varied. Variations in firing due to poor kiln control or leakages from the kiln can also affect the glaze-body fit. In respect to the glazing of biscuit tile and biscuit crockery there will be variable glaze pick-up due to variable water absorption values of the biscuit ware leading to possible crawling problems and colour variations. Crawling also occurs when glaze is applied to dirty ware. Pin-holing can occur due to an incorrect glaze firing temperature.

Glaze prepared for dipping is placed in a static tank at the dipping station, therefore if the operator does not stir the glaze at regular intervals some settling will occur giving a variable glaze throughout the day. This problem can easily be corrected by installing a recirculation pump at the dipping station. The other glaze related problems caused by body and firing variations can be corrected by better technical control.

As all glaze inputs are imported, it is important to programme orders and deliveries properly. Occasions have occurred, when delays in importing the glazes have neccessitated airfreighting consignments at increased cost, to avoid halting production of glazed ware.

The tile production line uses a large proportion of the imported glaze and by standardising the amount used to exactly 7 per cent by weight, rather than 7.1 per cent, a small but significant saving on this input can be achieved in the course of a year.

3. Decal inputs

The majority of decals used are now made locally, except for a few of the more complicated designs, which are still imported from the UK (Mathey) and Italy. For hotel logos, the factory expects the hotel to provide the necessary decals but delays in supplying the decals to the factory have led to a situation, where hotels are taking undecorated products for their replacement requirements instead of decorated ware. Potential profit for the factory is therefore being lost.

4. Plaster-of-Paris inputs

All plaster-of-Paris, which is used for the manufacture of the sanitaryware and crockery case moulds, working moulds for castware items and working moulds for machine-made items is imported. The factory only imports one grade of plaster for all types of mould, whereas different grades have been developed by the major plaster-of-Paris manufacturers, such as British Gypsum. For instance, for case moulds and machine working moulds, where a hard setting dense plaster is required one grade could be purchased and for castware working moulds, where a more open texture is required a different grade could be purchased. The difference in price is minimal but the life of the different types of mould would then be maximised and unit costs reduced.

Replacement of moulds is determined by the supply of plaster-of-Paris, rather than being dictated by a normal standard replacement cycle to maintain the quality standard of the products produced from the moulds. As a result, sanitaryware working moulds, which should normally be replaced after 80 cycles are being used for periods of six months or one year, that is: up to approximately 250 cycles. As no record is kept on the life cycle of each mould, there is no knowledge on exactly when the moulds start to deteriorate. This knowledge is important in determining, whether the mixing procedure and the water/plaster ratio is being adhered to by the mouldmakers. If the correct procedure is not adhered to, even moulds made with good plaster can start to deteriorate well before their expected life-span is reached. Once a mould has reached its normal life-span, the quality of the product from that mould would progressively deteriorate, should it continue to be used for production. Physical damage to the mould surface caused by poor handling can also cause a mould to be rejected before the normal life-span ends, thereby increasing input costs. Record keeping of mould life is therefore very important in respect to both quality control and costing purposes.

The majority of the moulds in use on the factory are in poor condition and hence the quality of the products is compromised.

Supplies of plaster-of-Paris are apparently available in Kenya and although they are not of the precise grade required, there is a possibility that such material may be useful for some of the moulds for castware crockery items. Even if the life of the mould is reduced, it could still prove to be economic. This is another area, where experiments by the laboratory personnel could prove beneficial to the company.

5. Fuel inputs

One of the major causes of concern to the factory is the constant shortage of LPG from the refinery at Mombasa, which immediately affects the production of biscuit ware. Less than 50 per cent of requirements is supplied, therefore it is impossible for the factory to reach its capacity, if this continuing problem is not solved. As it seems likely that the problems at the refinery will not be solved in the near future, it would seem advantageous for the factory to have an alternative form of fuel, so that in times of a shortage of LPG, the production of the factory is not disrupted.

It should be stressed that, at the time of the mission's visit, the company was advised by the supplier (Caltex), that due to problems at the refinery, the company would probably not receive any LPG during February 1990. The company could therefore be forced to stop production.

A suitable alternative fuel to LPG would be kerosene, which has a low sulphur content. The mission made initial enquiries with the technical department of Caltex to obtain the technical specification of the kerosene, which they have available. The kerosene is dual-purpose, with a specified maximum of 0.3 per cent sulphur and an actual normal value of only 0.1 per cent. It has a specific energy of 42.8 Joules/kg (18,400 Btu/lb) and the current wholesale price is KSh 4,273/1000 litres. With a specific gravity of 0.820 this equates to a price of KSh 5,211/tonne.

According to Caltex, the supply situation of kerosene is quite good and although there are periods of shortage these are relatively short and do not normally coincide with the periods of LPG shortages. If this is the case, it makes economic sense for the factory to use this fuel as an alternative to LPG to ensure the factory can work without disruptions.

To utilise this fuel the factory would have to invest in a storage tank with twin pumps and dual-fuel burners for the biscuit kilns. As one of the crockery biscuit kilns should be replaced anyway, this could be fitted with the necessary dual-fuel systems. In the meantime the other kilns could be converted, as they are renovated.

6. Spare parts inputs

The company relies on imported spare parts for the production machinery, dryers and kilns but because of financial constraints has not been able to purchase its normal requirements for many years. The condition of all of the equipment has therefore steadily deteriorated. In the case of the biscuit kilns, each department has cannibalised one kiln of parts, in order to keep the second kiln operational. The factory is therefore limited to a maximum of 50 per cent of its total potential capacity until these kilns are repaired.

Attempts have been made to obtain spare die liners from local engineering companies, instead of importing them. However this has proved unsuccessful, as suppliers could not deliver on time and produced substandard items. This has resulted in excessive downtime in the tile department.

(g) Product range

Ceramic Industries (EA) Ltd. produces three products: ceramic wall tiles, crockery and sanitaryware. There are no immediate plans to expand the product range. On the contrary, with the present very low quality of raw materials it might prove advisable to stop temporarily the production of sanitaryware. At present, sanitaryware is not a very profitable product line. The quality of sanitaryware. There is a need to introduce a quite extensive quality control system to be able to produce a product which would sell good both on national and international markets. Should the poor raw material situation change, and raw material of good standard become available, this line could prove to be very profitable.

Table 8.2.7 shows the production and sales of the three products in 1989:

Table 8.2.7: Ceramic Industries (EA) Ltd. - Production and sales in 1989

Product	Volume (units)	Sales value (KSh)
Ceramic Wall Tiles	2,648,386	14,500,000
Crockery	380,705	6,850,000
Sanitary Ware	7,859	4,300,000
Total	3,036,950	25,600,000

Source: Sales department at Ceramics Industries (EA) Ltd.

Note: The figures for value are rough estimates since exact figures were not available at the visit of the mission.

(h) Plant performance and economic performance

Plant performance

In all three production sections the capacity utilisation of all equipment is very low, which consequently increases unit costs. The potential maximum capabilities of each part of the factory has been outlined in detail in section 8.2 (e) and a comparison with actual current performance is as follows:

Crockery production

January-February 1989 average	50,984 pieces/month
July-December 1989 average	40,600 pieces/month
Installed potential capacity (biscuit)	136,800 pieces/month

Crockery production therefore has fallen from approximately 37 per cent of capacity in early 1989 to approximately 29 per cent during the last six months of the year. The main bottleneck to increasing capacity quickly is in the biscuit firing section, therefore it is essential to repair the second biscuit kiln as a matter of priority, so that two kilns are available for firing biscuit ware. In addition, as permanent shortages of LPG are expected to continue indefinitely, it would be sensible to convert the newer kiln to dual-fuel firing, so that the kiln can be fired with either LPG or kerosene. A kerosene storage tank, twin pumps and necessary pipework would have to be installed on the factory.

Sanitaryware production

January-February 1989 average (cast)	1,574 pieces/month
July-December 1989 average (cast)	505 pieces/month
1989 average	654 pieces/month
Potential cast capacity (to match installed kiln capacity, allowing 10 per cent cast-spray waste)	6,168 pieces/month

Sanitaryware production therefore has fallen from approximately 25 per cent of potential capacity to 8 per cent during the last six months of the year. The average capacity for 1989 was 10.6 per cent. It should be noted that to reach this potential, the mouldmaking facilities must be moved to the ground floor of the building, so that the space can be utilised for additional casting benches.

Casting of sanitaryware continues to suffer from serious problems, which are almost certainly caused by the raw materials used and body recipe formulated for these raw materials. Wastage at this point of the production process is tending to increase and in the case of large basins, every single piece made recently has cracked before reaching the kiln. Typical wastage at the casting stage for other items have been:

Period 1-13th December 1989

	Number cast	Waste	Per cent
WC - S-trap	199	35	17.5
WC - P-trap	232	12	5.2
Small basin	126	11	8.7
Asian pan	48	4	8.3

Period 8-11th January 1990

WC - S-trap	95	24	25.3
WC - P-trap	94	14	14.9
Small basin	56	4	7.1

Sanitaryware articles are larger and far more complex than crockery items and they consequently require extremely good technical knowledge of all the raw material constituents and good quality control procedures at every stage of production. The factory currently does not possess the technical capability to manufacture sanitaryware long-term on a profitable basis.

Shortage of LPG results in lost production and low capacity utilisation. The installation of dual-fuel burners on both kilns would give flexibility by allowing the kilns to be fired with either LPG or kerosene, dependent on the supply situation for both fuels.

Tile production

January-February 1989 average	204,190 pieces/month
July-December 1989 average	160,000 pieces/month
Average 1989	195,698 pieces/month
Potential capacity (limited by glost firing installed capacity)	700,000 pieces/month

Tile production has therefore decreased from approximately 29 per cent of potential capacity in early 1989 to 23 per cent of potential capacity in the last six months of the year. The average capacity utilization rate for 1989 was 28 per cent. In order to improve capacity utilisation quickly, the Sacmi 4-tile press requires to be thoroughly overhauled and a reliable supply of good quality die plates found. These may have to be imported. In addition, the second biscuit kiln must be repaired and the installation of dual-fuel burners is recommended.

During the period of the mission's visit two complete kiln loads of tile (56,600 pieces) were rejected as waste, one load due to changes in body composition and the other due to a power cut. Tile production will therefore probably be even lower during the current month.

Production costs

Profitability in current operations and long-term viability of the company are dependent upon overcoming two severe financial constraints - insufficient working capital and an overwhelming debt.

The principal direction for a solution to the problem of working capital requires increased utilization of plant capacity, product improvement, and marketing actions that would be required as a consequence of the production and product improvements.

The debt problem is a vastly greater threat to the company's viability. Its solution will require a more radical approach that will result in a significant financial restructuring of the company.

Financial viability

At present, the company is in a precarious financial position due to heavy indebtedness to long-term lenders and to trade creditors. When the receiver took over the running of the company on the first of August 1988, it was indebted by KSh 40.8 in secured loans from banks, and owed these banks nearly KSh 15.3 million on accrued loan interest and penalties. Additionally, unsecured sundry creditors were owed nearly KSh 20.7 million. There was also an outstanding bank overdraft of nearly KSh 4.6 million. The company's total debt and current liabilities amounted to KSh 81.3 million.

The company's accounts for 1983 showed a loss of KSh 0.2 million. Although income was again positive in 1984 by KSh 1.8 million, the company reported increasing losses from 1985 up to the end of July 1988. These circumstances led the company to be placed in receivership by KNCC at the end of July 1988.

Performance indicators

The company's history of heavy indebtedness shows that it has performed poorly in the past. Although details are not available, concerning the dates, terms and conditions of the loans, as well as the circumstances of the company when the loans were provided, the amount of indebtedness may indicate a degree of financial imprudence. Indebtedness of these dimensions is not sustainable by the company.

Total financial liability in bank loans, overdrafts, accrued interest and penalties, and sundry credits was over 18 times the company's gross profit (before depreciation, administrative costs, and interest) in the financial year ending 31 July 1989. By themselves, secured and preferential liabilities were nearly 14 times larger than gross profits. Indeed, the company's secured and preferential liabilities are nearly three times the book value of fixed assets.

Gross profits were insufficient to cover the costs of administration in 1987 and 1988. The situation has improved under the receivership. Nevertheless, the company's income is inadequate to cover the depreciation on property, plant, and equipment, or, to make loan repayments. Consequently, the company is both running down its capital base and failing on its debt obligations.

Table 8.2.8 shows the significant financial accounts for the past 3 financial years and the first 4 months of the current year.

Table 8.2.8: Financial data from the accounts of Ceramic Industries (EA) Ltd., 1987-1989

	Financial year ending 31 July			4 months to
	1987	1988	1989	30 November 1989
Turnover (sales)	19,672	19,108	18,244	8,110
Direct materials	4,541	2,830	4,014	2,192
Direct labour	4,525	5,465	4,032	1,530
Factory overhead	8,000	6,763	5,624	2,151
Fuel, water	4,445	4,170	3,870	1,401
Materials	3,277	2,142	980	552
Other	278	452	774	199
Gross profit	2,606	4,050	4,575	2,236
Depreciation	4,413	4,765	4,722	1,574
Administration overhead	6,053	6,644	2,521	1,044
Employees	2,069	2,381	1,677	796
Other	3,984	4,263	844	248
Operating profit	(7,861)	(7,358)	(2,668)	(382)
Working capital	9,824	6,362	5,511	5,746
Stocks	5,645	4,529	4,797	5,073
Receivership, cash	4,179	1,833	2,049	2,095
Payables[a/]			1,335	1,422
Fixed assets	38,607	33,578	33,598	33,598
Machinery, tools				
Buildings, land				
Total liabilities	62,323,853	81,332,831	84,618	84,005
Secured, pref	54,547,654	60,649,968	63,912	63,303
Other	7,776,199	20,682,863	20,706	20,702
Employees (count)	na	na	125	125

Source: Financial statements of Ceramics Industries (EA) Ltd., various years.
Note: a/ Excluding bank credits and pre-receivership trader credits.
na = not available.

The company's financial performance is now improving. Gross profit as a ratio of turnover has increased by 30 per cent since July 1988. As a ratio of administrative overhead, it has increased from a fractional part (only 60 per cent) to being more than twice as large (214 per cent). Nevertheless, without rescheduling, the debt will always be an unsustainable burden.

Working capital has been a problem. Although operations are still constrained by the need for funds, the situation has greatly improved in the past year. The working capital requirement has declined from 50 per cent of turnover in 1987 to less than 25 per cent by the end of November 1989. This is shown in Table 8.2.9.

The return on sales (ROS) and the return on net assets (RONA), both measured in terms of the operating profit (sales less cost of sales and overhead), are improving.

Both ROS and RONA are negative. Fixed assets are undoubtedly over valued on the books. Hence the amount of depreciation is likely overstated and, thus, operating profit is reduced to a negative figure. An improvement is, therefore, a change from a negative value to a value that is less negative, as shown in Table 8.2.9.

Insufficient working capital is a constraint on production, as it curtails capacity utilization due to insufficient raw materials and replacement parts. Therefore, attention must be focused on reducing the size of working capital tied up in stocks and goods in progress. The value of stocks is presently about a quarter of the value of turnover.

Table 8.2.9: Summary of financial indicators, 1987-1988
(percentage of turnover)

	Financial year ending 31 July			4 months to
	1987	1988	1989	30 November 1989[b/]
Costs				
Material	23.1	14.8	22.0	27.0
Labour	23.0	28.6	22.1	18.9
Factory overhead	40.7	35.3	30.8	26.5
Depreciation	22.4	24.9	25.9	19.4
Administration overhead	30.8	34.8	13.8	12.9
Profit				
Gross profit	13.2	21.2	25.1	27.6
Operating profit	-40.0	-38.5	-14.6	-4.7
Assets				
Working capital[a/]	49.9	33.3	30.2	23.6
Property, plant, equipment[c/]	204.2	179.8	188.5	141.3
Total assets	254.1	213.1	218.7	164.9
Other indicators[c/]				
Output/employee			146	195
Gross VA/employee			62	84
Assets/employee			319	321
Return on net assets[d/]	-16.2	-18.4	-6.8	-2.9

Source: Financial statements by Ceramic Industries (EA) Ltd.
Notes: a/ Trade credit from pre-receivership period.
b/ Adjusted to yearly rate.
c/ Thousand KSh.
d/ Percentage.

The working capital tied up is stocks requires detail study. On the one hand sufficient raw materials are required for increasing output. On the other hand, capital must be sufficient for the purchase of replacement parts and equipment to maintain a sufficient degree of available capacity for output.

