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17626

Distr.
RESTRICTED

PPD/R.26
14 June 1989

UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

ORIGINAL: ENGLISH

THE REGENERATION OF THE TANZANIAN MANUFACTURING INDUSTRY WITH EMPHASIS ON AGRO-BASED INDUSTRIES*

Special reports on industrial rehabilitation

No. 4

Prepared by

Regional and Country Studies Branch

Industrial Policy and Perspectives Division

2/

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V.89-56659

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 their 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, Angola and Liberia are the first in a series of country-level diagnostic surveys on the rehabilitation 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 report is structured as follows: Chapters 1-3 present an overview of the economic policy and institutional environment in which plants operate at the national, sectoral and subsectoral levels. Chapter 4 relates specifically to the economic and political context of Zanzibar. Chapters 5 and 6 focus specifically on the manufacturing sector and the agro-industry subsector. Chapter 7 discusses the selection of plants, after which Chapter 8 provides background information on the branches to which these plants belong. Chapter 9 is an in-depth analysis of the rehabilitation needs of three specially selected plants, and contains confidential material. General and plant-level findings and recommendations are then summarized in chapters 10 and 11, and the report concludes with a summary of project concepts, Chapter 12.

This survey on the rehabilitation needs of manufacturing industry in the United Republic of Tanzania was prepared by a UNIDO field mission which visited the United Republic of Tanzania during the period 10 February to 10 March 1989. The team consisted of Mr. Victor Zakharian, UNIDO (team leader), and UNIDO consultants Mr. Tom Alberts, Mr. Grant Hughes, Mr. Abdallah Makange, Mr. Daniel Nicholson, Mr. Graham Walker, and Mr. Samuel Wangwe.

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MAP OF TANZANIA

Source: Economist Intelligence Unit.

The boundaries shown on this map do not imply official endorsement or acceptance by the United Nations Industrial Development Organization.

GENERAL COUNTRY INFORMATION

AREA:	945,000 km^2
POPULATION:	23.5 million (1987/88)
POPULATION GROWTH RATE:	3.3 per cent per year (1987/88)
MAIN CITIES:	Dar es Salaam 851,000 (1978) 1,400,000 (1984) Musoma 219,000 (1978) Dodoma 158,000 (1978) Tanga 144,000 (1978) Zanzibar Town 110,000 (1978) Mwanza 110,000 (1978)
GDP AT CURRENT PRICES:	TSh 204.5 billion or US$4,020,000 (1986) (increasing at annual rate of 0.7 per cent in 1980-1985, 3.6 per cent in 1986, and 3.9 per cent in 1987)
GDP PER CAPITA:	US$ 210 (1987) (growing at rate of 0.6 per cent in 1987)
DISTRIBUTION OF GDP BY SECTOR:	Agriculture 59 per cent Manufacturing Industry 4 per cent Construction and Mining 5 per cent Services 32 per cent
EXCHANGE RATE (OFFICIAL):	TSh 130 = US$ 1 (March 1989)
AVERAGE RATE OF INFLATION:	30 per cent per year (1980-1986)
OUTSTANDING DEBT:	US$ 500 million (1985)
EXPORTS (f.o.b.): IMPORTS (c.i.f.)	US$ 400 million (1988, estimated) US$ 1,200 million (1988, estimated)
PRINCIPAL EXPORT CROPS:	Coffee US$ 167.1 mn (1986) Cotton US$ 30.9 mn (1986) Sisal US$ 5.4 mn (1986)
INFANT MORTALITY RATE:	1.5 per cent
LIFE EXPECTANCY:	(male) 51 years (female) 55 years
SCHOOL ENROLMENT:	3.2 million (1988) (enrolment rate about 87 per cent at primary level, and 4 per cent at secondary level)
OFFICIAL LANGUAGES:	English and Swahili

LIST OF ABBREVIATIONS

AAA	Accounting and Auditing Association
AGSASU	Agricultural Sample Survey
BIS	Basic Industries Strategy
BRU	Building Research Unit
CAMARTEC	Centre for Agricultural Mechanization and Rural Technology
CCM	Chama Cha Mapinduzi
CEDO	Consulting and Engineering Design Organization
CPE	Chemical and Process Engineering (University of Dar es Salaam)
CRDB	Co-operative and Rural Development Bank
DTD	Danish Turnkey Dairies
EC	European Community
ERB	Economic Research Bureau (University of Dar es Salaam)
ERP	Economic Recovery Programme
ESAMI	Eastern and Southern African Management Institute
FAO	Food and Agricultural Organization
FRG	Federal Republic of Germany
GATT	General Agreement on Trade and Tariffs
GD	Geology Department, University of Dar es Salaam
GDP	Gross domestic product
GDR	German Democratic Republic
GNP	Gross national product
GS	Geological Survey
GURT	Government of United Republic of Tanzania
HPTC	High Precision Technology Centre
IDA	International Development Agency
IDM	Institute of Development Management
IFM	Institute of Finance Management
IMF	International Monetary Fund
IMS	Industrial Management Services
IPI	Institute of Production Innovation (University of Dar es Salaam)
IPP	Industrial Products Promotion
ISIC	International Standard Industrial Classification
MEIDA	Metal Engineering Industries Development Association
MFEAP	Ministry of Finance, Economic Affairs and Planning
MVA	Manufacturing value added
NBC	National Bank of Commerce
NEC	National Executive Committee
NIP	National Institute of Productivity
NMC	National Milling Corporation
NVTC	National Vocational Training Centre
OGL	Open General Licence
PPHE	Parallel plate heat exchanger
PTA	Preferential Trade Area
PVC	Polyvinyl chloride
SADCC	Southern African Development Co-ordination Conference
SIDA	Swedish International Development Authority
SIDO	Small Industries Development Organization
SITC	Standard International Trade Classification (revised)
SMP	Skimmed milk powder