Efficiency, marginal cost, and prices

The company is not growing. The value of total factory output has remained nearly constant over the past three years, showing, in actuality, a slight downward trend (Table 8.2.8). Nevertheless, the accounts show that the factory is producing at increasing economic efficiency. The rate of return on investment, as shown by the RONA ratio, and the share of operating profit in turnover have risen significantly since the company was placed under receivership (Table 8.2.9).

Efficiency improvements are also shown by increased output per employee. Moreover, a few calculations, using the data in Table 8.2.4, show some favourable trends. Production costs as a proportion of turnover have been lowered, from 87 per cent to 72 per cent. Administrative overheads have dropped sharply under the receivership, between August 1988 and the end of November 1989, from 31 to 13 per cent of turnover. Before receivership, administrative overheads were about twice the amount of gross profits. Now they are half that figure.

As demonstrated in the technical description of production processes, the factory is producing well below potential capacity. If working capital could be increased with expenditures on materials increased correspondingly, the level of output could be expanded significantly. The ratios, already mentioned, for example, output per employee and cost of production as a ratio of turnover, would accordingly improve greatly.

Calculations, using the detail cost accounts of the company and rough estimations of changes in cost with increased output, indicate considerable reductions in the average cost of output. The estimated marginal costs of production are well below the present average costs. The marginal cost of production in comparison to average cost are estimated to be about 55, 48 and 45 per cent for tableware (crockery), files, and sanitaryware, respectively. These ratios imply a reduction of about 25 per cent in average unit cost of production. This demonstrates that rehabilitation is necessary, and would be profitable.

Using different cost data that were based largely on material costs by weight, the marginal costs are 72, 75 and 72 per cent for table ware (crockery), tiles, and sanitaryware, respectively, using the same assumptions. Although the marginal costs are higher, by applying these alternative data, they show that the unit cost is reduced by as much as 12 to 15 per cent with increased output.

The conclusion must be drawn from these estimates that plant capacity is underutilized. Expanded production, based on increased labour and material inputs, only, would lower the average cost of production. That is, the unit cost would be reduced, raising the margin on each manufactured piece, as well as raising gross profits.

Import dependence

All the clay and other mineral materials used in the production of the body compositions (except one ball clay for sanitaryware) are produced in Kenya. A small amount of clay has been imported in the past. By weight or volume, most of the inputs are derived from local resources. By value, however, the material inputs have a high import content. The imported material inputs are glazes from the manufactured products and plaster-of-Paris for the production of moulds.

Clay and other materials, which make up the body of the ceramic products are generally low-cost materials. Consequently, the imported glazes represent a rather high proportion of the costs of material inputs. The proportion of duty-paid, factory-gate costs to total costs of materials are 93.8, 90.9 and 89.3 per cent for tableware (crockery), tiles, and sanitaryware, respectively. Taking the direct expenditure of foreign exchange, only, on glazes, these proportions are reduced to 62, 60, and 59 per cent, respectively.

Because the production process is labour-intensive, the ratio of the expenditure in foreign exchange for material imports to total production costs are considerably lower. Those ratios are 28, 22, and 12 per cent for tableware, tiles, and sanitaryware respectively.

(i) Markets and competitors

Ceramic Industries (EA) Ltd., is at present the only producer of wall tiles, crockery and sanitaryware in Kenya. In the beginning only crockery was produced and this went on until 1980 when ICDC took over the company and an expansion of the product range was decided. The production programme was expanded to include wall tiles and sanitaryware. This move was not a very successful one since the market at the time was flooded with similar products from Asia and sales dropped dramatically.

The local market for the company's products are good for all three lines and it is estimated that even if the production was up to near optimum capacity, there would be no major problem in marketing it. As a matter of fact the company has at the moment a backlog of undelivered orders, valued at KSh 565,000.

At present, the tiles and crockery lines are the most profitable. The sanitaryware line suffers from certain difficulties in the production process. The problem emanates mainly from raw material not being of the right composition as well as problems related to quality control. Certain products in the sanitary line such as big basins and Asian pans should be dropped as the market is shrinking and profitability is low. The company should then concentrate on the production of small basins and the normal toilets which are the sanitaryware products with the best profit potential.

The share of the company in the local market for ceramic wall tiles is estimated to be approximately 15 per cent; for crockery, the market share is estimated to be about 40 per cent; and for sanitaryware, 5 per cent of the total market. It has not been possible for the mission to obtain actual and reliable statistics for the domestic market for these products.

A rough estimate of the size of the domestic market for wall tiles would be approximately KSh 110 million, for crockery approximately, 90 million, and for saniteryware, KSh 22 million. These figures are very approximate since the available statistics are several years old and unreliable.

There is also a portion of illegal import of these goods which adds to the difficulty of making reasonable estimates.

The company has exported small amounts of wall tiles and crockery to the PTA area. The value of these exports was 1 million and 372,743 respectively in 1989. The export potential of the PTA market is considered quite good but the transport problem is a serious constraint. With the current local market situation the company should concentrate on the Kenyan market rather then an uncertain foreign market. There may be future opportunities for exports to the PTA when the quality and efficiency of the company's products and production process are improved significantly.

At present, the most serious bottleneck at present for successful marketing of Ceramic Industries products are the production constraints, especially with respect to raw materials, equipment needs and quality control.

Most of the deliveries are performed at the factory gate. Except for a small van, for minor deliveries within the Nairobi area, the company has no system of transport and distribution. For deliveries to Mombasa and other areas within Kenya, the products are delivered by hired truck.

For the PTA area, deliveries are made by TRANSAMI for sea transports and TRUCK-AFRICA for road transports.

Ceramic Industries has no sales representatives in Kenya or on any export market. A network of retailers and distributors in the main population areas would be urgently needed once the problems with production are solved.

The sales department in Ceramics Industries consists, at preset, of one Sales Manager, Mrs Hellen N'deti and two Sales Clerks, Mr Mutisya and Mr Mwangi. This is with the present constraints on the production side sufficient but with increased production it will be necessary to reinforce the sales staff.

(j) Policies

The policy of the Geological Survey Department, outlined in 8.2 (k) in charging substantial amounts for the information on ceramic materials discourages small companies and individuals from investigating the possibilities of entering this sub-sector.

(k) Constraints

Management

- The company is currently managed by the receivers, who have a limited time horizon of three months. The General Manager, Production Manager, Marketing Manager and Accountant have all been appointed by the receiver and can be made redundant at any time. As this is a crisis situation, no long-term planning is carried out and the management's sole concern is to try to achieve a positive cashflow on normal operations. Under

receivership, they are protected from the creditors and therefore any operating surpluses are used by the management to repair some of the machinery, in the hope of generating greater operating surpluses. The General Manager and Production Manager do not think that their assignments will be long-term and therefore all their decisions are based on short-term measures to improve the company.

- None of the management has any technical knowledge of ceramics and therefore cannot solve the many raw material based problems, which are a major cause of losses and poor quality production on the factory.

Human resource

- All departments suffer from a lack of trained personnel and only the tile department supervisor has received a short period of formal training in ceramics.

- None of the quality control staff are qualified in the testing of ceramic materials and cannot advise production operators on the correct methods of mixing and controlling the different slips.

- The production manager appears quite capable, in respect to managing his supervisors but his lack of training in ceramic technology is a distinct disadvantage. Any problem of a technical nature is therefore extremely difficult to solve.

- Under the receivership situation the General Manager is of the opinion that no resources should be spent on training, as the company would probably not gain any benefit from this training, if the receivership were lifted.

Financial

- The receiver, under instructions from KENYAC and DFCK, has to operate the company solely from operating surpluses. The management team brought in by the receivers are paid directly by them but this cost is then included in the receiver's fee.

- The debenture holders, who called in the receiver or subsequently supported the action, have refused the receiver's request for additional working capital to solve some of the more long-term problems. The limited surpluses are therefore being used to repair some of the non- operational machines, to gradually increase the operating surplus.

- The debenture holders are still discussing a restructuring of the loans, which could include a conversion of some or all of these loans into equity. However, even if an agreement is made between the debenture holders, the situation is still unclear. The unsecured creditors, the Training Levy Fund, the National Social Security Fund (NSSF), PAYE tax and the sales tax authorities would still be waiting for the receivership to be lifted, so that they could make their claims on the company assets.

- Trading under receivership status makes it extremely difficult to obtain trade credit. The suppliers of LPG, for instance, requires the company to maintain a substantial deposit with the suppliers and also insist on immediate payment upon delivery. Cashflow is therefore weakened considerably. In respect to imported glazes only one supplier is prepared to trade with the company.

- It appears probable that unless the company's assets are sold to another company, thereby leaving the unsecured creditors behind, the company is likely to remain under the management of the receiver for a considerable period. Unfortunately the company's assets are seriously overvalued in relation to their current book value. This will make it difficult to attract a suitable private company to purchase these assets unless a realistic value can be agreed.

Technical

i) Raw material inputs

- The raw material inputs of the factory are not tested, either prior to mining or on arrival at the factory. In addition, the volumes of the materials at each of the quarry locations are not known and the quality variations within these deposits are also unknown. No stockpiling of raw materials is carried out, either at the quarry site or the factory to minimise the natural variations. The factory laboratory is not sufficiently equipped, either in terms of equipment, or in terms of qualified personnel to carry out the necessary work on a continuous basis. The factory is therefore using raw materials of unknown and varying properties from sites, which may or may not have assured long-term supplies. As successful manufacturing of ceramic products requires a high degree of technical knowledge about the properties of each individual item on a continuous basis, to ensure that body formulations and glaze-body fit are correct and that drying and firing schedules are correct, the factory is expected to continue to suffer from high losses and poor quality until these raw material restraints are corrected.

ii) Body preparation

- In the body preparation department the defective ball mill will limit the amount of slip, which can be prepared for the sanitaryware section. This must be repaired, when additional sanitaryware moulds are provided. No water meters or revolution counters are fitted to any of the ball mills and this can lead to imprecise milling conditions and times. Installation of these items is advised to improve the consistency of the milled materials.

- Prepared slip, ideally, should be passed over sifters and magnets at every transfer point to ensure that all contaminants are removed prior to the filterpressing operation. At some of the intermediate points the factory is not equipped with sifters and magnets. Installation would improve the quality of the final slip.

- The main filter press is inoperative due to lack of spare parts and as many of the filter plates have been broken over the years and not replaced, it cannot work at its rated capacity, even when the spare parts are delivered. Additional plates should be purchased for the machine, to enable sufficient filterpressed material to be produced for the crockery section. The small pilot-scale filter press, now in use on an emergency basis, is already being used on a two-shift operation and is too small to provide the necessary material to allow the crockery section to operate closer to its capacity.

- The single de-airing pugmill is a potential constraint. Although it is in good condition, should it breakdown, the entire machine-made section of the crockery department would be closed down. To maintain production at the level required for the two biscuit kilns a second de-airing pugmill of the same type should be installed. It would be uneconomic to repair the very old pugmill, which is totally dismantled.

- The "ageing" room facility is not operated correctly to provide consistent material for the flatware machine, bowl machines and cup machine. Installation of humidity control and temperature control would assist in providing a constant environment for the pugged clay.

- The small blunger used to prepare slip for the castware crockery items is also used as a storage tank. A storage tank should be provided for the finished slip, so that increased production of castware can be achieved.

iii) Crockery section

- The lack of spare parts for the flatware machine, the bowl machines and the cup machine causes frequent breakdowns, resulting in low utilisation of these machines. The quality of the products produced is also adversely affected.

- The cup sponging machine is inoperative due to lack of spare parts, therefore hand sponging of all the cups has to be carried out. This results in a high proportion of the cups being distorted and overall quality is lowered. Similarly the handle-fixing machine is inoperative, so that handles have to be attached by hand and quality is again impaired. The two handle cutters are also in poor condition and produce poor quality handles.

- Shortage of imported plaster-of-Paris makes it impossible for the factory to replace moulds on a strict replacement cycle. Moulds are therefore used far beyond their useful life and the quality of the products produced from these moulds is impaired.

- The flatware dryer requires attention to the heating and temperature control systems to improve the drying characteristics. The cup dryer is in very poor condition and requires a complete overhaul and repair of the sheeting. The bowl machine has no dryer, therefore the products have to be air-dried. On occasions articles from this machine are placed in the flatware dryer but this then disrupts the flatware production. In addition to repairing the existing dryers, a new wares dryer should be purchased, so that all products can be fully dried before entering the biscuit kiln. The current situation results in wares of widely differing moisture contents being placed in the kiln, therefore fast firing cycles cannot be considered. This limits the output from the biscuit kiln and is inefficient in terms of energy consumption.

- The four towing units, used to smooth dried articles, are not fitted to an operational dust-extraction system. An efficient system with a dust filter on the exhaust should be installed to protect the health of the operators.

- One of the two crockery biscuit kilns is inoperative due to lack of instrumentation. It also requires repairs to the door, kiln car seals and foundations. The older biscuit kiln is operational but is very inefficient and has wide temperature variations within the kiln. The biscuitware firing section in its present state is a main bottleneck in the crockery section and the constant shortages of LPG, which is used to fire these kilns, makes the situation even worse. It is recommended that during the repair of the newer kiln, it is converted to dual-fuel firing, so that it can be fired with either LPG or kerosene. The older brick-lined kiln, which is not worth repairing, could then be replaced by a fuel efficient fibre-lined kiln fitted with dual-fuel burners. A shortage of refractory bats and props on the factory leads to delays in setting the kiln cars and as damaged refractories are maintained in service, the quality of the products is impaired. Additional refractory kiln furniture should be purchased to eliminate this constraint.

- The glaze dipping tank is not equipped with a recirculation pump, therefore the glaze consistency can vary throughout the day. This causes colour variations of the final product. Two of the six glaze booths are inoperative due to lack of spares and this would prove to be a constraint on higher outputs.

- One of the top-hat glost kilns is inoperative due to lack of spare parts but all the other kilns require attention to their refractories and elements. One of the two overhead cranes used to move the kiln tops is also inoperative. To achieve capacity production from the crockery section, these constraints in glost-firing must be removed.

- The three lining turntables used in the decoration section are all in poor condition and the quality of the lining achieved with these turntables is not of a high standard. New turntables are required to remove this constraint.

- The single small decorating kiln can only cope with 18 per cent of the potential glost firing output. If market demands indicate that more decorated ware can be sold, additional kiln capacity must be installed in this department.

iv) Sanitaryware section

- The body formulation for sanitaryware, based on 100 per cent of local materials, has led to high wastage levels on some items. In the case of large basins, all items made recently have cracked. Modification of the body must be carried out to remove this constraint but the factory has no trained personnel and insufficient laboratory equipment to carry out this task. Some imported clay may have to be added to the body composition to correct the problems.

- The numbers of sanitaryware moulds are insufficient to supply both kilns, if they were operating at their capacity output. The area available for casting is also too small for this potential kiln output, therefore the mouldmaking section should be moved to the ground floor of the building to allow room for more casting benches and more moulds.

- Supplies of imported plaster-of-Paris are insufficient to replace moulds on a correct cycle, therefore the quality of all products is impaired. The method of mixing the plaster also causes poor quality moulds to be produced. No mould dryer is installed on the factory, which delays the time when moulds can be placed in service.

- The slip pumping capacity is insufficient to supply even the current number of sanitaryware moulds. Springs for the existing pump must be installed and a second pump should be purchased.

- The casting hall is equipped with insufficient recirculation fans for efficient mould and product drying. Moulds become progressively more saturated until they cannot be used for casting. Production capacity is therefore reduced. Installation of additional fans and also a heat supply for the casting hall is required to remove this production restraint.

- Only one of the two gas-fired sanitaryware kilns is operational and until this is repaired, sanitaryware production is limited to a maximum of 50 per cent of its potential. Due to the LPG shortage both kilns should be converted to dual-fuel firing.

v) Tile section

- The 4-tile press has excessive downtime caused by a lack of spare parts and by the inability of local engineering companies to provide die plates of good quality on time. Capacity utilisation is therefore low.

- Only one of the two tile biscuit kilns is operational and until this is repaired, tile production is limited to a maximum of 50 per cent of its potential. Dual-fuel firing systems should be installed on both kilns, due to the unreliability of LPG supplies. New temperature control systems are also required.

- Both tile glost kilns are operational but require repairs to doors, element supports, refractories and the door locks to ensure that they remain operational and to reduce the energy consumption of the kilns. Additional kiln furniture is also required for these kilns to ensure that full capacity utilisation can be achieved.

Inputs

- The raw materials are not tested prior to use, either at the quarry or at the factory on arrival. The factory therefore has no prior knowledge of the properties of the raw materials it is using. If changes occur in the raw materials, the factory could be full of defective items before any rectifying action could be taken.