LIST OF ABBREVIATIONS (continued)

SPM	Southern Paper Mills
SSI	Small-scale industry
SUDECO	Sugar Development Corporation
TAFCO	Tanzania Animal Feeds Company Ltd.
TALIRO	Tanzania Livestock Research Organization
TBS	Tanzanian Bureau of Standards
TDFL	Tanganyika Development Finance Ltd.
TEMDO	Tanzania Engineering and Manufacturing Design Organization
TIB	Tanzania Investment Bank
TILT	Tanzania Institute of Leather Technology
TIRDO	Tanzania Industrial Research and Development Organization
TISCO	Tanzania Industrial Studies and Consulting Organization
TKAI	Tanzania Karatasi Associated Industries
TSh	Tanzanian Shilling(s)
UDSM	University of Dar es Salaam
UNDP	United Nations Development Programme
UNIDO	United Nations Industrial Development Organization
URT	United Republic of Tanzania
ZADACO	Zanzibar Dairy Development Corporation

CHAPTER 1
INTRODUCTION

1.1 Main aspects of the study

The basic objective of this study is to provide a diagnostic survey of plant rehabiliation needs in a few key agro-industrial branches of the Tanzanian manufacturing sector. The approach used in this study provides for an analysis of industrial rehabilitation requirements integrating the policy, economic, technological, managerial, financial and marketing dimensions, thereby focusing on plant-level rehabilitation within the context of the macro-economic environment.

The methodology applied in this survey has been described in detail in the first of this series of UNIDO studies on industrial rehabilitation in Africa.1/ To summarize, this approach to rehabilitation involves both a "top-down" perspective, which moves the analysis of rehabilitation needs successively from the macroeconomic level down to the plant level, and a "bottom-up" perspective, which identifies the environmental changes which would be needed at the macro-economic level for successful implementation of the recommended plant-level improvements.

Following this approach, Chapters 2 and 3 provide background information on Tanzania's economy, policies and institutional structure as they relate to industrial rehabilitation. These chapters also include an analysis of international support provided to Tanzania and of the regeneration of Tanzanian industry in its regional context.

An overview of economic development and industrial regeneration of manufacturing industry in Zanzibar is provided in Chapter 4. Zanzibar was visited by the UNIDO mission at the suggestion of Tanzanian Government officials and by invitation of the Government of Zanzibar.

After examining Tanzanian manufacturing industry in general (Chapter 5), the study concentrates on agro-related industries. The regeneration of these industries has been accorded high priority under the Economic Recovery Programme (ERP), which was introduced by the Government of Tanzania in 1986. Chapter 6 outlines the main reasons for concentrating on these industries.

In order to identify plants in need of rehabilitation, and to consider their overall rehabilitation requirements, the mission visited and/or held discussions with senior management of 14 industrial enterprises which were selected from a list of more than 20 candidate plants. After preliminary analysis, four plants were finally selected for detailed surveys. The process and main criteria for selecting plants are discussed in Chapter 7. The enterprises selected for in-depth study were: Tangold Products Ltd., Twiga Paper Products Ltd., and Tanzanian Animal Feeds Co. Ltd. (TAFCO), all on the

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1/ Regenerating African Manufacturing Industry: Approach and Programme, UNIDO/PPD.101. Studies on the rehabilitation of African industry No. 1, 29 December 1988.

mainland of Tanzania, and Zanzibar Dairy Development Corporation (ZADACO), on the island of Zanzibar.

A survey is made in Chapter 8 of the corresponding branch for three of the four enterprises, i.e. fruit canning and bottling, paper processing, and animal feed. The mission decided that a separate branch-level analysis of the dairy industry was not needed, since an analysis of ZADACO, which dominates both raw milk production and dairy processing in Zanzibar, would be sufficient for this purpose.

In Chapter 9, a detailed analysis is made of the rehabilitation needs of each of these four enterprises, focusing on aspects such as management and organization, economic and financial performance, state of physical plant and capacity utilization, maintenance and marketing.

The study concludes with recommendations of both a short- and long-term character which address technical, financial, organizational, and marketing problems, as well as the related economic and industrial rehabilitation environment.

The various recommendations made in this report regarding the rehabilitation of particular enterprises should not be regarded as comprehensive project proposals; the projects and programmes which are outlined in this report generally must be complemented by more detailed technical and economic studies in order to provide effective guidelines for subsequent implementation.

1.2 Possible involvement of local consulting firms

The Ministry of Industry and Trade expressed an interest in covering more industrial branches than those selected by the mission. As the mission did not have the operational capacity to study more than the four plants selected, the Ministry suggested that Tanzanian consulting firms could be involved in the preparation of separate surveys for other branches. It was agreed that the mission would provide the necessary methodological support to the local consulting firms. The Tanzania Industrial Services and Consultancy Organization (TISCO) was thoroughly briefed by the mission on the UNIDO methodology and approach.

1.3 Consultations and discussions

In the preparation of this survey, close working relations were established with the Ministry of Industry and Trade, which organized meetings with other Government institutions and companies. The mission was also guided and assisted by the Ministry of Industry and Trade in Zanzibar.

With the assistance of the UNDP office, through its UNIDO Junior Professional Officer, a series of meetings was organized with a number of bilateral and multilateral agencies.

A list of the principal organizations, companies and persons contacted by the UNIDO mission in Tanzania can be found in an annex to this report.

CHAPTER 2

KEY FACTORS AND TRENDS IN THE TANZANIAN ECONOMY IN THE CONTEXT OF REGENERATION

2.1 Current economic situation

Tanzania's current economic crisis began to surface in the 1970s when the growth rate of GDP decelerated, and the growth rate of the directly productive sectors (agriculture, industry) declined even more dramatically. During the period 1980-1985, the volume of economic activity increased by an average of only 0.7 per cent per year.

In the period 1970-1976, value added in agriculture grew at a rate of 1.01 per cent per year, in a country whose population was increasing at a rate of 3.3 per cent per year. This low rate of agricultural growth led to stagnation in the volume of exports, as 80 per cent of all exports originate from this sector. Coupled with the deteriorating terms of trade for the major export crops, it also resulted in a decline in the value of exports. This situation precipitated a shortage of foreign exchange to import essential inputs, equipment and spare parts for the economy. The industrial sector, transport and communications, and other physical infrastructure were soon operating below capacity due to the lack of the necessary imports.

The poor performance of the agricultural sector was caused by drought in some parts of the country, producer prices which were low and in some cases declining in real terms, inadequate research and extension services, and poor marketing channels. These problems were exacerbated by drastic institutional changes (e. g. villageization, and replacement of co-operatives by crop authorities), and inadequate allocation of resources to agriculture, particularly to smallholder farms.

The economy was further subjected to strain by the break-up of the East African Community in 1977, regional conflict in 1978/79, sharp increases in the price of oil in 1973/74 and 1979/80, and the generally import-intensive investments (especially in industry) which were made during the 1970s. These developments, which exerted pressure on the balance of payments to the extent that they required considerable expenditure of foreign exchange, also contributed to the budget deficit in that they were largely financed from the government budget. Deficit financing led to an increased money supply and thus contributed to inflationary pressures in the economy. Gross capital formation averaged over 25 per cent in the 1970s, but the capital stock created could not be fully utilized due to the scarcity of imported inputs and to the deterioration of plant resulting from lack of maintenance.

Attention in the 1980s turned to the search for ways of rehabilitating the run-down capital stock, especially in industry, physical infrastructure and agriculture. Compared to reliance on new investment, rehabilitation and better utilization of existing capacities was endorsed by the Government as a more efficient means for reviving output, alleviating the shortages of goods in the economy, and easing the rate of inflation.

Redirection of efforts towards rehabilitation began in the National Economic Survival Programme of 1981-1982, when it was stated that the focus would be on the consolidation of overall production, the completion of ongoing projects and the more complete utilization of existing capacity, before embarking on any new projects. This focus was articulated further in the Structural Adjustment Programme (1982-1985), which stated that priority would be accorded to the rehabilitation of existing capacity and which either postponed or canceled a number of projects planned for implementation, except where new projects were seen as needed to eliminate bottlenecks in production. The emphasis on the rehabilitation of existing productive capacity has been further reiterated in the current Economic Recovery Programme (1986-1989).

The volume of economic activity has begun to show signs of recovery, with the rate of GDP growth increasing to 3.6 per cent in 1986 and to 3.9 per cent in 1987. These could be the first signs of an upturn in the economy.

2.2 The impact of economic policies

The economic crisis was caused by both external and internal factors. The economic policy response to the crisis, irrespective of its causes, has generally been inadequate since the 1970s in the following areas:

(1) Producer prices in agriculture were kept too low, mainly in order to maintain low food prices for the urban population. Export taxes, overvaluation of the exchange rate and high marketing costs contributed to holding down the prices of export crops.

(2) Allocation of resources to the agricultural sector was permitted to decline; during 1981-1983, for example, the share of development expenditures allocated to agriculture averaged 10-12 per cent (although this share has increased to 26-30 per cent in the period since 1983). Low allocations to this sector resulted in a decline in agricultural production due to the deterioration of research and extension services, poor marketing supply of agricultural inputs, and the lack of incentives.

(3) The exchange rate was overvalued, and this worsened over time as the Government delayed using the exchange rate as an explicit policy instrument. Under the Economic Recovery Programme, the Government is pursuing an active exchange rate policy with the aim of attaining an equilibrium exchange rate.

(4) Administrative controls determined the allocation of resources to a large extent. Price controls were over-extended, rendering them less effective and fueling the growth of parallel markets. The role of administrative allocation of foreign exchange is being reduced with the introduction and gradual expansion of the Open General Licence (OGL) facility. Price controls have now been reduced considerably.

(5) The parastatal sector exhibited mixed performance, and was generally marked by a lack of incentives and explicit performance criteria. Consequently, no action was taken to reduce the deficiencies, even

for those parastatals which were operating inefficiently. The Government prepared an action plan in 1987/88 to rationalize the parastatal sector, so as to improve the institutional environment in which parastatals operate and to restructure specific enterprises.

(6) The balance in the allocation of resources between new investments, on the one hand, and rehabilitation and improved capacity utilization, on the other hand, had been in favour of new investments. This was partly due to the evident preference of foreign financing for new projects, and partly due to the assumption that the economic crisis would be short-lived. This imbalance is now being addressed through a deliberate policy to shift the allocation of resources in favour of rehabilitation and utilization of existing capacities.

(7) The urban population has had better access to price-controlled items, which discouraged the rural population from increasing agricultural output due to lack of incentive goods and agricultural inputs. With the reduction of price controls and increasing agricultural producer prices, this problem has lessened considerably.

2.3 International trade and payments

The deterioration in the terms of trade, together with the stagnating volume of exports, has resulted in a decline in export revenues, with the share of exports to GDP declining from 22.3 per cent during 1970-1973 to only 8 per cent during much of the 1980s.

The current account deficit exceeded export revenue twofold in the 1980s and was largely financed by loans and grants. However, the inflow of foreign finance has stagnated and declined since 1983, partly because the Government had not yet concluded an agreement with the International Monetary Fund (IMF) and payments arrears were accumulating rather rapidly. Tanzania's outstanding debt increased from US$ 1.6 billion in 1983 to US$ 3.5 billion in 1985, and rose further to US$ 5.0 billion in 1988. Although most of this debt is on concessional terms, the debt service ratio rose from 21 per cent in 1982 to 91 per cent in 1986, rendering the country much less creditworthy in the international financial market. Following the signing of the IMF agreement in August 1986, debt rescheduling has been negotiated, which has eased the situation slightly, as more foreign exchange was released for the rehabilitation of the economy.