- All glaze inputs are imported and delays in ordering have resulted in the factory running out of glaze. Some of these delays have been outside the control of the factory. These have included lengthy procedures to obtain import licences and delays in clearing goods at Mombasa port. In such situations glost firing is then brought to a halt until new supplies arrive at the factory. Airfreighting of glaze to overcome delays then increases unit costs.

- Decal inputs are mainly from local sources of supply but some more complicated patterns are also imported. However, the price of the local decals is high. Financial contraints lead to delays in importing supplies, which means that the factory cannot offer such a wide product range. Local supplies of decals are also delayed because for hotel logos, the factory relies on the hotel to buy the necessary decals. The hotels frequently do not order in time and therefore are forced to purchase undecorated ware for their replacements, which is less profitable for the factory.

- The plaster-of-Paris inputs are all imported but insufficient funds are provided for the purchase of normal requirements. Moulds are therefore used far beyond their useful life, which results in poor quality products.

- The LPG supply for the gas-fired kilns is insufficient for the factory, even when it is operating at a low capacity utilisation. As this situation is likely to continue for the foreseeable future, the factory must install an alternative fuel supply, such as kerosene, in order to achieve outputs closer to its capacity.

- Spare parts inputs are a serious constraint, as many are imported and the financial resources are not available to purchase them. The condition of the plant and equipment has therefore steadily deteriorated. Attempts to substitute imported spares with locally made items have not always proved successful. Local suppliers have proved unreliable in terms of both delivery and quality.

Market and competitors

- At the current levels of production, the company does not have any market constraints. The company has no local competition, as Porcelain Products, the only other company manufacturing crockery, is no longer in production.

- All items, which can be made can be sold, even if they are of poor quality. This fact has probably led the company into placing less emphasis on the quality of the products but this is a dangerous policy. Imports from China with a far higher quality standard and better design than any of the products from Ceramic Industries have now become established in the market.

- Even at full capacity utilisation, the Kenyan market demand is far greater than the industry output of crockery, tiles and sanitaryware. However, as output increases both quality and design could become market constraints, as the customer base of the company must widen to include some of those customers, who are now buying the higher quality and more modern designs of the chinese imports. The company must become more competitive, otherwise imports could take a greater share of the market.

- At greater outputs, the distribution system must be improved, otherwise this could become an important constraint.

Policy

- The Geological Survey Department of the Ministry of Environment and Mines has carried out much work on the location of ceramic minerals in Kenya but the information is not freely available. Companies or individuals are expected to pay for the information on a commercial basis. The price quoted was approximately KSh 20,000. This policy has the effect of discouraging companies to examine the available information on locally available raw materials, especially those companies, which are in financial trouble.

- In the ceramic industry many of the problems are caused by technical deficiencies. Therefore the very companies, which need up-to-date technical information the most, to try to solve their technical problems, may be the ones, who can least afford to pay for such information. This could lead to these companies, either to import raw materials of proven properties and known consistency, or to persevere with substandard materials, being unaware that better raw materials may be available within the country. The former decision leads to a loss of foreign exchange, while the second leads to the production of inferior products with high wastage and consequent wasteful use of imported energy.

- It is recommended that information on ceramic raw materials is disseminated at a reasonable price to any interested parties, so that this subsector can develop to the same extent, as in other developing countries.

8.3 Rehabilitation requirements

Management and organization

- At Ceramic Industries most of the management, such as General Manager and Sales Manager, are lent to the company by Price Waterhouse while it is under receivership. Whether or not those persons will stay with the company when the present status of receivership is ended is not known. The most urgent vacancy to fill at the moment is the post of Production Manager. This person must be a highly qualified ceramicist with experience from manufacturing of the actual product range. There is also a need for a training programme for the production personnel since the present problems are all revolving around the production part of the operations.

- A computer system is in use at the General Manager's office but it is strongly recommended that similar PC-systems are installed in the Accounting and Sales departments. It is now a very complicated procedure to obtain relevant data, for instance, sales activities.

Markets and competitors

- Ceramic Industries has no major problem in the area of marketing and sales while the present constraints in the production are at hand.

- The company has a backlog of orders, not delivered, of KSh 565,000 and can, at present, sell anything that can be produced in the factory. However, in a longer perspective it would be recommended that the company engage retailers and distributors in the most important areas of the country in order to penetrate the local market more efficiently.

- Since there is uncertainty about the local market it would be advisable to undertake a market survey in order to optimize the product range for best possible profitability.

- In the previous sections constraints have been detailed for all sections of the factory and all of these must be removed to enable the factory to achieve its full potential. The rehabilitation requirements in terms of raw material inputs and the physical plant of the crockery, tile and sanitaryware sections are quite extensive in terms of both personnel training aspects and in the refurbishment of machinery and equipment. In addition, some new equipment must be purchased, so that the factory can operate closer to its potential capacity. As the company must be prepared to invest a significant amount of its own resources into any realistic rehabilitation plan and bearing in mind the poor state of the financial structure of the company, it is recommended that rehabilitation is carried out in stages over a two-year period.

- By targeting the early rehabilitation work in the areas causing the most serious bottlenecks in production and reduction in capacity utilisation, cash flow will be increased quickly. This will then enable the company to pay for the capital expenditure necessary in the later stages of the rehabilitation programme from its increased operational surplus. The speed of implementation of the programme is therefore totally dependent on the success of each stage of the rehabilitation plan.

- Should the debenture holders come to some agreement on the restructuring of the company at some time during the rehabilitation period, it may encourage a private investor to take a shareholding in the company. This additional capital could then be used to purchase all of the necessary spare parts, so that implementation of all of the rehabilitation requirements could then be carried out more quickly. This, however, is only a possibility, which is currently being discussed. Therefore, under the conditions of the receivership, a two-year period is the only realistic time frame.

Raw material inputs

- It is necessary to carry out a programme of testing of all the raw materials used in the production of crockery, tiles and sanitaryware. The volumes of material available at each of the quarry sites must be determined and the variation of the properties of the materials within each deposit established.

- Stockpiles of each of the materials should be built in layer formation at the quarry sites and these should be sufficient for 6-12 months consumption. Tests of the stockpile must then be made to establish the precise properties of the materials within the stockpiles.

- Various body recipes for crockery, tiles and sanitaryware must be formulated and tested, to establish the best recipe using the stockpiled products. Glaze tests should be carried out simultaneously on each of the body recipes to determine, whether the glaze-body fit, using the proposed glazes is suitable. Adjustments to the body recipe should then be made, if required, based on the glaze tests. Drying characteristics must be determined and the biscuit firing, glost firing and decoration firing characteristics must be established over various temperature ranges.

- In order to carry out the above work, an outside ceramic technician must be employed. This person could possibly be supplied as part of a UNIDO technical assistance project.

Body preparation

- The lining of the sanitaryware ball mill must be repaired and new flint pebble grinding media purchased. This is an immediate requirement.

- Water meters and counters should be installed on all six ball mills at an early date.

- The main filter press must be repaired and replacement filter plates purchased to ensure that the machine can operate at full capacity. This is an immediate requirement.

- An additional de-airing pugmill should be purchased. This would not be required until the second year of the proposed rehabilitation period.

- The ageing room should be immediately utilised properly. Humidity controllers should be fitted at an early date.

- A storage tank should be provided for the crockery casting slip. This is an immediate requirement.

- Additional sifters and magnets should be provided at slip transfer points. This is an immediate requirement.

Crockery section

- The flatware machine, bowl machines and cup machine should be repaired. The necessary spare parts must be imported at the earliest possible date.

- Additional plaster-of-Paris moulds for both the machine-made products and the castware products should be made to replace all defective moulds and to allow an acceptable replacement cycle to be established. The necessary plaster-of-Paris must be imported. This is an urgent requirement.

- The flatware dryer heating and control systems must be overhauled to improve the drying characteristics and reduce losses. The cup dryer must be totally refurbished with new plates to eliminate the leakage of hot air. This is an urgent requirement.

- An additional ware dryer is required for the bowl production and castware production. The purchase time must be dictated by the availability of funds.

- Spare parts for the cup sponging machine, handle cutters and handle-fixing machines must be provided and the necessary repairs carried out. This is an urgent requirement.

- The four dried ware towing units should be fitted with an efficient dust extraction system, which should include a filter unit on the air exhaust. The biscuitware brushing stations must also be connected to a dust extraction system. In the meantime, the operators must be provided with dust masks and supervisors must insist that they be used. Rotation of these operators would be recommended.

- The fibre-lined biscuit kiln must be repaired and a new temperature control system should be fitted. Dual-fuel burners should be fitted to allow the kiln to be fired with either LPG or kerosene. The necessary oil storage tank with twin pumps must also be installed on the factory at this time. This work is of the utmost priority.

- The old brick-lined biscuit kiln should be replaced with a fibre-lined energy efficient one, as soon as the other kiln has been repaired and is operational. This kiln should also be fitted with dual-fuel burners. Availability of funds, however, will certainly not be available for some time for this purchase. As an interim measure, some repairs may have to be carried out on this kiln and dual-fuel burners fitted. These would be transferred to the new kiln, when purchased.

- The glaze dipping station must be fitted with a glaze recirculation pump. This is an urgent requirement.

- The two non-operational spray booths must be provided with the necessary spare parts. This would be required in the second year of the rehabilitation programme.

- The non-operational glost kiln must be repaired and the necessary spare elements and refractories for all the other glost kilns must be provided to ensure that they remain operational. The defective overhead crane, used to move the tops of the kilns, must be repaired. This work should be carried out early in the first year of the programme.

- Three new turntables must be provided for the decorating section, to enable quality lining to be achieved. This is an immediate requirement.

- An outside engineer familiar with kilns and ceramic machinery must be employed to supervise the kiln and machinery repairs, initially in the crockery section but at a later date, the repairs in the other two sections must also be supervised. This engineer must also train the factory mechanics and operators in the correct maintenance and operational procedures for this equipment. The engineer could possibly be provided as part of a UNIDO technical assistance project.

- It should be noted that particular emphasis has been placed on increasing the output of the crockery section, as early as possible in the rehabilitation programme, as this is the most profitable product.

- The manager in this section should be sent overseas on a UNIDO training fellowship for a 4-5 month period. The training would include formal study at a recognised Polytechnic institute and industrial experience on selected ceramic factories.

Sanitaryware section

- The sanitaryware body composition must be modified, possibly by the incorporation of a small percentage of high quality imported sanitaryware casting clays. The percentage of local clays would be maximised, consistent with quality being maintained to normal expected standards. This work could take some considerable time to carry out properly. An outside expert would have to be brought in by the company and could possibly be provided as part of a UNIDO technical assistance project.

- Additional sanitaryware moulds must be made and the necessary plaster-of-Paris must be imported. The method of mixing the plaster must be improved to ensure that good quality moulds are produced.

- The mould-making section must be moved to the ground floor of the two-storey building, so that more casting benches and moulds can be placed in the casting hall.

- A mould dryer should be installed in the mould-making section.

- The existing slip recirculation pump must be repaired immediately and an additional pump installed to cope with the capacity of the two kilns. The additional pump would be required in the second year of the programme.

- Additional air recirculation fans must be provided in the casting hall and a dual-fuel heater installed, to ensure efficient mould and ware drying.

- The non-operational gas-fired sanitaryware kiln must be repaired and both kilns should be converted to dual-fuel firing.

- Once the sanitaryware body formulation has been established and the section is operating closer to its capacity output, it would be the most suitable time to commence experiments in developing a low-tension insulator body. All insulators are presently imported into the country and this therefore could develop into another product area for the factory.

- While the body formulation work and the manufacture of new moulds would take place in the first year of the programme, the rest of the expenditure could only be carried out in the second year.

- The manager in this section should be sent overseas on a UNIDO training fellowship for a 4-5 month period. The training would include formal study at a recognised Polytechnic institute and industrial experience at selected ceramic factories.

Tile section

- The necessary spares for the four-tile press and tile handling unit must be provided and installed. Die liner plates of good quality must be imported to ensure that the press can operate without excessive downtime. This work is an urgent requirement.

- The non-operational tile biscuit kiln must be repaired and dual-fuel burners should be fitted to both tile biscuit kilns. New temperature control systems must also be installed on both kilns. This work should be carried out as early as possible but funds will probably not be available until late in the first year.

- The two tile glost kilns must be repaired and additional refractory kiln furniture provided to ensure that they can operate to capacity. This work can be carried out late in the first year onwards.

- The assistant manager in this section should be sent overseas on a UNIDO training fellowship for a 4-5 month period. The training would include formal study at a recognised Polytechnic institute and industrial experience at selected ceramic factories. (Note: the current manager of this section has had some overseas training).

Laboratory

- The necessary laboratory equipment should be provided to enable the laboratory to carry out all normal body formulation work, glaze tests and routine quality control tests.

- Two laboratory personnel (possibly new employees) will require overseas training for a period of 4-5 months, followed by in-plant training by an outside expert. The overseas training must be at a recognised ceramics educational establishment, such as a Polytechnic, for the formal training, combined with exposure to current industrial practice on carefully chosen factories.

- It is recommended that the above rehabilitation requirements are programmed in stages over a two-year period. In respect to sanitaryware production, if the losses continue to increase using the present body formulation, it would be advisable to suspend production until such time that an outside expert has reformulated the body composition to give an acceptable product with low wastage. The raw materials and LPG could then be used more effectively for crockery and tile production. During this period the additional sanitaryware moulds and casting benches could be made.

- If this programme of rehabilitation is not carried out, the future of the company is bleak. Should this factory close down, this entire subsector of industry will no longer exist in Kenya, apart from the much smaller crockery factory, which is also under receivership. The country will be totally dependent on imported crockery, tiles and sanitaryware with the consequent loss of foreign exchange and industrial potential.

Financial structure

- The future of the company is also dependent on the financial restructuring of the company. Ceramic Industries (EA) Limited presents a strong case for divestiture, partial, if not total. The present owners have, in the past, been unable to put together a successful management team.

- The failure on the part of owners and managers is demonstrated in the accounts, which show a clear trend over the past decade of increasing administrative overheads relative to factory gross margins and increasing indebtedness. The company has returned an operating loss since 1985 and income before tax has been negative since 1981. Income in each year was lower than in the previous year, except in 1983.

- The recommended ultimate objective is to sell the total assets of the company, while the factory is operational. The highest price would be paid for a fully functioning plant. Distribution of the proceeds presents a problem but is not insoluble. The following points have to be considered:

a) The interests of the secured creditors must come before those of the owners. In this case the large secured creditors and the owners are mostly the same entities. A satisfactory formula for distribution should therefore be readily found among parties, who take a realistic view of the situation. However it should be pointed out that negotiations to solve the problem have been in progress on an intermittent basis since 1987 - that is, before the receiver was called in. Negotiations are still continuing.

b) The sellers may be obliged, in this case, to consider that the buyer may insist that outstanding trading creditors are repaid before the sale. Alternatively, the sale price may be reduced by the amount required to pay the trading creditors. This concession would be necessary for the future viablity of the company.

c) The present owners and the holders of debentures may or may not be interested in retaining a minority equity share in the company. If so, this would have to taken into consideration in the terms of any sale.

d) An important element in the discussion leading up to the sale is the relationship between the shareholders' rights and obligations vis-a-vis those of the debenture holders and the sundry unsecured creditors.

- Another alternative, which could be taken, is that all the company assets are sold to another company at the best possible price. The proceeds of the sale would then be distributed proportionately among the secured debenture holders. The unsecured creditors could expect to receive nothing. One disadvantage of this alternative is that th. prospective purchaser would recognise, that he could expect to have some trading difficulties with the established suppliers of Ceramic Industries (EA) Limited.

- Besides the financial restructuring, which concerns ownership and creditors' interests, the company requires financial restructuring in other directions, either before or after the sale. The company requires strong financial management. More than just an accountant is required. The business requires an analytical financial controller, who is capable of skillfully performing financial management, monitoring and evaluation.

- The business is diversified, with strong prospects for further diversification of production. The company therefore requires an excellent and reliable cost accounting system. The system must be capable of handling a wide variety of products for different markets. It must also be flexible for system improvements and for rapid changes in both input and output market factors.

Figure 8.3: Rehabilitation programme - Ceramic Industries (EA) Ltd.

Activity	Months 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Chief Technical Advisor (CTA)	*****							*****							*****								*****	
Casting & glaze technician	*****													*****										
Kiln/ceramic machine engineer	*****															*****								
Mouldmaker/modeller						*****																*****		
Computer expert	***														***									
Cost accountant	*****															***								
Overseas training																								
- laboratory tech. 1						**********																		
- laboratory tech. 2											**********													
- Kiln operator						**********																		
- crockery supervisor											**********													
- tile supervisor																**********								
- sanitaryware supvsr																				**********				
Raw material tests	**********																							
Machine repairs																								
- crockery kilns	*****																							
- crockery machines	*****																							
- tile kilns		*****																						
- tile machines		*****																						
- moulds						*****																		
- sanitaryware kilns																		*****						

Note: The above are major inputs.