The balance of payments situation remains precarious, however, mainly because export revenues have not increased to any substantial degree. Although there have been increases in the volume of exports for a few crops (e.g. cotton) since 1985, the terms of trade in general have deteriorated and export revenue has stagnated. In some cases, the lack of infrastructure has resulted in transport bottlenecks, and has caused serious difficulties in handling the larger volumes of output.

2.4 Tanzania's economic potential

Tanzania had an estimated population of 24 million in 1988, growing at an average rate of 3.3 per cent per year in the period 1978-1988. The urban population is growing much more rapidly, at 8.3 per cent per year. Tanzania has a large surface area of some 945,000 sq km (including lakes), and a land

area of 886,000 sq km. With an average population density of 25 persons per sq km, there are wide variations from one area to another, ranging from 2 per sq km in Mpanda to over 200 per sq km in the highland districts.

The climate and environmental conditions are sufficiently varied to accommodate a wide range of crops (coffee, cotton, cashewnuts, sisal, tobacco, tea, pyrethrum, cocoa, maize, sorghum, wheat, potatoes, bananas, oilseeds and fruits) and livestock (cattle, goats, sheep, pigs and poultry).

Forest and woodland areas cover 43-50 per cent of Tanzania, according to various estimates. About 80 per cent of forest reserves are classified for production purposes. Timber extraction is supposed to be carried out only under licence, although it is often uncontrolled. National parks and game reserves cover 25 per cent of the land and could be a substantial resource if their exploitation is planned carefully.

Despite the large share of forested and woodland areas, the accelerating rate of deforestation is causing concern. Of total energy consumption (both commercial and non-commercial), about 92 per cent is wood-based, 0.6 per cent is electricity-based and 7.4 per cent is petroleum-based. The latter energy sources have to be imported, absorbing 50-60 per cent of export earnings.

Fortunately, however, there is great potential for developing alternative sources of energy, notably hydroelectric power, coal and natural gas. Tanzania has a hydroelectric potential of about 4500 MW, of which only 327 MW has been developed to date. The development of coal resources has expanded recently, although inadequate distribution networks and the slow acceptance of this product by the population have limited the market size. The recently opened Kiwira coal mine has the capacity to produce 150,000 tons per year. Proven gas reserves of 0.72 trillion cubic feet at Songo Songo could be used not only for fertilizer production but also for power generation and for the development of the liquid fuels industry.

The potential for developing mineral-based industries in Tanzania is quite substantial. The major mineral resources which have been explored are iron ore (85 million tons of proven reserves), coal (324 million tons), gold reef (0.8 million tons), diamonds (2.5 million tons), and magnetite (4.5 million tons). One major obstacle to the development of some of these mineral reserves is the sizeable capital investment which would be required to build the necessary physical infrastructure and develop the mines at a time when the economic situation is still precarious.

2.5 Economic co-operation and its influence on the national economy

One salient feature in the development of Tanzania is the strong support provided by the international community for its social and economic development. (In 1985 Tanzania was the third largest recipient of bilateral aid in sub-Saharan Africa.) As a result, however, Tanzania has become increasingly reliant on official development assistance for financing its development projects and for balance of payments support.

Tanzania's main bilateral donors are the Scandinavian countries, contributing over 50 per cent of gross disbursements from bilateral donors in 1986, the Federal Republic of Germany, and the United Kingdom. Other major bilateral donors are Canada, Italy, Japan, Netherlands, and the United

States. Following the 1986 agreement with the IMF, donor commitments increased by over 50 per cent, reflecting increased confidence in the Tanzanian economy. Donors committed US$ 759 million in 1987, a rising trend which continued into 1988, for which US$ 850 million was pledged.

Table 2.5.1: Gross official development assistance
(millions of US dollars)

	1981	1982	1983	1984	1985	1986
Bilateral	538.5	504.9	450.1	423.0	387.0	607.4
of which:						
Denmark	32.8	39.8	40.4	31.6	40.8	137.7
Sweden	76.5	73.8	69.3	55.1	49.0	106.4
Norway	40.1	51.9	54.9	46.4	45.4	71.8
F. R. Germany	54.5	59.0	36.3	49.9	32.9	45.0
United Kingdom	56.0	41.2	43.9	29.7	23.0	17.5
Multilateral	174.8	188.9	151.3	142.6	107.7	164.9
of which:						
IDA	78.2	98.6	64.9	57.3	30.8	86.3
European Community	40.6	30.0	27.1	31.9	30.0	37.8
Total, all donors	713.2	693.8	601.4	565.7	494.7	772.2
of which:						
grants	508.5	490.2	429.9	429.5	408.0	646.8

Source: OECD Development Assistance Committee. Geographical Distribution of Financial Flows to Developing Countries.

In the past, aid co-ordination was often carried out on an ad hoc basis and pilcted by several ministries. The restructuring of the Ministry of Finance, Economic Affairs and Planning involved the upgrading of its Division of External Finance and Debt Management, which now has direct responsibility for aid co-ordination with bilateral and multeral aid partners.

Donor level co-ordination in Tanzania is carried out mostly through informal meetings of donor missions based in Dar es Salaam, alternatively chaired by the World Bank and UNDP representatives.

Tanzania is a member of both the Southern African Development Co-ordination Conference (SADCC) and the Preferential Trade Area (PTA). A number of studies on SADCC industries are being prepared in Tanzania with support from various quarters (e.g. EC, Commonwealth Secretariat, Nordic countries). Within the SADCC region, Tanzania has been exporting mainly to Mozambique, mostly textiles and clothing. In addition, there has been some exports of fish to Zambia and cement to Botswana (1983). Tanzania has also imported zinc and copper from Zambia and maize from Zimbabwe (1981-1983).

Tanzania's trade with PTA countries has been declining, partly due to reduced manufactured output, and therefore manufactured exports, and partly due to the overall stagnation of the capacity to import. In addition, mechanisms for the promotion of trade in the PTA have yet to be put in place.

The future prospects for international co-operation with Tanzania can, in general, be considered as favourable. There has been a significant increase in aid and aid commitments during recent years. There is reason to expect that the currently high levels can be sustained, and perhaps even increased.

Donor co-operation with Tanzania depends on a variety of factors. Some of these lie outside the control of Tanzania, such as the economic trends in the industrialized countries and the general political climate regarding development assistance, while others depend on Tanzanian policies. One of the factors determining future aid flows to Tanzania will be its success in promoting agricultural growth, regenerating industry and increasing exports. Expectations are high among donors that Tanzania is making concerted efforts, including implementing some harsh policy measures, to rectify some of the harmful consequences of past policies. If positive results are in fact achieved, co-operation with donor countries could increase significantly.

International financial institutions such as the World Bank and the IMF, as well as institutions such as the European Investment Bank and bilateral export credit schemes such as the Swedish Commission for International Technical Co-operation, are closely monitoring developments in Tanzania. A Tanzanian success story would certainly open up possibilities for other forms of economic co-operation, and could pave the way for important private investments from the industrialized nations.

2.6 Participation in the SADCC industrial rehabilitation programme

The SADCC region imports most of its consumer requirements and virtually all its capital goods. The deterioration of their balance of payments position has forced most members of SADCC to severely curtail imports, which has contributed to undermining the region's industrial growth.

The manufacturing sector has been particularly hard hit by the shortage of foreign exchange, which has led to substantial capacity underutilization, especially in Angola, Mozambique, Tanzania and Zambia.

The main thrust of the recent strategies and programmes for industrial co-operation is the promotion of self-reliance among SADCC countries in the production of goods and services.

The following priority areas constitute the major elements of this programme:

- rehabilitation of existing industries;
- expansion of existing capacities or the creation of new capacities to satisfy regional demand;
- promotion of core industries (e.g. iron and steel, engineering, basic chemicals);
- development of support services (e.g. standardization and quality control, research and development, harmonization of investment codes).

Rehabilitation of existing industries has been accorded high priority by SADCC, which has approved a number of specific rehabilitation projects. Concrete project proposals in the area of industrial rehabilitation were first presented in a workshop held in Arusha in August 1985, at which 63 projects attracted interest from prospective investors. The kind of rehabilitation support sought included financing of replacement equipment, technical assistance, training and financing of further studies. The selection criteria for projects are: (a) those included in the 1981 Blantyre programme of action for industry; (b) those utilizing mainly indigenous resources; (c) those having export possibilities; and (d) those with linkages to other sectors, especially agriculture, mining and transport. Funding has been secured by SADCC to undertake rehabilitation studies in edible oils, fertilizers, foundries, textiles, metal working, and leather and leather goods.

As regards harmonization of investment codes, a study was commissioned by SADCC to examine in greater detail the investment codes and regulations of member states. The purpose of the study is to facilitate assessment, rationalization and harmonization in order to encourage investment. Harmonization of the investment codes would not only streamline areas of conflict but would also promote co-ordination of the regional market for inter-SADCC trade.

Among the industrial rehabilitation projects which have been or are being studied by SADCC, the following are expected to make a direct contribution to industrial rehabilitation in Tanzania, when implemented:

- rehabilitation of cement plants;
- rehabilitation of fertilizer plants;
- feasibility study on the upgrading and expansion of pesticide and insecticide plants in Tanzania;
- rehabilitation of plants for edible oils and by-products;
- rehabilitation of iron and steel plants;
- improvement of engineering facilities;
- rehabilitation of foundries;
- rehabilitation of workshops for manufacture of railway rolling stock and equipment;
- rehabilitation of leather and leather goods industries;
- rehabilitation of textile factories.

CHAPTER 3

THE POLICY AND INSTITUTIONAL BACKGROUND TO REHABILITATION

3.1 Impact of the Economic Recovery Programme on industrial rehabilitation

The manufacturing sector experienced a significant decline in industrial output between 1980 and 1986. During this period, manufacturing value added (MVA) declined by an average annual rate of 4.85 per cent. The main factor behind this decline was the inability to purchase imported inputs and equipment required by the manufacturing sector for operating industries and for rehabilitation. The situation was further aggravated during 1982-1985, when inflows of foreign aid receded, pending conclusion of the negotiations between the Government and the IMF/World Bank.

The Economic Recovery Programme (ERP) was formulated at a time when the manufacturing sector was deprived of its import requirements. It is in this context that the concern of the ERP was first to raise the level of industrial capacity utilization from about 20-30 per cent to at least 60 per cent over the programme period.

Although a relatively greater inflow of external resources was envisaged under the ERP compared to the previous period, it was also seen as important to utilize these resources in a way which would be most effective in reviving the industrial sector. For the industrial sector, the principle of allocating foreign exchange to efficient firms engaged in high priority activities was adopted. These resources would be earmarked largely for the importation of essential inputs necessary to keep these industries operating at higher levels than before. For this purpose, it was envisaged that the manufacturing sector would be allocated US$ 148.7 million in 1986/87, US$ 151.7 million in 1987/88 and US$ 157.7 million in 1988/89. Apart from these intermediate inputs, some foreign exchange was planned for financing rehabilitation and investments which were regarded as instrumental in removing specific bottlenecks in the production. The amount of foreign exchange resources envisaged for this purpose was US$ 67.5 million in 1986/87, US$ 21.8 million in 1987/88 and US$ 40.6 million in 1988/89.