CHAPTER 9

GENERAL OBSERVATIONS AND RECOMMENDATIONS

9.1 General policy recommendations

All the companies visited are parastatals and have been operating at a loss for many years. For all of them, the value of the assets are far lower than liabilities. The rehabilitation of these companies would necessitate that the creditors, most of them being public institutions, would have to write off a substantial part of the debts. It cannot be in the interest of Kenya to let parastatals operate at a loss for such prolonged periods. Government policies are clearly needed in this respect.

The Government needs to monitor closely the development of the economic performance of parastatals at all times and would have to make necessary decisions at an early stage so that the use of national resources is optimized.

It was sometimes suggested that the parastatals also perform a social function. This is certainly true in many cases. However, the cost of subsidizing a company must be weighted against the benefits obtained. It may well be the case that the subsidy would produce more social benefits if invested elsewhere. In general, management was not clear as to the objectives of the companies.

It is important to define the objectives clearly for each parastatal. Yearly plans have to be elaborated in line with defined objectives.

In none of the plants visited was there an incentive system, either for the workers or for the management. Management often viewed themselves more as public employees than responsible for the company. Management often felt that key decisions lay outside their control.

Government policy on the future of parastatals is not yet clear. Policy decisions are needed on which enterprises should remain with the public sector and which should be privatized.

9.2 Financial observations

All of the parastatal companies visited, operated with an extremely high debt load, which they were unable to service from their normal operations. In many cases the companies lacked adequate supplies of working capital and/or access to credits. This lack of funds negatively affects the performance of the companies as in many cases routine purchases can only be accomplished after serious delays. All companies had poor cost accounting systems, which meant that management had no reliable information on the precise costs of production, on which to base their decisions for product pricing.

Recommendations

In all cases it is essential that a financial restructuring is carried out, including the conversion of all, or most, of the debt into equity. In the case where receivership is involved, it is recommended that the company assets be sold to another company, thereby leaving all unsecured creditors behind.

It is recommended that proper costing systems are installed as a matter of urgency in all the companies visited.

3.3 Management, organization and marketing

General observations

(a) Board of Directors tend to contain too many high level persons from government and various institutions, many without any proven business experience at all. They are generally too busy to take part in board meetings but send alternates or nominees that do not have power or status to take any decisions.

(b) There appear to be significant vacancies and deficiencies at middle management levels. Top-management tends to be substandard, especially the political appointees. They generally lack sufficient knowledge of business and marketing and usually know very little about the technical details concerning their company's products.

(c) It is not uncommon for companies to have no sales organization outside the offices, that is, no sales representatives or retailers out in the field. This is partly because some of the companies work in a sellers market. Customers buy their needs either directly at the factory gate or via wholesalers. This means that the customers provide their own transport and the companies do not have to engage in any transport or distribution arrangements.

(d) Many companies never carried out proper market surveys to determine the market for their products. Companies need to undertake an extensive market survey for their products in order to find out their real export potential.

It may not be generally known but the Department of External Trade has Commercial Attachés in 15 countries all over the world. Five of them are located in Europe: UK, France, Belgium (EEC), West Germany and Sweden. The rest are to be found in USA, Japan, Pakistan, Ethiopia, Rwanda, Uganda, Tanzania, Zambia, Zimbabwe and Zaire. In other countries the trade questions are handled by the First Secretary of the Embassy. The Ministry of Commerce is also taking care of the Ministry of Industry's interest in foreign countries.

(e) Management Information Systems are generally non-existent, in the companies, for routine tasks such as accounting, administration, purchase and sales. Kenya Institute of Management will in the near future be able to provide training within this field. At the moment they have not a sufficient number of computer systems available. KIM's services are for their members only. The Government has its own training programme for managers. KIM has 2000 experienced managers as members and who are available as instructors.

Recommendations

(a) The Board of Directors in the companies should be reorganized and professionals from the business community should be brought in and engaged as members. The Board of Directors will then be able to function as a real support to the Management.

(b) Assessments should be carried out of the qualifications of both top, and middle managers in companies. Appropriate adjustments and dismissals should be made. Existing managerial vacancies should be filled by qualified personnel. Political appointees of unqualified people should be avoided at all cost. Related available training facilities and technical assistance should be requested from Kenya Institute of Management, and UNIDO (also management support).

(c) Companies need to improve on their sales and trading systems by setting up a network of distributors throughout the country. Also distribution systems, need to be improved or acquired in all the companies.

(d) It is also recommended that those companies who engage, or are likely to engage in export trade make contact with the Ministry of Commerce for support and free advice on how best to begin or maintain export business.

(e) The introduction of computers for establishing for Management Information Systems would be beneficial in many companies together with appropriate training programmes for the management. Training for this is or will be available at the Kenya Institute of Management. Suppliers of computer systems also have training programmes for these kinds of activities.

3.4 Human resources

General observations

All the firms visited suffer from a high turnover in both top and middle managers. Although it appears that many workers have been working for the firms for a number of years regardless of working conditions, they are not necessarily satisfied with their work and positions and are generally demoralized by the low salary and few incentives given to them.

Despite available training facilities and funds (the training levy) provided by the government, the firms do not have a positive attitute towards training their workers. It is partly because the firms cannot afford to release their workers for training and also because the firms do not find it necessary to upgrade their workers' skill level by training other than on-the-job training. In particular, the firms have a very weak maintenance and repair capability due to a lack of qualified engineers and lack of a maintenance culture.

Recommendations

The firms should enhance their human resources by upgrading the quality of employees' skill levels through use of available government or private training institutions. In addition, the firms are recommended to search for better organized and higher quality on-the-job training systems which should give workers better understanding of their work and appropriate skills to produce faultless products.

In order to strengthen morale and motivation, the firms are recommended to provide an incentive scheme for employees. The scheme should not necessarily be based on the salary scale, but could take the form of improving the quality of facilities in the plant. This would provide workers with a better working environment. Motivation would also be helped by the provision

of welfare facilities outside the plant where workers can relax and rest during their break time or after work. The promotion of cultural and sports acitivities organized by the firms would be another means to motivate employees.

9.5 Physical plant and buildings

The buildings of all of the factories visited were generally in good condition structurally and require little rehabilitation work, except, in some cases, for some relatively minor roofing repairs.

The physical plant in all companies has generally been allowed to deteriorate over many years, due to the lack of spare parts and also, in some cases, due to lack of trained maintenance personnel and scheduled maintenance programmes and procedures. In the one case, where a good engineering department existed, they had been frustrated in their attempts to repair old machines by the lack of the necessary imported spare parts. Failure to import such spare parts was invariably due to the financial constraints on the company, caused by the overall poor performance of the company.

Some attempts had been made by companies to find local suppliers of spare parts for the machines but this was not always successful. Even when local engineering companies accepted an order, sometimes they could not obtain the necessary raw materials to carry out the work. This then delayed the delivery of the spares and often those delivered were of such poor quality that they could not be used. The machine therefore had to stand idle until new spare parts could be made. Such situations reduce capacity utilisation and output, which increases unit costs and reduces even further, the ability of the company to purchase the necessary spares required to keep its assets in good condition.

Unfortunately it is a common reaction of the majority of companies, to reduce expenditure on spare parts when the performance of the company starts to deteriorate. This is normally entirely the opposite of what they should be doing. A downward spiral of deteriorating performance, followed by further reductions in maintenance then sets in.

Recommendations

Management of all companies must give priority to the strengthening or establishment of scheduled maintenance programmes and procedures. Priority must also be given to expenditure on the necessary spare parts to maintain the physical plant and buildings in good condition, even when the performance of the company deteriorates. If the company keeps its assets in good condition, it will be in a far better position to recover from a period of poor performance caused by other factors.

9.6 Regional dimensions

The East African Community was formally dissolved in 1977 but trade problems were already evident several years before. The Preferential Trade Area Treaty became operational in 1983 to promote trade within Eastern and Southern Africa. Together with other states in Africa, the Carribean and the Pacific (ACP), Kenya has signed the Lome Convention. ACP countries benefit from access to the EEC market and nearly all industrial products are exempt from duty and quantitative restrictions.

At present, both the Mountex and East African Ceramics companies produce mainly for the domestic market. Within the next few years there will be little interest for the companies to expand exports, because domestic demand is higher than production. Moreover, entering the export market would require marketing efforts which may not be justified during the period of rehabilitation.

PVP has produced mainly for the European market. If the plant is rehabilitated, there may be a regional demand for dehydrated vegetables, particularly in food processing such as different kinds of soups.

In summary, regional cooperation for the three plants studied is not an immediate objective.

9.7 Inputs

Insufficient supply of raw material inputs for agro-based industries is a serious constraint. It is the single most important factor preventing acceptable utilization of processing capacities in the industries that have been investigated. Major reasons for insufficient availability of cotton fibre and vegetables are related to pricing and the incentives given to the producer as well as the inadequacy, or lack of the appropriate organizational structure and routines for production, procurement/collection and payment of the products.

In the case of cotton, orders placed with the CLSMB often go unfilled or partly filled. This unreliability in the supply of cotton is a major constraint affecting the basic profitability of firms in the textile industry. There is also a reluctance on the part of the CLSMB to import needed cotton supplies even though the production of locally grown cotton has been decreasing. There is the additional, but related, point that Kenya needs to improve the quality of its cotton by blending it with imported fibre. At present, the country produces medium-staple, medium-strength cotton that lowers the quality and strength of the yarn and decreases the efficiency in weaving. This is partly why factories manufacturing under bond are reluctant to use local fabrics.

From the national viewpoint, Kenya's textile industry needs more specialization and increasing reliance on domestically grown fibres - cotton and wool. But the government's own institutions have been thwarting that goal through declining real prices and delayed payments to cotton farmers and erratic and insufficient imports of cotton to cover the deficit in supplies in Kenya. The recent increase in the price of cotton from KSh 6 to KSh 10 may reflect a shift in policy to favour cotton production. Still, so long as cotton supplies are severely constrained, individual companies must strive to import more and more synthetic fibres despite the implications for overall national development. The CLSMB has not encouraged factories to import stronger, longer-staple cotton for blending with local fibre to upgrade the end product. This reticence has hampered the textile industry's efforts to secure the domestic market against the many imported - often smuggled - fabrics.

In the case of the vegetable processing industry, world markets for processed vegetables are highly competitive and a great many countries, particularly developing countries, are trying to increase their exports. The cost of packaging materials is a significant part of total product costs. Increased supply of packaging materials at competitive prices is a

pre-requisite for increased exports of processed vegetables from Kenya. Also, consumers in the industrialized countries are increasingly concerned about the high content of chemicals in processed and fresh food. As yet, there does not seem to be sufficient awareness in Kenya of these changes in the preferences of consumers in industrialized countries.

The raw material inputs of the minerals for ceramic industries are normally never tested properly on a regular basis, either at the quarry sites or upon delivery to the factory. In addition, the volumes of the materials at each quarry location are not known and the quality variations within the deposits are not known. No stockpiling of raw materials is carried out to minimise natural variations in properties. The factories therefore use raw materials with unknown and varying properties for the manufacture of products, which demand precise knowledge of the properties of all body constituents. The fact that factories have suffered continuously from poor quality and high wastage is therefore not surprising.

The fuel inputs to the companies can frequently be in short supply. This is particularly evident in the supply situation of LPG.

Imported inputs such as Plaster-of-Paris, glaze, decals and spare parts are frequently held up due to lengthy import procedures and slow clearance of goods from the port.

Recommendations

The Government should intensify its efforts to ensure that the supply of cotton to the textile industry is regular and reliable. The CLSMB should urgently examine the need to import supplies of cotton in special circumstances. This need for cotton imports is especially important when local supplies are unavailable and/or there is a need to improve the quality of locally grown fibre by blending it with imported cotton. Improved quality of Kenya's cotton fabrics would greatly increase their export potential.

In order to increase exports of processed vegetables, the Government should take steps to facilitate an increase in the supply of packaging materials at competitive prices for processed vegetables. In addition, the Government should encourage the processed and fresh vegetables industry to pay serious attention to the concern, on the part of consumers in industrialized countries, about the high content of chemicals in processed and fresh vegetables. Kenya, unlike many industrialized countries, grows vegetables in many areas which do not suffer from pollution and upon which chemicals have not been extensively used hitherto. This is an image that Kenya must maintain and exploit to the fullest. The international market for fresh and processed vegetables grown in a relatively pollution and chemical-free environment may well be a market niche in which Kenya would have a comparative advantage. A market survey should be undertaken to assess this possibility.

All raw materials for the ceramic industries must be thoroughly evaluated prior to use on the factory. This must include assessment of the volumes and quality variation at each quarry site. Stockpiling of materials should be a normal production procedure, both to minimise the natural variations and to allow time for testing of the stockpiled material prior to use in production. Any variations can then be forecasted with accuracy, so that adjustments can be made to the body compositions to compensate for these changes.

Factories dependent on regular LPG supplies should invest in the facilities to enable them to use an alternative fuel, when LPG supplies are insufficient for requirements.

All imported consumables and spare parts should be ordered well in advance, to take into consideration the time required for import procedures and port clearance. Stocks of the most important imported materials, which are crucial to maintaining production, should be held at the factory, whenever possible to cope with unforeseen delays.

9.8 The manufacturing sector

Manufacturing is a leading growth sector in the Kenyan economy, and it produces about 12 per cent of the nation's GDP. Its potential, however, is diminishing due to declining investment in fixed capital. Statistical information shows a degree of disinvestment, which is confirmed by informal observation. The outlook of manufacturers has been dulled in recent years by fluctuating economic conditions and uncertainties in the business climate.

The sector is helped and encouraged by tariff protection and import controls. It is assisted financially by government policies to support industry, especially through various DFIs. Foreign investors are covered by the Foreign Investment Protection Act. These are positive elements of assistance, but the government also restrains and closely controls the manufacturing sector through numerous licencing, marketing, and financial controls.

Manufacturers must obtain a variety of licences, depending on details of their businesses. Requirements include licences for trade, imports, exports, employee entry and work permits, and licences for manufacturing under bond. Besides the licences, there are many rules and regulations, for example, the requirements to file returns and pay income taxes, a training levy, and sales tax. Manufacturers must file survey information each year regarding ownership, investment, turnover, employment, and so forth. Recently, they have been required to identify distributors of their products under the Trade Licencing Act, and they are accountable for the authenticity of each of their dealers as a holder of a valid distributorship licence. They are accountable also for a variety of conditions that are covered in the Restrictive Trade Practices, Monopolies and Price Control Act of 1988.

Manufacturers are faced with price controls for some items, and not always can they freely purchase their inputs from the market. Many inputs must be purchased from a marketing board, such as the Coffee Board, Tea Board, Sisal Board, Pyrethrum Board, National Cereals and Produce Board, National Irrigation Board, and the Cotton Board. They are subject to financial controls, such as foreign exchange controls, foreign exchange allocations for business travel, controls on the payment of dividends and profits, and so forth, in addition to the already mentioned taxes and tariffs.

The manufacturing sector shows diversity, but individual manufacturing firms produce a wide a range of products. Quality control is largely a missing factor, as well as a lack of regular attention and specialized staff for product and production engineering to improve products and production processes. Management is too often carried out as a routine, as could be

expected in a bureaucratic administration. Insufficient attention is given to financial management and maximization of returns to investment through proper cost accounting and analysis. The direction of enterprises do not show the initiative and the venturous drive that is typical of successful manufacturers on the international market.

The Government is aware of the obstacles to production mentioned above. Indeed, significant steps are being taken to remove these obtacles. But it is clear that the Government's efforts in this connection need to be more focussed, integrated and intensified.

In sum, the Government must be constantly aware of the need to provide an enabling environment in which manufacturing can prosper.

CHAPTER 10

SUMMARY OF PLANT LEVEL FINDINGS AND RECOMMENDATIONS

10.1 Mount Kenya Textiles Ltd. (Mountex)

(a) Management and organization

Findings

- There are too many high level persons from government and other institutions in the Board of Directors, many without any proven business experience.
- The Board of Directors has too many high level persons from government and other institutions, many without any proven business experience.
- The management shows certain deficiencies both at middle, and top management levels.
- The company has no computerized Management Information System.

Recommendations

- Re-organize the Board of Directors in order to engage more people with industry and business experience.
- Carry out an assessment of the qualifications of the staff at the management level and make appropriate adjustments and dismissals.
- Install a micro-computer system to improve Management Information Systems with regards to administration, accounting, sales and purchasing.