Within the manufacturing sector, the allocation of foreign exchange for recurrent inputs and for rehabilitation/investment during 1986/87 was envisaged as listed in Table 3.1.1.

Table 3.1 1: Foreign exchange allocation in the manufacturing sector, 1986/87

	Allocations for recurrent inputs		Allocations for rehabilitation/investment	
	US$ millions	% of total manufacturing	US$ millions	% of total manufacturing
Fc. beverages and tobacco	23.0	15.5	11.7	17.3
Textiles and leather	16.6	11.2	9.6	14.2
Paper and printing	5.7	3.8	3.0	4.4
Chemicals and petrol	39.4	26.5	8.9	13.2
Non-metallic mineral products	6.9	4.6	4.5	6.7
Metals, machinery and equipment	45.1	30.3	9.6	14.2
Others	12.0	8.1	20.2	30.0
Total	148.7	100.0	67.5	100.0

Source: MFEAP. Economic Recovery Programme. Dar es Salaam, 1986.

For the purpose of maximizing the effectiveness of foreign exchange resources allocated to industry, high priority activities in the industrial sector were identified as:

(i) industries which engage in the production of incentive goods (e.g. soap, textiles, cooking oil);

(ii) net earners of foreign exchange through exports;

(iii) earners of Government revenue (e.g. breweries, soft drinks, cigarettes);

(iv) industries which produce intermediate inputs, raw materials and equipment in support of agricultural production (e.g. fertilizer, farm implements, transport equipment, tyres and tubes, bags);

(v) industries producing essential consumer goods (e.g. packaging materials, leather).

During the first year of the ERP, the impact on industrial output was limited by the fact that only 50 per cent of the expected funds were actually made available for the sector, largely due to delays in disbursement. During

1987, the second year of the ERP, manufacturing value added increased by 4.2 per cent, compared to a decline of 4.05 per cent in the previous year. The increased output in 1987 is largely a result of improved access to foreign exchange for imported inputs mainly under import support arrangements. The retention scheme and own-fund imports also played a role.

Some of the industries which demonstrated considerable output recovery during 1987 include automobile batteries (22.6 per cent increase over output of the previous year), soap (50 per cent), corrugated iron sheets (86.5 per cent), cement (12.6 per cent), bags (42.9 per cent), hoes (18.8 per cent), tyres and tubes (25.2 per cent), blankets (6.3 per cent), radios (44 per cent), soft drinks (21.8 per cent), and fish-nets (42.9 per cent). Recovery in the industrial sector has favoured the category of priority industries as defined in the Economic Recovery Programme; those activities which fall under this category experienced recovery to levels which were well above the average of 4.2 per cent attained for the manufacturing sector as a whole.

As part of the ERP, selected sector reviews were made in order to facilitate negotiations for multisectoral rehabilitation credit from the World Bank. The industrial sector report which was the outcome of the first review of the sector recommended industrial restructuring on two fronts. First, priority would be accorded to selected agro-based and local resource-based industries, with special reference to three subsectors (i.e. leather and shoes, textiles and vegetable oils). Second, policy changes should be made in the direction of more trade liberalization, review of the tariff structure and less reliance on the administrative allocation of foreign exchange (e.g. by expanding the list of items which could be imported under the Open General Licence). The World Bank set aside US$ 80 million as Industrial Rehabilitation and Trade Adjustment Credit and earmarked a supplementary credit of US$ 60 million to support the Open General Licence (OGL) system. Implementation of restructuring on these two fronts is in progress.

3.2 Political structure, decision-making and economic policy formulation

The ruling Party (Chama Cha Mapinduzi) is the supreme body in matters of broad policy-making. The guidelines given by the CCM are translated into programmes of action by the Government departments.

Within the Party, the main executive body is the National Executive Committee (NEC), which is serviced by specialized secretariats. One of the secretariats is responsible for economic policy matters.

Within the Government, the Cabinet is responsible for economic policy-making. Any sectoral policy which the relevant sectoral Ministry proposes must first be presented to the Cabinet and approved before it can be implemented. However, in cases where policy proposals are regarded as fundamental, such proposals are submitted to the Party for approval and/or comments before they are implemented.

The Ministry of Finance, Economic Affairs and Planning (MFEAP) acts as co-ordinator of other Ministries in the preparation of plans and programmes. On the basis of broad policy guidelines from the Party, the MFEAP issues more elaborate plan guidelines to the sectoral Ministries. Each sectoral Ministry issues more detailed and sector-specific guidelines to the parastatal enterprises under its jurisdiction. On the basis of these guidelines, company

plans are formulated and submitted to the relevant Ministry, which co-ordinates and rationalizes them into a sectoral plan. These sectoral plans are then submitted to MFEAP for further scrutiny and co-ordination. The approved programmes at this stage are submitted to the Cabinet and to Parliament for final approval. The Party examines and comments on the draft plans, and such comments are incorporated before the final plan document is approved by the Government.

The guiding principle for the economic policy-making bodies is the Arusha Declaration of 1967, which is based on the policy of "socialism and self-reliance." The subsequent policies emanating from the Party and Government have been specific elaborations of socialism and self-reliance in concrete terms, taking account of changing circumstances. The Party Programme (1987-2002), for instance, specifically states that its main objective is to enhance the implementation of the Arusha Declaration by formulating more elaborate tactics and strategies for its implementation. The Party Programme is in this sense based on twenty years' experience with the Arusha Declaration.