(b) Human resources

Findings

- A significant number of employees suffer from occupational hazards in the weaving and spinning sections; respiratory problems and hearing difficulties are common.
- Absenteeism is extremely high.
- Labour turnover is also high.
- Facilities to provide welfare services for workers are non-existent or inadequate. There is no canteen or a shop, and the medical clinic is poorly equipped.
- No female labour is utilized on the production lines.

Recommendations

- The firm should pay significant attention to the working environment in the factory in order to protect workers' health.
- The medical clinic should be better equipped; it should be mandatory for workers to wear health protective gear; regular inspections should be made to enforce this.

- To improve working conditions and at the same time give additional incentives to the workers, the firm should install welfare facilities such as a cafeteria and shop compound which can be used for various purposes - for example, dancing, meeting, party and other cultural and social activities.

- The firm should consider hiring women on the production lines as is common practice in the rest of the textile industry in Kenya.

(c) Financial structure

Findings

- Mountex is burdened with a huge, geometrically growing debt, already twice the size of its assets.

- The factory uses only about 60 per cent of its capacity mainly because CLSMB does not fulfill its orders reliably. This is the major reason the company is making losses even before accounting for financial charges.

- The company's cost accounting system cannot tell management accurately how much it costs to produce different yarns and fabrics. Hence, management does not have a true indication of what items are the most profitable.

- Lack of a micro-computer and the skills to use one limits the accounting department to clerical instead of analytical tasks.

- Certain costs may well be excessive, for example, for sustaining the General Manager in Nairobi and hiring many additional workers, though output has not increased very much.

- Costs may be excessive due to too great a product range.

Recommendations

Short-term

- The conclusion is inescapable: to become viable, the company must be restructured financially.

- All possible steps must be taken to increase capacity utilization. Achieving a high capacity utilization rate is crucial for turning around the basic profitability of the company.

- With a renewed sense of urgency, the company should intensify its efforts to secure reliable supplies of raw materials. It should continue to strive to purchase increasing amounts of raw materials - both cotton and synthetics - as long as the marketing department can sell the products produced as a result.

- After training or hiring appropriate staff, the company should computerize its accounting systems and significantly improve its cost accounting and analysis.

- To increase profitability, management should carefully evaluate the economies of scale achievable by producing larger volumes, but less varieties.

- To cut costs, the General Manager should move to Nanyuki as soon as possible. Management should evaluate whether the large increase in employment is fully justified. If not, the work force should be trimmed.

Medium-term

- In the medium-term, Mountex must be financially restructured and probably privatized. Two solutions are possible: most, if not all, of the company's debt should be turned into equity; or, its assets - free of debt - should be sold as a running enterprise to a new owner. Either way, the Government should forgive the accumulated sales taxes that Mountex owes.

(d) Buildings and installations

Findings

- The old machinery used now is unreliable due to lack of readily available spares. Frequent breakdowns have caused bottlenecks in various departments, particularly in weaving. Certain spares can be manufactured within the workshop including simple castings.

- Inadequate control for inputs at each stage of manufacture have led to poor quality yarn, problems in the loom shed and with finishing. The yarn quality can be improved by use of combers after carding.

- Due to installation of some new machinery in various sections, certain sections have high output capacities, and new imbalances have arisen, for example, in spinning. Also, the yarn winder operates only at 10 per cent capacity utilization and thus earns little revenue.

- The weaving department has the lowest percentage machine utilization. Utilization could be improved by, for example, working 168 hours per week instead of the present 135 hours and also recruiting experienced weavers to work in the department.

- Energy consumption in various departments is not being accurately determined. There is no way one would recommend energy savings without a proper determination of energy consumption.

- The compressed air system is inadequate and fouls up the pneumatic control system of machinery. A new one of higher capacity will be necessary.

- There are no proper fire fighting facilities. If these facilities were provided, the company's insurance premiums could be reduced.

Recommendations

Long-term

- Evaluate the cost effectiveness of replacing the old Northrop looms with new, high-speed looms.

- A new autoconer machine should be purchased to remove present bottlenecks.

Processing

Findings

- There is no laboratory equipment for quality control. Quality control is done visually. The quality of the end product to a large extent reflects the efficiency of the checking process.

- The old stenter machine and the two old wash rangers in this section are in need of renovation.

Recommendations

Short-term

- Laboratory equipment for quality tests should be purchased.

Long-term

- The old stenter machinery should be improved by changing the radiators.

- The two old wash rangers should be overhauled to improved performance.

Warehouse

Findings

- The folding machine is an old mechanical type with a mechanical counter. Unfortunately, the folding is not very accurate. There is therefore a likelihood of extra metres being counted per bunch.

Recommendations

Long-term

- Roller folding machinery should be purchased.

- Improvements should be made in packaging by installing shrink-packaging machinery.

- Double-folding electronically controlled machines should be installed to minimize waste of cloth during folding.

Spinning

Findings

- There is a lack of laboratory testing equipment; quality control in spinning is bad due mainly to lack of adequate laboratory tests.

- In the carding section, the old carding machines break down frequently and it is difficult to get spares for them. If finer counts are required, then combing will be required after the carding.

- The drawframe section is a bottleneck since the old drawframes are out of action due to lack of spares.

- In the blowroom section, since the blenders and the scrutchers are old, the lap is still not uniform and wastage is high. The department cannot identify the quality of lap due to the lack of a laboratory.

- In the roving frame section, the yarn cone-to-chase winding equipment is hardly used at present (10 per cent of its capacity) due to lack of yarn.

Recommendations

Short-term

- Test laboratory equipment should be purchased.

- Combers should be installed after carding to increase the quality of the yarn and to help improve cotton/polyester blends.

Long-term

- The two old scrutchers in the blowroom should be replaced with new ones.

- New high speed card machines should replace the old ones.

- Drawframes should be replaced with new high speed ones to remove present bottlenecks.

- Yarn cone-to-cheese winding equipment should be used more productively than done at present.

Weaving

Findings

- There is an acute shortage of operable looms and experienced weavers.

Recommendations

Short-term

- The number of experienced weavers should be increased.

- Funds should be allocated to buy spares to put as many looms into production as soon as possible. This should include cannibalizing the totally unserviceable looms to keep the others running.

Engineering

Findings

- There is an urgent need for a new air compressor.

- There is a lack of detailed knowledge of energy consumption in each department, and hence, it is difficult to itemize and monitor energy costs.

- There is a lack of preventive maintenance; most repairs are done when machines break down, or not at all because of lack of appropriately skilled labour.

- There is a lack of spares for the old machinery. There is also a lack of ability to manufacture on site the technically sophisticated spares required such as gear teeth.

- There are no facilities to measure the amount of steam utilized or the amount of water pumped to the boiler. This makes it difficult to monitor boiler efficiency.

Recommendations

Short-term

- A new air compressor with a capacity of approximately 200 m^3 should be urgently installed.

- Spot checks and detailed examination should be done in each department to determine the actual energy consumption.

- Electrical metres should be installed in each department to assist in cost accounting on energy.

- Preventive maintenance programmes should be started.

Long term

- More spares for old machinery should be purchased and stockpiled to avoid delays when machines break down.

- The possibilities for casting and machining more spares on site, should be urgently examined.

- A bulk steam meter should be installed to record the amount of steam generated and hence involved. It will also help to monitor boiler efficiency.

General

Findings

- The factory does not work a full working week or 168 hours per week. Much production time is lost after closures, in starting and warming up equipment. For example, seven hours are lost on Mondays starting up, warming up the loomshed and stabilizing the machinery.

Recommendations

Short-term

- Working hours should be increased from 135 to 168 per week, to avoid the lost production time needed to start and warm up the plant; at the same time days worked per week should increase by one day.

(e) Inputs

Findings

- The irregular supply of raw materials, especially cotton, has led the textile mill to import synthetic fibres. The Cotton Lint and Seed Marketing Board forecasts that cotton production will soon increase.

Recommendations:

- The mill should take advantage of the increased crop production, should it materialize, in the coming 1990-1991 seasons to reduce imports of sythetic fibres.

(f) Product range

Findings

- At the moment Mountex's product range is not optimized with regard to profitability.

Recommendations

- Perform a market study to find out which product is likely to be most profitable considering the problems with supply of raw material and production.

(g) Plant and economic performance

See Financial structure (10.1 c) and Buldings and installations (10.1 d).

(h) Markets and competitors

Findings

- Mountex has a problem competing with regard to both quality and price.
- Products are sold via wholesalers. The company has no external sales organization of its own.
- Mountex will have a marketing problem when production picks up and the problems with raw material are solved.

Recommendations for the short-term

- Engage its own distribution network in strategic areas.
- Carry out a market study to find out about the local market with regard to cotton-based and polyester products in order to find the most profitable product mix.

Recommendations for the medium term

- Make a market study in neighboring countries.

(i) Policies

Findings

- Mountex is particularly handicapped by irregular and unreliable supplies of cotton. These problems are compounded by the CLSMB's reticence to import cotton, the unreliabilities of its deliveries, and the declining real prices and delayed payments to farmers.

Recommendations

- The Government should re-double its efforts to ensure that supplies of cotton are regular and reliable. Particular attention should be paid to halting the deline in the real prices paid to farmers and delays in payments. In addition, the CLSMB should, as a matter of urgency, examine its policy and procedures with regard to cotton imports. This is expecially needed in situations when local supplies of cotton are deficient and/or there is a need to improve local fabrics by blending it with imported superior quality cotton. Improvement in the quality of local cotton fabrics could greatly improve their export potential.

10.2 Pan Vegetable Processors Ltd. (PVP)

(a) Management and organization

Findings

- Board of Directors contains too many high level persons from government and other institutions, many with no proven business experience at all.
- Management is extremely weak partly due to many vacancies and incompetent personnel.
- Turnover of personnel is abnormally high mainly due to poor salary and conditions of work.
- The company offers no incentives such as rewards or bonuses at the management level.
- The company suffers from a very bureaucratic and top heavy organization structure which tends to delay decision making.
- The company has no computerized Management Information System and a very inadequate cost accounting system.

Recommendations

- Reorganize Board of Directors in order to engage more people with industry and business experience. Members should be committed to attend board meetings. Nominees have to have authority to make decisions.
- Carry out assessment of the qualifications of the staff at all management levels and make appropriate adjustments and dismissals. Management contract may be as a result of competitive bidding, should be considered as a temporary solution.
- Introduce incentives like bonuses and rewards as well as take a good look at the salary level for all employees in the company. Offer commissions on sale for the sales staff.
- Reorganize the decision routes in the company in order to give managers more autonomy and responsibilities with regard to decision making.
- Install micro-computer system to improve Management Information System with regards to administration, accounting, sales and purchasing.

(b) Human resources

Findings

- Most of the staff in the management team are unqualified and incapable of managing in the current crisis conditions of the company.

- Most of the personnel at supervisory levels or skilled worker levels have no formal training.

- Workers are demoralized, lack of motivation due to poor incentives, inadequate salary, frequent salary payment delays and insecure working conditions.

- Maintenance and repair sections cannot provide adequate service for the production lines.

- There is high turnover of workers on the vegetable farms due to uncompetitive wages as compared to other farms and frequent payment delays.

Recommendations

- The firm should use the available government training facilities for requisite skills training.

- The firm should consider some incentive schemes to motivate workers such as a free meal per shift in the short term, and, in the long term, periodic bonus payments and promotion of sports and cultural activities.

- The firm should employ qualified mechanical engineers and also for skill enhancement in maintenance and repair procedures, provide systematic on-the-job training and make use of specialist outside training facilities.

(c) Financial structure

Findings

- The company does not have access to credits and/or additional working capital. As the company is operating at a loss, ICDC is forwarding payments. The lack of credit negatively affects the company's performance since routine purchases can only be done with serious delays.

Recommendations

- Financial restructuring of the company within the framework of the proposed rehabilitation plan is urgently required.

(d) Buildings and installations

Findings

- There is only one processing line operational at present; in this line the three units in the preparation section are defunct making it unable to operate at rated capacity.
- The standby generator, which is designed to supply electricity to the driers in case of power cuts, is out of order; hence certain quantities of products may be spoilt in case of power cuts.
- The refrigeration installation in the coldroom is not operational.
- The boiler plan, although in working order, cannot be adjusted sufficiently to the steam requirements significantly below designed plant capacity, hence the drying process is highly energy consuming.
- The extensive manual handling of the product after driers results in excessive exposure to direct human contact. This has an adverse influence on product hygiene and, hence, product quality and market value.
- The facilities for personal hygiene are inadequate with the result that there is a constant danger of contamination of food products by bacteria and other organisms. This contamination may render the product unfit for human consumption.
- A possible constraint for future operation of the plant is the current dehydration technology.

Recommendations

- Refurbish the preparation equipment in processing Line I to allow for full utilization of the dehydration capacity of that line.
- Preparation of rehabilitation plan for the processing plant, within the framework of an overall company rehabilitation scheme, including studies of alternative dehydration technologies which may be introduced.
- Improve the hygienic conditions at the plant.

(e) Inputs

Findings

- Raw materials are not available in sufficient quantities at any time.
- The quality of the raw material is frequently not up to standard, which adversely affects the quality of finished products.
- The above constraints are the results of mismanagement of the company's farms and lack of an appropriately organized outgrowers system.

Recommendations

- Prepare a farm development plan to be implemented as soon as possible.

- Organize an outgrower system which incorporates qualified extension services, input supplies and credit facilities.

(f) Product range

Findings

- Six major products are presently processed, almost exclusively for the export market.

Recommendations

- Optimize product range on the basis of a detailed market sutdy for both export and domestic markets.

(g) Plant performance

Findings

- In 1989, capacity utilization was only 16.4 per cent of installed capacity, or about 30 per cent of available capacity.

- Economic performance of the plant is hampered by high energy consumption per unit of product.

- The convertion ratio in the drying process was lower in 1989 than in previous years; this resulted in substantional losses of dry matter, and hence in finished product.

- The hygenic quality of the finished products gave reason for complaints from buyers.

Recommendations

- Arrange for adequate supplies of raw material inputs at all times.

- Repair defunct equipment in the preparation line to facilitate full capacity utilization of the only dehydration unit which is operational.

- Improve the hygienic facilities in the personnel section and production routines, including the use of protective gloves, at least in the finished product section.

- Consider the introduction of modern technology for dehydration within the framework of the rehabilitation plan.

See also Financial structure (10.2 c) and Buildings and installations (10.2 d).

(h) Markets and competitors

Findings

- PVP has a very serious marketing problem as the company recently lost its only sales representative on its export market, when EC Arnold Ltd went into receivership in the beginning of January, 1990.

- PVP has very little knowledge about its market in Europe and other export markets; it also lacks adequate knowledge of the local market for dried products, fresh vegetables and, for instance, tomato juice.

Recommendations

- Carry out an extensive initial market survey in Europe and other markets as the situation requires for its dried vegetables.

- As soon as possible, contact Ministry of Commerce in order to have their representatives in various European countries search for suitable candidates as sales representatives on at least three markets.

- Make a market survey for fresh and dried vegetables on the Kenyan market.

(i) Policies

Findings

- In general, PVP being part of the vegetable processing industry, benefits from the current emphasis in Government policies and strategy towards high-value production with export potential, employment creation - particularly the employment of women - and district focus. However, the competitiveness of the company's products, being largely export orientated, are particularly sensitive to the country's exchange rate, import and export policies and tariff rates; the support given to farmers and outgrowers in the form of qualified extension services, training and acquisition of required inputs also are important influences of the competitiveness of the company's products.

Recommendations

- The Government should continue to support the vegetable processing industry - and therefore companies such as PVP - as a priority industry with export potential. The Government should intensify its efforts to provide an enabling environment for vegetable processing, especially with respect to the appropriate management of the exchange rate and liberalization of the country's foreign trade regime.

- The Government should also strengthen its support to farmers and outgrowers in rural areas in the form of better extension services, training, and assistance in acquiring needed inputs.

10.3 Ceramic Industries (EA) Ltd.

Recommendations

- A comprehensive technical assistance project should be provided by UNIDO, over a two-year period, to address all of the above problems by specialist inputs in each problem area.

(a) Management and organization

Findings

- The present management is to a large extent lent out by Price Waterhouse and suffers from vacancies at crucial points such as the post as Production Manager.

- Company has, except for a micro computer in the General Managers office, no computerized Management Information System.

Recommendations

- Employ, as soon as possible, a Production Manager with experience in production of ceramics.

- Install a micro-computer system in the Accountants and Sales Departments to improve the Management Information System with regards to administration, accounting, sales and purchasing.

(b) Human resources

Findings

- The company has very few qualified skilled workers

- The company does not use available government training facilities to train its employees.