With respect to the strategy and policy towards industrial development, the Party Programme (1987-2002) has put priority on basic industries (e.g. steel from iron ore, coal, building materials, chemical industries, metal and engineering industries) as the basis for manufacture of machines and equipment and industries for producing essential (i.e. basic needs-oriented) consumer goods. The Second Union Five-Year Development Plan (1988/89-1992/93) has been formulated by the Government taking the Party Programme as the guideline.

In order to improve co-ordination in economic policy formulation, the Government created in February 1989 a Planning Commission in the President's office, with the President as its Chairman. The former Minister of Finance, Economic Affairs and Planning was appointed Minister of Finance and Economic Affairs, and planning functions were placed under the new Planning Commission.

3.3 The changing role of public and private sectors

In Tanzania, as in many other countries including industrialized countries, the role of public and private sectors in socio-economic development has undergone important changes since the beginning of the 1960s. During the 1960s and the 1970s, the role of the public sector in most countries increased significantly, as measured, for example, by the share of taxes and public investment in GNP. In the 1980s a reverse trend can be observed.

During the first years after independence, the Government of Tanzania assumed an important and increasing role in planning. Still, the private sector remained the most important one in economic development. However, when the rate of investment during the first years after independence did not increase as planned and substantial income differences remained, one policy option was to increase the role of the State in economic development.

Thus, the 1967 Arusha Declaration set the course for nationalization of industry, commerce and finance, together with the establishment of parastatals and the policy of villageization. The increasing role of the State is evidenced by the fact that the number of parastatals increased from about 43 in 1966 to 380 in 1979 and to over 410 in 1988. The public share of value added in industry is estimated to have increased from 5 per cent in 1966 to 32 per cent in 1973. In the Second Five-Year Plan (1969-1974), 88 per cent of

industrial investments were planned for parastatals. As a result, the industrial sector today is dominated by mixed companies in which the Government has a majority shareholding. The banking system, which is also nationalized in Tanzania, consists of the Bank of Tanzania as Central Bank and the National Bank of Commerce as the main commercial bank. Among other financial institutions can be mentioned the Co-operative and Rural Development Bank, the Tanzania Investment Bank, and the Tanzania Housing Bank.

During the period from 1967 until the beginning of the 1980s, which was marked by an increasing role of the State in overall development, high priority was assigned to industrial growth. However, the rapid deterioration in the economic situation after 1977, and the persistence of economic difficulties and serious disequilibria led to an overall reappraisal of the respective roles of the public and private sectors in socio-economic development. Although there is general agreement on the need to redefine their respective roles, it is far less clear what these roles should be. Some important changes have already been introduced and others are being discussed at the various Party and Government levels. This process of restructuring the roles of the public and private sectors, which can be traced back to the beginning of the 1980s, has only begun.

The private sector is being assigned an increasing role in Tanzania's overall development, a policy that has been reinforced through the introduction of several recent measures. The own import scheme permits the import of goods if the importer has access to foreign exchange. The OGL facility enables Tanzanian enterprises to import a range of goods up to a maximum value of US$ 500,000, provided the corresponding amount in Tanzanian Shillings is deposited with the Bank of Tanzania. Although there were initially some difficulties with this system, as evidenced by long delays in allocating funds, the rate of utilization of funds has increased substantially since 1988, and the range of goods which can be imported by private sector firms has been enlarged. Confinement, whereby the state monopolized trade for many goods, has been reduced considerably. The Export Retention Scheme enables enterprises to keep part of the foreign exchange earned through exports. Prices have been liberalized, which will permit enterprises to face market constraints rather than administratively fixed prices. The Government has supported the creation of the Tanzanian Chamber of Commerce, Industry and Agriculture and has invited the private sector to participate in the development efforts of Tanzania. Although not an explicit policy, it seems that the Government would be willing to discuss privatization of some parastatals. It remains for the private sector to demonstrate its capacity to assume a more dynamic role in Tanzanian development.

The official policy is that the banking system will remain public, and that it is to be made more efficient. The extent to which private commercial banks will be permitted in the future is still an open question. The Government has expressed concern over the need to restructure the banking and financial system in order to cope with the changing economic situation, and to this effect has set up a Presidential Commission to study the structure of the banking and financial system and to make the necessary recommendations.

Although the scope for a significant inflow of private capital seems limited, some areas could attract investors. It is probable that foreign investors entering the export sector can negotiate an agreement by which they can remit dividends and use foreign exchange to purchase goods and services abroad. It is not likely, however, that foreign private investors will make significant investments in production for the domestic market, unless aid packages can be designed to attract investors and mechanisms can be put in place for repatriation of profits in practice.

Large-scale foreign investments are needed to rehabilitate Tanzanian industry and infrastructure. The extent to which resources from bilateral and multilateral aid as well as from financial institutions will suffice remains an open question. In this respect, the role of foreign capital in Tanzanian development has yet to be defined in operational terms, although important initiatives have been taken to this end, and new laws regarding private investment are expected to be passed soon, both on the Tanzanian mainland and in Zanzibar. To the extent that a significant inflow of foreign private capital is needed, an attractive investment climate must be created in Tanzania to attract it.

3.4 Financial and pricing policies

One major objective of the Government has been to reduce the budget deficit, which has created inflationary pressures in the economy. According to the ERP, the overall budget deficit as a percentage of GDP was 12 per cent in 1978/79 - 1981/82. With respect to the recurrent budget, the following data, taken from a speech by the Minister of Finance in June 1988, provides information on trends in both recurrent revenues and expenditures.

Table 3.4.1: Trend of Government recurrent budget
(millions of Tanzanian Shillings)

	Recurrent revenues	Recurrent expenditures	Recurrent revenues as % of recurrent expenditures
1979/80	7,759	7,534	103
1980/81	7,934	9,789	81
1981/82	9,977	13,214	76
1982/83	10,600	14,589	73
1983/84	15,466	18,182	85
1984/85	18,000	20,674	87
1985/86	22,321	27,403	81
1987/88 (est.)	46,829	61,765	76

Source: Ministry of Finance.