- Due to the lack of expertise and knowledge, employees are not capable of producing quality ceramic products.

- Unqualified staff in the laboratory have given little or no contribution to the upgrading of the quality of the products. These staff are not capable of taking over the duties of production workers involved in the preparation of clay slip. Occasions have occurred, when the production of sanitaryware has had to be halted because in the absence of the normal operator, none of the laboratory staff could carry out the mixing operation.

- Maintenance engineers have no formal technical training and are not capable of providing adequate service for the production lines.

Recommendations

- The management team should have a long-term vision to upgrade the quality of the products by improvements in the training of personnel.

- The company should use government training facilities, for example, DIT, to give a formal training to young employees.

- The company should employ qualified staff in the quality control department and provide better testing equipment in the laboratory.

- Overseas training should be arranged for key employees in all departments of the factory. This could possibly be arranged as part of a UNIDO technical assistance project.

(c) Financial structure

Findings

- The Government holds, through various state corporations, 93 per cent of the equity of Ceramic Industries (EA) Ltd. with only 7 per cent owned by private individuals. Since the government corporations became involved with the company, the operational performance has deteriorated and the company has made consistent losses since 1981.

- The company has borrowed heavily from three financial institutions but over many years has failed to keep up the required repayments. Some of the unpaid interest has been capitalised but in August 1988 one of the debenture holders called in the receivers, as the company was still failing to meet the required payments. At that date debenture holders and unsecured creditors were owed KSh 76.7 million. At current levels of production there is no hope of servicing this level of debt but even if the company were rehabilitated, so that it could operate closer to its potential capacity, it still could not service this debt.

- Administrative overhead costs had been very high for many years, prior to the receivership but these have been reduced considerably by the receiver managers. The costing and pricing structure of the company have been poor for many years, which has contributed to the loss-making situation.

Recommendations

- A financial restructuring of the company is absolutely vital. The best solution would be to eliminate most debts by the outright sale of the factory, as an operating entity, to another company. For the long-term success of the factory, this company should be privatized.

- A qualified financial controller should be appointed and a cost accountancy system should be installed for the management of the company's financial structure and affairs.

(d) Buildings and installations

1. Buildings

Findings

- All of the buildings are structurally sound but some of the corrugated roofing sheets have corroded, allowing water to enter the building.

Medium-term recommendations

- Replacement of the defective roofing sheets should be carried out within a reasonable period but the priority must be to use any available resources to repair the main production machinery first.

2. Body preparation

Findings

- One ball mill in the sanitaryware section is non-operational and limits the amount of slip, which can be produced.

- No water meters or revolution counters are fitted to the ball mills.

- The main filter press is inoperative due to the lack of spare parts and this limits the production of filter cakes for the crockery section.

- Only one pugmill is operational in the factory, which is insufficient for the crockery section, when operating at capacity.

- The ageing room is not used correctly and no humidity controller is fitted to the room, so that the material sent to the crockery machines is not always consistent.

- No storage tank for crockery castware slip is provided in the factory.

Short-term recommendations

- The lining of the sanitaryware ball mill must be repaired and new flint pebble grinding media purchased.

- The main filter press must be repaired and replacement filter plates purchased to ensure that the machine can operate at full capacity.

- The ageing room should be utilised properly and humidity controllers fitted.

- A storage tank should be provided for the crockery casting slip.

- Additional sifters and magnets should be provided at slip transfer points.

Medium-term recommendations

- Water meters and counters should be installed on all six ball mills.

- An additional de-airing pugmill should be purchased.

3. Crockery section

Findings

- The flatware machine, bowl machines and cup machine are operational but are producing defective ware, due to the lack of spare parts.

- The cup sponging machine and handle fixing machine are non-operational, therefore these operations have to be carried out manually, which leads to distorted ware being produced.

- The handle cutters are defective and require the necessary spare parts.

- The flatware dryer and cup dryer are inefficient and require repair to reduce fuel consumption and drying losses.

- No ware dryer is installed on the factory for the bowl machine and castware production, which restricts the potential output of the biscuit kilns.

- The four towing machines are not fitted with a dust extraction system, which is detrimental to the health of the workers.

- The fibre-lined biscuit kiln is inoperative and requires repairs to the door, kiln car seals and foundations. The instrumentation is also defective.

- The brick-lined biscuit kiln is extremely inefficient and requires many structural repairs and improvements to the instrumentation.

- Both biscuit kilns require additional refractory kiln furniture. This limits the potential capacity of the kilns.

- The glaze dipping tank is not provided with a glaze recirculation pump.

- One of the glost top-hat kilns is non-operational due to the lack of spare elements and refractories. The other three glost kilns also require repairs. One of the overhead cranes, used to move the kiln tops is also non-operational. Glost output is therefore being restricted.

- The 3 lining turntables are in poor condition and result in poor quality decorated ware being produced.

Short-term recommendations

- The flatware machine, bowl machines and cup machine should be repaired. The necessary spare parts must be imported.

- Additional plaster-of-Paris moulds for both the machine-made products and the castware products should be made to replace all defective moulds and to allow an acceptable replacement cycle to be established. The necessary plaster-of-Paris must be imported.

- The flatware dryer heating and control systems must be overhauled to improve the drying characteristics and reduce losses. The cup dryer must be totally refurbished with new plates to eliminate the leakage of hot air.

- Spare parts for the cup sponging machine, handle cutters and handle-fixing machines must be provided and the necessary repairs carried out.

- The four dried ware towing units should be fitted with an efficient dust extraction system, which should include a filter unit on the air exhaust. The biscuitware brushing stations must also be connected to a dust extraction system.

- The fibre-lined biscuit kiln must be repaired and a new temperature control system should be fitted. Dual-fuel burners should be fitted to allow the kiln to be fired with either LPG or kerosene. The necessary oil storage tank with twin pumps must also be installed in the factory at this time.

- The glaze dipping station must be fitted with a glaze recirculation pump and the two non-operational spray booths must be provided with the necessary spare parts.

- The non-operational glost kiln must be repaired and the necessary spare elements and refractories for all the other glost kilns must be provided to ensure that they remain operational. The defective overhead crane, used to move the tops of the kilns, must be repaired.

- Three new turntables must be provided for the decorating section, to enable quality lining to be achieved.

Medium-term recommendations

- An additional ware dryer is required for the bowl production and castware production.

- The old brick-lined biscuit kiln should be replaced with a fibre-lined energy efficient one as soon as the other kiln has been repaired and is operational. This kiln should also be fitted with dual-fuel burners.

4. Sanitaryware

Findings

- The number of moulds is insufficient for the potential capacity of the two sanitaryware kilns. The overall area of the casting hall is also insufficient for the required number of moulds.

- The slip pumping capacity is insufficient and the existing pump requires repair.

- The casting hall has insufficient air recirculation fans and has no heat supply, which restricts casting capacity.

- One of the gas-fired sanitaryware kilns is non-operational, having been cannibalised for spare parts. Production capacity is therefore restricted to a maximum of 50 per cent of potential capacity.

- No mould dryer is installed in the factory, which delays the time in which new moulds can be put into service.

Short-term recommendations

- The sanitaryware body composition must be modified, possibly by the incorporation of a small percentage of high quality imported sanitaryware casting clays.

- Additional sanitaryware moulds must be made and the necessary plaster-of-Paris must be imported. The method of mixing the plaster must be improved to ensure that good quality moulds are produced.

- The mould-making section must be moved to the ground floor of the two-storey building, so that more casting benches and moulds can be placed in the casting hall.

- The existing slip recirculation pump must be repaired and an additional pump installed to cope with the capacity of the two kilns.

- Additional air recirculation fans must be provided in the casting hall and a dual-fuel heater installed, to ensure efficient mould and ware drying.

Medium-term recommendations

- A mould dryer should be installed in the mould-making section.

- The non-operational gas-fired sanitaryware kiln must be repaired and both kilns should be converted to dual-fuel firing.

5. Tiles

Findings

- The lack of spare parts for the four-tile press and the tile handling equipment results in much downtime and loss of production.

- The poor quality of the die liner plates from the local suppliers also results in excessive downtime and loss of production.

- One of the two tile biscuit kilns is non-operational therefore tile production is restricted to a maximum of 50 per cent of capacity.

- Both glost kilns require some repair work and additional refractory kiln furniture is also required.

Short-term recommendations

- The necessary spares for the four-tile press and tile handling unit must be provided and installed. Die liner plates of good quality must be imported to ensure that the press can operate without excessive downtime.

- The non-operational tile biscuit kiln must be repaired and dual-fuel burners should be fitted to both tile biscuit kilns. New temperature control systems must also be installed on both kilns.

- The two tile glost kilns must be repaired and additional refractory kiln furniture provided to ensure that they can operate to capacity.

(e) Inputs

1. Raw material inputs

Findings

- The raw material inputs of the factory are not tested, either prior to mining or on arrival at the factory. In addition, the volumes of the materials at each of the quarry locations are not known and the quality variations within these deposits are also unknown.

- No stockpiling of raw materials is carried out, either at the quarry site or the factory to minimise the natural variations.

- The factory laboratory is not sufficiently equipped, either in terms of equipment, or in terms of qualified personnel to carry out the necessary work on a continuous basis. The factory is therefore using raw materials of unknown and varying properties from sites, which may or may not have assured long-term supplies. As successful manufacture of ceramic products requires a high degree of technical knowledge about the properties of each individual item on a continuous basis, to ensure that body formulations and glaze-body fit are correct and that drying and firing schedules are correct, the factory is expected to continue to suffer from high losses and poor quality until these raw material constraints are corrected.

Short-term recommendations

The following recommendations should be considered an immediate requirement, irrespective of whether the receivership continues or not.

- A detailed evaluation of all the raw material deposits should be made to determine the volumes available, their precise properties and the variations within the deposits.

- Various body formulations should be developed using the local materials and if necessary, in the case of sanitaryware, small percentages of imported material. The glaze-fit, drying characteristics and firing characteristics of each body must be determined.

- Stockpiling of each raw material should be carried out at the quarry sites. The stockpiles must contain sufficient material for 6-12 months production and the stockpile must be tested prior to use in the factory.

- Additional small stockpiles of each raw material must be kept at the factory in separate bays to avoid contamination.

- An outside expert should be employed for a 4 month period to supervise all of the above work and to train at least two personnel in ceramic testing procedures. This person could possibly be contracted by UNIDO under a technical assistance project. The company should also employ a ceramist on a permanent basis to ensure consistent quality control procedures are followed.

- Additional overseas training in the testing of ceramic materials for two factory personnel should be arranged. Such a programme should be for at least 4 months and could possibly be sponsored by UNIDO under a fellowship programme.

- Additional equipment is necessary for the laboratory to enable all the required raw material tests to be carried out. This should be supplied at the same time as the outside expert.

- An outside expert, technically qualified in ceramics and fully experienced in the general management and production processes of ceramic products, should be employed to supervise and assist in the raw material investigations and development of new body formulations. He would also supervise and co-ordinate the inputs of other experts involved in other parts of the production processes.

2. Glaze inputs

Findings

- All glazes are currently imported from the UK (Esmalglass). Although these are of good quality, serious glaze problems have still occurred at the factory, such as crazing, crawling and pin-holing. This is caused by poor glaze-body fit and uneven application of glaze due to variable biscuitware and the lack of glaze recirculation in the dipping tank.

- Occasions have occurred, when delays in importing the glazes have necessitated airfreighting consignments at increased cost, to avoid halting production of glazed ware.

- The factory is using 9.1 per cent of glaze by weight on the tile body, in comparison to a normal standard of 9.0 per cent, therefore the unit cost of the product is increased slightly.

- Some glaze frit is available locally from Mombasa but no tests have yet been carried out to determine, whether it is suitable for any of the products.

Short-term recommendations

- Tests on the body-glaze fit must be carried out on all potential body compositions by the outside expert. This expert should also carry out tests with the locally available frit to determine, whether it is suitable for use on any of the product lines. Various modifications to this frit may have to be made, based on the laboratory results achieved with the base material, to achieve an acceptable glaze.

- Programming of the supply of imported glaze must be arranged carefully to avoid a situation occurring, where glost firing is halted due to lack of glaze.

- By standardising the amount of glaze used in tile production to exactly 7 per cent by weight, a small but significant saving on this input can be achieved in the course of a year.

3. Decal inputs

Findings

- The majority of decals used are now made locally, except for a few of the more complicated designs, which are still imported from the U.K. (Mathey) and Italy.

- For hotel logos the factory expects the hotel to provide the necessary decals but delays in supplying the decals to the factory have led to a situation, where hotels are taking undecorated products for their replacement requirements instead of decorated ware. Potential profit for the factory is therefore being lost.

Short-term recommendations

- Hotels should be encouraged to purchase decorated ware to increase the profitability of the factory. The company should therefore purchase the necessary decals, based on the known annual replacement requirements of the hotel. Stable repeat orders from hotel groups should be encouraged, as they can provide a firm customer base for the company.

Medium-term recommendations

- An additional decorating kiln should be purchased, once the factory is operating closer to its potential capacity in 18-24 months from the commencement of the rehabilitation programme. At this time more emphasis could be placed on promoting decorated ware, as the majority of the quality problems should have been solved by this time.

4. Plaster-of-Paris inputs

Findings

- All plaster-of-Paris, which is used for the manufacture of the sanitaryware and crockery case moulds, working moulds for castware items and working moulds for machine- made items, is imported.

  The factory only imports one grade of plaster for all types of moulds, whereas different grades have been developed by the major plaster-of-Paris manufacturers for different applications. Case moulds and machine working moulds require a hard setting dense plaster, while castware working moulds require a more open texture. The difference in price is minimal but the life of the different types of mould would then be maximised and unit costs reduced.

- Due to the poor financial situation of the company, replacement of moulds is dictated by the irregular supply of Plaster-of-Paris, rather than being dictated by a normal standard replacement cycle to maintain the quality standard of the products produced from the moulds. As a result, sanitaryware working moulds, which should normally be replaced after 80 cycles are being used for up to 250 cycles. The quality of the products is therefore compromised.

- The mixing procedure of plaster and water is also poor and results in poor quality moulds being produced.

Short-term recommendations

- Some priority must be given to ensuring that sufficient finance is made available for the required plaster-of-Paris imports, based on the correct mould replacement cycle.

- Better mixing facilities should be provided for the mixing of plaster and an outside expert should be employed for a 2-month period to train the mould-makers in all aspects of mould-making. It is possible that such an expert could be provided under a UNIDO technical assistance assignment.

- This expert would also carry out tests on the locally available plaster-of-Paris to determine whether it can be used for any of the types of mould in use on the factory.

5. Fuel inputs

Findings

- There is a constant shortage of LPG from the refinery at Mombasa. Less than 50 per cent of requirements is supplied, even on the current low outputs, therefore it is impossible for the factory to reach its capacity.

Short-term recommendations

- It is essential that the factory immediately installs a dual-fuel firing system, so that in times of a shortage of LPG, the biscuit and sanitaryware kilns can be fired with kerosene and the production of the factory is not disrupted.

(f) Product range

Findings

- Ceramic Industries have certain problems with its sanitaryware line mainly due to production problems and problems with raw materials.

Recommendations

- Unless a solution can be found to overcome the present problems with raw material and bottlenecks in the production stages, delete the sanitaryware from the company's product programme.

(g) Plant and economic performance

Plant performance

Findings

- In all three production sections the capacity utilisation of all equipment is very low, which consequently increases unit costs. The potential maximum capabilities of each part of the factory have been determined and a comparison with actual current performance is as follows:

Crockery production

January-February 1989 average	50,984 pieces/month
July-December 1989 average	40,600 pieces/month
Installed potential capacity (biscuit)	136,800 pieces/month

- Crockery production therefore has fallen from approximately 37 per cent of capacity in early 1989 to approximately 29 per cent during the last six months of the year. The main bottleneck to increasing capacity quickly is in the biscuit firing section.

Sanitaryware production

January-February 1989 average (cast)	1,574 pieces/month
July-December 1989 average (cast)	105 pieces/month
1989 average	654 pieces/month
Potential cast capacity (to match installed kiln capacity, allowing 10 per cent cast-spray waste)	6,168 pieces/month

- Sanitaryware production therefore has fallen from approximately 25 per cent of potential capacity to 8 per cent during the last six months of the year. Average capacity utilisation for 1989 was 10.6 per cent.

Tile production

January-February 1989 average	204,190 pieces/month
July-December 1989 average	160,000 pieces/month
1989 average	195,698 pieces/month
Potential capacity (limited by glost firing installed capacity)	700,000 pieces/month

- Tile production has therefore decreased from approximately 29 per cent of potential capacity in early 1989 to 23 per cent of potential capacity during the last six months. Average capacity utilisation for 1989 was 28 per cent.

Short-term recommendations

- It is essential to repair the second crockery biscuit kiln as a matter of priority, so that two kilns are available for firing biscuit ware. The second crockery biscuit kiln should be replaced with a fibre-lined kiln and both kilns should be fitted with dual-fuel burners.

- To reach the maximum potential sanitaryware output the mouldmaking facilities must be moved to the ground floor of the building, so that the space can be utilised for additional casting benches. The second sanitaryware kiln must also be repaired.

- In order to improve capacity utilisation of the tile plant quickly, the Sacmi four-tile press requires to be thoroughly overhauled and a reliable supply of good quality die plates found. These may have to be imported. In addition, the second biscuit kiln must be repaired and the installation of dual-fuel burners is recommended.

- All of the other mechanical deficiencies outlined in section 8.3 for all of the sections must be progressively rectified to enable the plant performance to be improved to its maximum potential.

Economic performance

Findings

- The company has an extremely high debt with a high debt-equity ratio. The debt service is greater than the company's capacity to pay, even if the company was operating close to its potential capacity.

- The financial performance of the company deteriorated, when the company expanded into the production of sanitaryware and tiles in 1979. There has been an operating loss since 1980.

- Administrative overhead costs had been very high for many years, prior to the receivership. These costs have since been reduced considerably by the receiver managers.

- Technical weaknesses in production have resulted in low capacity utilisation, poor product quality, low productivity and hence, continuing losses for the company.

Recommendations

- A financial restructuring of the company is absolutely vital. This should include the elimination of most debts by the outright sale of the factory, as an operating entity, to another company. For the long-term success of the factory, this company should be privatized.

- A qualified financial controller should be appointed to the management team of the company, with the primary responsibility for the analysis and management of the company's financial structure and affairs.

- A detailed but easily managed cost accountancy system should be established. This should be installed on a standard software package.

(h) Markets and competitors

Findings

- No major problems in marketing of the products with present level of production.

- Ceramic Industries does not have its own sales outlets or distributors in Kenya.

- Inferior quality of all of the products.

- No distribution system within the country.

- The company is to some extent uncertain about local market needs.

Recommendations

- As soon as possible engage sales representatives on a commission basis in major cities in Kenya.

- Assess present products with regard to design and quality and make adjustments (as specified in Rehabilitation Requirements). Improve on quality control.

- No distribution system would be needed in the foreseeable future.

- Make a market survey on the local market in order to update product range.

(i) Policies

Findings

- The policy of the Geological Survey Department, in charging for information on ceramic raw materials on a strictly commercial basis is a discouragement to small companies or individuals wishing to investigate the prospects for entering this subsector.

- The local suppliers of decals appear to charge very high prices for these items due to their virtual monopoly position, which has been caused by the problems of obtaining foreign exchange for imported decals.

Recommendations

- To encourage the development of the ceramic industries subsector geological information should be made available at a reasonable price.

- Factories should be allowed sufficient foreign exchange for their raw material and spare parts requirements.

CHAPTER 11
SUMMARY OF PROJECT CONCEPTS

11.1 General

- Technical assistance (UNIDO) to establish within a Ministry selected by the Government of Kenya, a specialist consultancy unit with required expertize to undertake comprehensive surveys of rehabilitation needs in Kenyan manufacturing industry, to design appropriately phased rehabilitation programmes, undertake full feasibility studies and market surveys, assist in securing financing, advising on and monitoring the implementation of rehabilitation programmes.

11.2 For all enterprises visited

- Improve the management training of all senior and middle management, especially in the use of management information systems.

- Provide micro-computer and associated training especially to improve cost accounting systems.

- Improve the technical training of production and maintenance staff by means of technical assistance programmes (UNIDO) which would include a limited number of spare parts as part of the training programme.

11.3 Plant level projects

Mount Kenya Textile Ltd. (Mountex)

- Technical assistance programme (UNIDO in co-operation with ITC) for a market survey to assess the potential for various product lines in the domestic market as well as in export markets - particularly in regional and sub-regional export markets.

- Technical assistance programme (UNIDO) to provide training for managerial, accountancy, maintenance and production - particularly weaving - personnel. A limited number of essential spare parts would be provided by UNIDO as part of the training programme. UNIDO would assist in obtaining finance from third parties for the spare parts required.

- Technical assistance and appropriate training (UNIDO) for the installation of a micro-computer to improve Management Information Systems, especially for sales, purchases, inventory control and cost accounting.

- Technical assistance (UNIDO) to establish adequate in-house laboratory facilities and specialist regional laboratory facilities to enable adequate quality checks of raw materials and finished goods; associated training for laboratory technicians and specialists.

- Training (UNIDO), both basic and specialist, for weavers.

- Technical assistance (UNIDO) to properly match the production flows through the various departments to prevent the current product bottlenecks.

- Technical assistance (UNIDO) to develop and implement an appropriately phased rehabilitation programme; assistance to obtain financing for replacing old and obsolete machinery.

- Training programme (UNIDO) for human resource development with particular relevance to women workers; technical assistance (UNIDO) to improve working conditions.

Pan Vegetable Processors Ltd.

- Technical assistance (UNIDO) for a market survey of (i) world market demand, focused on Europe and Japan, for dehydrated vegetables, including types, quality requirements, prices and competitive situation, (ii) European market for fresh vegetables, including types of vegetables, packaging requirements, demand on a monthly basis, prices and competive situation.

- Management contract, during an intermediate period of maximum one year, until a rehabilitation programme is available and decisions made regarding the future of the company.

- Establish management information system.

- Domestic fresh vegetable market survey by the strengthened PVP management.

- Technical assistance (UNIDO) for preparation of a comprehensive rehabilitation programme.

- Elaboration, by the strengthened PVP management, of a rehabilitation and development plan for the two company farms, the Naivasha and the Malewa Farms.

- Prepare and implement an organized outgrower system in the Kinangop area, including qualified extension services, input supplies and credit facilities (Strengthened PVP management/ HCDA). UNIDO assistance for procurement of finance through bilateral donor(s).

Ceramic Industries (EA) Ltd.

It is recommended that a comprehensive UNIDO technical assistance project be carried out over a two year period. An essential part of the project will be as Chief Technical Advisor (CTA), experienced in the management of ceramic factories and technically qualified in ceramics, to supervise and co-ordinate all UNIDO inputs throughout the two-year programme. The project will also require the following inputs:

- a kiln ceramic machinery engineer
- a mouldbreaker/modeller
- a casting and glaze expert
- a computer expert
- a cost accounting expert
- the project will also include overseas training for a number of technicians and supervisors

ANNEX I

Annex Table 1: Mount Kenya Textiles, fiscal year 1989

	1989 (585,000t)	+40% more (819,000t)		+71% more (1,000,000t)	
		%	KSh	%	KSh
Value of current product sales	111,984	40.0	44,794	70.9	79,442
plus increased:					
finished inventory	(933)	0.0	0	0.0	0
work-in-progress	12,055	0.0	0	0.0	0
Total	123,106		44,794		79,442
Raw materials	64,926	40.0	25,970	70.9	46,059
Production overheads:					
wages and salaries	14,758	10.0	1,476	22.2	3,272
electricity	6,007	10.0	601	17.7	1,065
insurance	1,004	0.0	0	0.0	0
staff welfare	867	5.0	43	8.9	77
water	199	100.0	199	35.5	71
fuel and lubricants	8,110	20.0	1,622	35.5	2,877
repairs and maintenance:					
plant and machinery	208	10.0	21	17.7	37
buildings	242	0.0	0	0.0	0
protective clothing	125	10.0	13	22.2	28
security	679	0.0	0	0.0	0
depreciation:					
plant and machinery	17,329	0.0	0	0.0	0
buildings	1,316	0.0	0	0.0	0
Total production overheads	50,844	7.8	3,974	14.6	7,426
Cost of goods made	115,770		29,945		53,484
Gross profit	7,336		14,849		25,957
Administrative expenses:					
Directors fees	60	0.0	0	0.0	0
salaries and wages	6,834	0.0	0	0.0	0
staff provident fund	214	0.0	0	0.0	0
insurance	248	0.0	0	0.0	0
bank service charges	571	40.0	228	70.9	405
printing and stationery	814	0.0	0	0.0	0
office rent and rates	136	0.0	0	0.0	0
audit fees	129	0.0	0	0.0	0
hotels	762	0.0	0	0.0	0
transport	1,702	0.0	0	0.0	0
staff housing	438	0.0	0	0.0	0

(Continued on next page)

Annex Table 1: Mount Kenya Textiles, fiscal year 1989
(continued)

	1989 (585,000t)	40% more (819,000t)		71% more (1,000,000t)	
		%	KSh	%	KSh
general	5	0.0	0	0.0	0
telex, telephone and post	826	0.0	0	0.0	0
vehicle running expenditure	762	0.0	0	0.0	0
entertainment	87	5.0	0	8.9	0
licenses	53	40.0	0	70.9	38
sub. and donations	174	0.0	0	0.0	0
legal and prof. fees	178	0.0	0	0.0	0
depreciation	568	0.0	0	0.0	0
staff training	15	0.0	0	0.0	0
general repairs	41	0.0	0	0.0	0
Total	14,617	1.6	229	3.1	450
Selling costs:					
sales promotion	162	10.0	16	17.7	29
packing materials	2,088	40.0	835	70.9	1,481
Total	2,250	37.8	851	67.1	1,510
Total operating, administrative and selling costs	132,637		31,025		55,445
Gross additional profit before financial costs	(9,531)		13,769		23,997
Financial expenditure:					
interest	43,014	0.0	0	0.0	0
bad debts	325	0.0	0	0.0	0
Total	43,339	0.0	0	0.0	0
Other income	304	0.0	0	0.0	0
Net additional profit.(loss)	(52,870)		13,769		23,997

Source: Derived from audited accounts for 1989 and rough estimates of marginal costs by category provided by the production manager for Mount Kenya Textiles Ltd., 19 January 1990.

Note: The production manager estimated roughly by how much each category of expenses would increase to expand production by 40 per cent and, again, by 71 percent beyond the current level of production. Though a refined estimate would be much more detailed, the above table does yield a fair indication of how increased production would improve net profits. This is especially true since many expenses either increase pro rata or not at all.

ANNEX 2

List of persons met by the UNIDO mission to Kenya

African Development and Economic Consultants Ltd.

F.K. Maitha	Chairman

British Aid

D. Landemore	Economic Adviser

Ceramic Industries (EA) Ltd.

P. von Saaf	General Manager
M. Parpia	Chief Accountant
I. Matharo	Production Manager
H. Ndeti	Sales and Marketing Manager

Cotton Board of Kenya

D.K. Sana	Technical Services Manager

DEG - Deutsche Finanzierungsgesellschaft fuer Beteiligungen in Entwicklungslaendern GmbH

B. Heymanns	Regional Manager (Director, RAS)

Delegation of the Commission of the European Communities

T. Rohrsted	Delegate of the Commission
P. Darmuzey	Economic Adviser

East Africa Finance Consultants Limited

J.M. Konzolo	Investment Advisor

Ex-Ken Ltd.

R. Ahmed	Managing Director

Horticultural Crops Development Authority

M.A.S. Mulandi	Managing Director

Industrial & Commercial Development Corporation

J.P. Nyangeri Simba	Executive Director
S. Juma	Corporation Secretary
F.I. Ojow	Commercial Manager
C. Thamaini	Small Industrial Projects Manager
J. Osunga	Research and Promotion Manager
B.J.M. Obiri	Investments Supervision Manager
Kimaru	Chief Projects Manager

Industrial Development Bank Ltd.

N.K. Mondo	Manager, Consultancy & Rehabilitation Division
H. Njoroge	Acting Chief of Operations

Investment Promotion Centre

J.B.K. Nzioki	Project Manager
P. Malinda	Project Analyst
K. Musyimi	Information Officer
E. Koimet	Information Officer
L. Obbada	Policy Analyst
M. Musee	Project Analyst

Japan External Trade Organization

N. Hiramatsu	Executive Director
S. Saito	Director

Japan International Co-operation Agency

M. Juro	Assistant Resident Representative

Kenya Association of Manufacturing

J.W. Kuria	Chief Executive
K. Kamanu	Senior Executive Officer

Kenya Institute of Management

J.K. Koinange	Chief Executive
R. Engelmann	Programme Director

Kenya Management Assistance Programme

A.N. Morara	Programme Administrator & Chief Executive
M.V. Gohil	Deputy Programme Administrator
S. Lrgungo	Programme Development Analyst
[illegible]. Muchene	Counsellor

Kenya Sisal Board

Borler	Chairman
E.G. Karanja	Chief Executive

Ministry of Agriculture

[illegible]. Njenga Miingi	Deputy Secretary
S.N. Wagihi	Civil Servant
Kinyiri	Civil Servant

Ministry of Finance

Prof. Ryan	Economic Secretary to the Treasury
R.K. Bhatia	Advisor

Ministry of Industry

G. Okello	Director of Industry
S. Alambo	Assistant Director, Agro-industries
J. Murgor	Textile Specialist

Ministry of Planning and National Development

Dr. N. Njero	Head, Trade and Industry Division
B. Makao	Principal Planning Officer
D. Ongoio	Senior Economist, Trade and Industry

Mount Kenya Textile (Mountex)

A.K. Kandie	Managing Director
T.S. Rana	Deputy Managing Director
C.N. Ndungu	Personnel and Training Manager
S. Mutuota	Chief Accountant
J. Siaywa	Spinning Manager
J.O. Khaglile	Weaving Manager
E.B.O. Ogomber	Processing Manager
M.M. Kochmar	Chief Engineer
P.L. Singh	Sales Manager
L.O. Okoth	Internal Auditor

Norwegian Agency for International Development

S. Skjaeveland	Resident Representative

Pan Vegetable Processors Ltd. (PVP)

P. Odupoy	General Manager
P. Mokua	Chief Accountant
S. Peter Kamau	Production Manager
S. Okioma	Agricultural Manager
H. Nignougo	Agriculture Field Officer
M. Hagoi	Assistant Marketing Officer
S. Wambugu	Assistant Personnel Officer

Price Waterhouse

G. Silcock	Manager (also c/o Ceramic Industries (EA) Ltd.)
C. Muchene	Manager

Rehabilitation Advisory Services Ltd. (RAS)

C.N. Aspes	Chief Executive
M. Thiribi	Consulting Project Manager

The Africa Project Development Facility

G. Gnecchi-Ruscone	Investment Officer
R.L. Hurelbrink	Investment Officer
R.M. Kimotho	Investment Officer
J. Ullman	Consultant

The East African Bag & Cordage Company Ltd.

D.N. Munga	General Manager

The Kenya National Chamber of Commerce & Industry

F.N. Macharia	National Chairman
C.K. Gathirimu	Acting Chief Executive
M.R. Kiono	Membersnip Officer

The World Bank, Regional Mission in East Africa

T. Allen	Deputy Resident Representative and Chief of Mission
J. McGregor	Senior Operations Officer
S. Sheti	Industrial Economist

United Nations Development Programme

J.J. Graisse	Resident Representative

United Nations Industrial Development Organization

A. Pagani	Country Director
J. Kwant	Junior Professional Officer

United States Agency for International Development

S. Baker	Chief, Office of Projects
M. Kimemia	Private Sector Advisor
H. Wise	Chief, Private Enterprise Division

ANNEX 3

List of UNIDO's approved and/or operational technical co-operation projects

(approved = PAD issued)

Republic of Kenya

Project Number	Backstopping Responsibility	All.Acc.Code	Project Title
US/KEN/84/163*	IO/T/AGRO Mr. Buljan	J13104	Leather development centre (LDC)
DP/KEN/86/013*	IO/IIS/INFR Ms. Taluy	J12103	District Development Profile Studies - Assistance to the Ministry of Industry
DP/KEN/86/048**	IO/T/ENG Mr. Gladilov	J13316	Engineering Development and Service Centre (EDSC)
DP/KEN/86/064	IPCT ID	G01300	Industrial investment programme - preparatory assistance
DP/KEN/87/009*	IO/IIS/INFR Ms. Taluy	J12103	Technical support for KIE's micro-businesses and extension services - Nyanza Province
DP/KEN/87/012	IO/IIS/INFR Mr. Antonio	J12106	Kenya Industrial Training Institute (KITI) entrepreneurship development programme - preparatory assistance
DP/KEN/88/003	IO/T/ENG Mr. Gladilov	J13312	Establishment of a network of rural Jua Kali Production and Service Subcentres (JPSC) to support manufacture of rural equipment
US/KEN/88/100*	IO/T/AGRO Mr. Berg	J13104	National hides and skins, leather and leather products improvement scheme - East Africa (related to US/RAF/88/100)
DP/KEN/89/001*	PPD IPP/STAT	E03401	Computer System Requirements for the Ministry of Industry (Industrial Registration Division)
DP/KEN/89/021	IO/T/CHEM Ms. Yalçindag	J13419	Karachuonyo women's pottery project - preparatory assistance
XP/KEN/90/034	IO/IIS/PLAN Mr. Mueller	J12415	Fellowship in integrated sectoral planning / the use of Methodology for the Assessment, Programming and Management of Production and Consumption Systems (MEPS) in the vegetable oil/protein system in Kenya

* Large-scale project (= total allotment $150,000 or above)
** Total allotment $1 million or above

ANNEX 4

List of UNIDO's pipeline projects in the Republic of Kenya

Project number	Project title	Total budget ($)
DP/KEN/86/064	Industrial investment programme (Main phase)	668,250
DP/KEN/87/012	Entrepreneurship development programme (KITI) - main phase	1,495,000
DP/KEN/87/013	Pilot demonstration simple manufacturing plant to upgrade Jua Kali and training (Ex US/KEN/88/175)	674,200
DP/KEN/88/003	Establishment of a network of rural Jua Kali production and service sub-centres (JPSC) Ltd. to support manufacture of rural equipment	0
DP/KEN/89/016	Strengthening of district industrial promotion services	1,765,250
SI/KEN/90/9XX	Assistance to Kenya ceramics industry	0
US/KEN/89/179	Programme for the identification, preparation and promotion of industrial investment projects in Kenya in the food-industries sector	215,000
XA/KEN/XX/9XX	Assistance in the production of animal feed from agricultural waste	100,000
XX/KEN/89/9XX	Assistance to the textile women Jua Kali: establishment of two textile printing and training centres (Ministry of Technical Training and Applied Technology)	1,443,600

Annex 5

List of UNIDO's completed technical co-operation projects (since 1972)

Republic of Kenya

Project Number	Backstopping Responsibility	Spec.Act./ All.Acc.Code	Project Title
TS/KEN/74/004	IO/IIS/INFR	31.1.02	Study mission to Ethiopian Standards Institute
SI/KEN/75/818	IO/IIS/INFR	31.3.B	Preparatory mission ceiling on an industrial information system
DP/KEN/75/029	IO/IIS/INFR	31.3.J	Assistance to Industrial Research and Consultancy Unit
DP/KEN/78/014	IO/IIS/INFR	31.3.J	Study tour of Industrial Research Institute
TF/KEN/79/004	IO/IIS/INFR	31.3.J	Assistance to Industrial Research and Consultancy Unit (IRCU) (multifund to DP/KEN/75/029)
TS/KEN/74/001	IO/IIS/INFR	31.4.01	Small-scale advisory mission for Bandora housing scheme
AR/KEN/76/003	IO/IIS/INFR	31.3.D	Appraisal mission to Kenya (Mr. Levitsky)
SI/KEN/75/816	IO/IIS/INFR	31.3.D	Short-term assistance to small-scale industry programme
RP/KEN/81/002	IO/IIS/INFR	31.3.L	Follow-up to workshop on entrepreneurial development, Kenya Industrial Training Institute (KITI)
DP/KEN/77/006	IO/IIS/INFR	J12103	Assistance to small-scale industries, Kenya Industrial Estates Limited (continued under DP/KEN/81/017)
DP/KEN/81/017	IO/IIS/INFR	J12103	Assistance to small-scale industries, Kenya Industrial Estates Limited (phase II) (continuation of DP/KEN/77/006, continued under DP/KEN/84/011)
DP/KEN/84/011	IO/IIS/INFR	J12103	Assistance to small-scale industries, Kenya Industrial Estates Limited (phase III) (continuation of DP/KEN/81/017)
DP/KEN/85/002	IO/IIS/INFR	J12103	Industrial estate management and maintenance
AR/KEN/74/002	IO/IIS/INFR	31.3.M	Market development and development industries (financed by SIDA - Executing agency: ITC)
IS/KEN/73/004	IO/IIS/INFR	32.3.03	Advisory services and international contract manufacturing
DP/KEN/78/012	IO/IIS/IMR	31.4.B	Assistance to the Ministry of Commerce and Industry
DP/KEN/75/027	IO/IIS/IMR	31.7.A	Development of timber engineering industries, preparatory assistance
DP/KEN/77/007	IO/IIS/IMR	31.7.A	Development of new timber products
IS/KEN/74/035	IO/IIS/IMR	31.7.A	Development and commercialization of prefabricated modular timber bridges

List of UNIDO's completed technical co-operation projects (since 1972)

Republic of Kenya
(continued)

Project Number	Backstopping Responsibility	Spec.Act./ All.Acc.Code	Project Title
SI/KEN/74/835	IO/IIS/IMR	31.7.A	Development and commercialization of prefabricated modular timber bridges
TF/KEN/74/003	IO/IIS/IMR	31.7.A	Construction and building materials
TF/KEN/78/002	IO/IIS/IMR	31.7.A	Development of new timber products
VC/KEN/76/051	IO/IIS/IMR	31.7.A	Development of timber preservation in rural areas through a mobile demonstration unit
DP/KEN/70/521	IO/IIS/PLAN	31.2.A	Industrial survey and studies
DP/KEN/74/007	IO/IIS/PLAN	31.2.A	Assistance to Industrial Survey and Promotion Centre, strategy and policy for industry, phase I and II
DP/KEN/80/001	IO/IIS/PLAN	J12413	Assistance to the Ministry of Industry (continuation of DP/KEN/74/007)
TS/KEN/69/001	IO/T/AGRO	00.0	Industrial processing of maize
SI/KEN/81/801	IO/T/AGRO	31.7.C	Assistance to Uplands Bacon Factory
US/KEN/78/204	IO/T/AGRO	31.7.D	Leather quality control laboratory
DP/KEN/75/010	IO/T/ENG	31.9.B	Development and manufacture of low-cost water-lifting devices
SI/KEN/84/801	IO/T/ENG	J13314	Preparatory assistance to strengthen the boat-building industry
US/KEN/78/268	IO/T/ENG	31.9.B	Technical evaluation of low-powerd tractors
IS/KEN/74/038	IO/T/ENG	31.9.Z	Study mission to India on transfer of industrial technology
SI/KEN/82/801	IO/T/CHEM	32.1.A	Development of a third cement factory in Kenya
SI/KEN/87/801	IO/T/CHEM	J13420	Advisory mission on the rehabilitation of 'Synthetic Fibres Kenya Ltd.'
DP/KEN/75/009	IO/T/CHEM	32.1.F	Consulting services for implementing a fertilizer plant
DP/KEN/83/007	IO/T/CHEM	32.1.F	Consulting services for implementing of a fertilizer plant
IS/KEN/75/007	IO/T/CHEM	32.1.F	Consulting services for implementing fertilizer project
SI/KEN/79/801	IO/T/CHEM	32.1.E	Preparatory mission to develop plan for paper conversion industries
SI/KEN/79/803	IO/T/CHEM	32.1.C	Production of power alcohol from molasses

List of UNIDO's completed technical co-operation projects (since 1972)

Republic of Kenya
(continued)

Project Number	Backstopping Responsibility	Spec.Act./ All.Acc.Code	Project Title
SI/KEN/78/801	IO/T/CHEM	32.1.C	Development of solar salt production
IS/KEN/75/002	IO/OS/FEAS	31.6.A	Feasibility of manufacturing wind-powered water-pumping equipment in Mbita Division, South Nyanza
SI/KEN/75/802	IO/OS/FEAS	31.6.A	Feasibility of manufacturing wind-powered water-pumping equipment in Mbita Division, South Nyanza
US/KEN/83/227	IO/OS/FEAS	31.6.A	Support in financial analysis for iron and steel project
TS/KEN/73/001	IO/OS/FEAS	32.3.04	Advisory services of industrial free zones
RP/KEN/76/001	IO/OS/IHRD	31.5.B	Planning and appraisal of industrial projects
RP/KEN/76/004	IO/OS/IHRD	31.5.B	Industrial training
RP/KEN/82/001	IO/OS/IHRD	31.5.B	Training design and management
DP/KEN/78/011	IO/OS/IHRD	31.5.C	Training course on project evaluation and transfer pricing (MCI)
RP/KEN/78/002	PPD AREA/ECDC	30.9.Z	TCDC: LATU assistance to Kenya in the field of leather industry, preparatory mission
RP/KEN/78/003	PPD AREA/ECDC	30.9.Z	TCDC: Kenya/Uruguay - establishment of a leather quality control laboratory
RP/KEN/79/002	PPD AREA/ECDC	30.9.Z	Visit of four experts from Kenya to Yugoslavia to discuss details for co-operation between leading Yugoslav firms and ITET-Nairobi
RP/KEN/80/001	PPD AREA/ECDC	30.9.Z	Additional DSA for Dr. Ongoma, an expert from Kenya in conjunction with RP/KEN/79/002
DP/KEN/79/003	IPCT II	31.1.B	Investment promotion seminar
RP/KEN/78/001	IPCT DTT/TEC	62.4.Z	Technical co-operation among developing countries - study tour to India in the field of technology development
UC/KEN/81/148	IPCT DTT/TEC	62.4.Z	National symposium on industrial research and development
RP/KEN/80/002	EPL REL/PROT	70.3.Z	Consultations with Permanent Secretary, Ministry of Industries, Kenya

ANNEX 6

The UNIDO integrated "Top-Down/Bottom-up" approach to rehabilitation

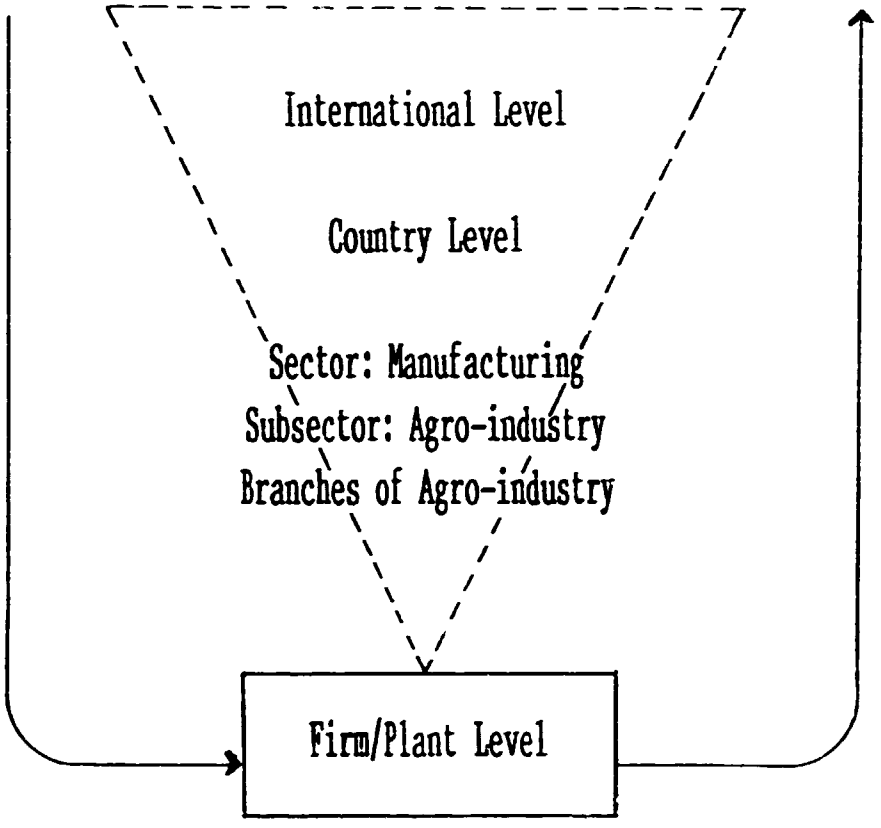
Until now, most work in Africa on industrial rehabilitation has not been systematic or comprehensive, and international co-operation has also suffered from these shortcomings. Rehabilitation has been viewed either as the treatment of a plant's technical problems - without analysing the real causes or their ramifications - or as a macro-economic issue. In the first case, technical assistance activities have often been carried out in isolation from governments' fiscal, monetary and economic policies, without taking into account financial requirements, market possibilities, and the availability of raw materials and intermediate outputs. This approach has frequently resulted in rehabilitation projects that were too narrowly focused. Concentration on solving individual problems runs the risk of other problems being ignored. In the second case, the diversity of economic activities and economic potential at the micro-level is not always appreciated.

The concept of industrial rehabilitation obviously needs to be broadened and integrated: it should combine an understanding of both macro-economic forces and real problems at the plant level. Manufacturing enterprises should be studied in relation to their total economic environment. Diagnostic analyses and remedial action programmes should cover the entire range of technical, managerial and technology issues at the plant level as well as the overall financial, commercial and structural issues at the branch and macro-economic levels. An approach covering all these issues would be a top-down/bottom-up approach. It would start with an examination of the macro-economic level, descend through the sector, subsector and branch levels, and arrive finally at the plant level. On the basis of this approach, industrial rehabilitation would become an exercise in securing the optimal use of existing capacities and resources for future, general industrial growth: it would become part of an attempt to regenerate the African industrial development process.

The integrated, multidisciplinary approach can be summarized in Figure 1 below. In order to assure that rehabilitation is not impeded by environmental factors, the "top-down" analysis is followed by an assessment of each firm in terms of its rehabilitation climate, from the bottom up. In other words, an effort is made to assess what changes in the economic and institutional environment (e.g. government tariff policies, regulations concerning allocation of foreign exchange, etc.) constitute preconditions to successful plant level rehabilitation. By examining the plant in its total working environment from top-down to bottom-up, UNIDO believes it can identify the means for firms to achieve long-term viability.

Figure 1: The Plant in its working environment:

Top-down/Bottom-up approach



Top-Down:
Analysis of Working Environment as it Affects Individual Plants

Bottom-up:
Recommended Changes in the Working Environment

The Top-Down/Bottom-up approach leads to three main tasks. The first is to identify suitable enterprises where scarce foreign exchange and other investible resources will be most efficiently used to upgrade production and company performance, thus ensuring the greatest impact on overall growth. In particular cases, industrial rehabilitation may actually lead to plants being recommended for closure. In such cases, even though important social and political implications have to be considered, shut-downs cannot be excluded. The established concept of rehabilitation often restricts the view of decision-makers to existing industrial structures, whereas a wider and more forward-looking regeneration concept might help all parties concerned to see closure as a necessary part of an attempt to establish an industrial structure with better prospects for sustained growth.

The second task is to combine the plant rehabilitation process with a restructuring programme of the industrial sector as a whole so as to ensure growth, domestic economic integration, and/or the provision of support industries and services. Such a programme will entail investment in new capacities in industry, infrastructure, services and primary commodity production. The third requirement is to adjust the policy and administrative framework to support better the domestic and international efforts towards the industrial regeneration objective.

Rehabilitation can thus been seen to be a process that has technical, technological, organizational and managerial implications. It also has economic, financial, marketing, design and engineering aspects. Similarly, restructuring at the subsectoral level should take into account economic and financial aspects, as well as the general and technical management structure, product technology and range, and domestic and foreign markets. The wide range of issues involved implies that human, physical and financial resources should be concentrated on a few manageable projects or markets, and attention should be focused on technological developments and market trends.

As the approach covers a wide range of issues, successful implementation requires the mobilization of resources from domestic entities, both public and private, and from foreign multilateral, bilateral, commercial and financial bodies. The activities of these entities should be co-ordinated to provide the appropiate assistance to plants, subsectors and overall industrial regeneration.

The Top-Down/Bottom-up approach also suggests a concentration on a few important firms in key subsectors with good backwards and forwards linkages to other firms, industries and sectors, especially primary sectors such as agriculture and other natural resource sectors.

Emphasis on a few strategic firms with good linkages in key subsectors concentrates resources where they can have most impact. It also maximizes the multiplier effects of any given investment. In that, should these firms be successfully rehabilitated they will exert a significant "pull-effect" on other similarly placed firms. They thus become the motors to start the regeneration process going and provide the dynamism for more widespread economic growth.

In sum, the application of the Top-Down/Bottom-up approach will assist African Governments to link the macro-industrial, macro-economic, branch-level and project issues to decisions taken on rehabilitation and upgrading of production. The approach is also expected to increase the rate of survival of particular plants or sub-sectors being rehabilitated, if due consideration is given to the context in which the selected plants or sub-sectors operate. Industrial rehabilitation must be a dynamic, forward-looking concept. Restoring industry is not sufficient, for both the world and economic conditions change rapidly. Ignoring these changes might lead industry back to its prior unacceptable state.