In spite of the efforts of the Government to reduce the budget deficit, it has remained high since the beginning of the 1980s. In fact, as can be seen from the above table, current revenues cover only about 80 per cent of expenditures. Among measures to increase revenues can be mentioned increases in taxes, particularly on beverages, pricing of public services, and efforts to combat tax evasion.

Current tax rates in Tanzania can be considered high. There is a general sales tax (not based on value added) amounting to 60 per cent. The corporate profit tax is 50 per cent. Personal marginal income taxes have ranged between 20-75 per cent. During the 1988/89 budget, this range has been reduced to 15-55 per cent.

The scope for a further broadening of the tax base seems restricted and, since tax rates are already considered to be high if not excessive, there remains a possible need to reduce Government expenditures if the budget deficit is to be made more manageable. However, most parastatals do not contribute to the national budget, but rather receive substantial resources in various forms. Thus, many enterprises which should provide substantial revenues are instead draining the country of scarce resources. It is in this context that the rehabilitation of the industrial sector becomes particularly important.

The budget deficit, which is about 30 per cent per year, has been one of the major causes of inflation in Tanzania. Compared to inflation rates in many other developing countries, this inflation rate is moderate. For many years the nominal rate of interest charged by the banking system was below the rate of inflation. In this way, the Government was subsidizing credit which mainly benefited the parastatals. In recent years, the nominal rates of interest have been revised upwards; during 1988, for instance, interest rates were increased to about 25-30 per cent. This has shifted the interest rates towards a positive rate, especially if the rate of inflation can be brought down to 20-25 per cent as envisaged in the ERP.

The increasing role of the State in Tanzanian development in the 1976-1980 period was also extended to prices, including foreign exchange rates. A large number of goods had official prices which over time became significantly lower than the market price. As a result, parallel markets developed rapidly. This process continued until the beginning of the 1980s, when a process of liberalization of prices began. Since then, the number of items whose prices are controlled by the Government decreased from about 400 to 11 items (following the most recent removal of price controls, from textiles, in February 1989). The commodities which remain under some form of price control are as follows:

1. Beer
2. Steel rolling-mill products (including bars, angles and flats for the construction industry)
3. Galvanized corrugated iron sheets
4. Cement
5. Cables
6. Farm implements
7. Tyres and tubes
8. Car batteries
10. Petroleum products
11. Fertilizers

The practical difficulties in establishing a reasonably well-functioning price control system are well known and need not be discussed here. The negative effects on resource allocation, the spread of parallel markets, the growth of illegal border trade, and the negative effects on economic growth are well documented. The present trend in Tanzania to rely on markets to balance the supply and demand of goods and services is likely to be continued.

The Economic Recovery Programme states "Exchange rate action ... is desirable as long as there is over-valuation in the Tanzanian Shilling". In fact, the exchange rate has been increased from TSh 17 in March 1986 to about TSh 130 : US$ 1 in March 1989. Since 1986, the gap between the parallel and the official rates has been reduced, although it still remains significant. Measures have been taken to alleviate the inflationary effects of recent devaluations, including steps to reduce domestic demand through limiting credit expansion and nominal wage increases, and to reduce the budget deficit.

The short-run reduction in aggregate demand and in the standard of living for large segments of the population which would result from rapid liberalization of the market for foreign exchange would be resisted by most developing countries, and Tanzania is no exception in this regard. It is therefore not expected that the foreign exchange markets in Tanzania will be liberalized within the near future.

3.5 Foreign exchange and external debt problems

The export sector has performed poorly during the 1980s, showing considerable yearly fluctuations and no clear growth trend. To finance its imports, Tanzania has always relied to a large extent on development assistance. As can be seen from Table 3.5.1, the export deficit has been approximately equal to the level of development assistance throughout the period from 1982 through 1987.

Table 3.5.1: The importance of aid in Tanzanian development
(millions of US dollars)

	1982	1983	1984	1985	1986	1987
1. Exports	415.4	379.7	388.3	285.6	347.6	347.0
2. Imports	1112.8	814.5	874.0	999.2	1047.5	1092.0
3. Net exports (imports)	(697.4)	(434.8)	(485.7)	(713.6)	(699.9)	(745.0)
4. Development assistance	693.8	601.4	565.7	494.7	772.2	750.0
5. Exports as per cent of development assistance	60	63	69	58	45	46

Note: Since 1984, own funding of imports has been permitted. Such imports may well have reached a magnitude of several hundred million dollars.

Source: UNDP and Bank of Tanzania.

Even at present levels of imports, the economy is showing strain, as evidenced by the lack of key imports for the industrial sector and the reported backlog of needed investments in infrastructure.

In addition to the problem of persistent import surpluses, Tanzania has experienced a rapid increase in its level of foreign debt, as is shown in Table 3.5.2.

Table 3.5.2: Tanzania's public external debt, 1981-1986
(millions of US dollars)

	1981	1982	1983	1984	1985	1986
1. Total debt (disbursed)	2,210	2,385	2,671	2,682	3,075	3,650
of which:						
2. official debt	1,751	1,864	2,158	2,178	2,488	3,264
3. private debt	459	521	513	504	587	386
4. private debt as per cent of total debt	21	22	19	19	19	11
5. Disbursed debt as per cent of GNP	37	38	44	49	50	85

Source: World Bank. World Debt Tables.

The above table shows that total external debt rose from US$ 2.2 to 3.7 billion in six years. By 1986, it represented 85 per cent of Tanzania's GNP. In 1988 external debt is estimated at US$ 5 billion, or about 100 per cent of GNP. Private debts account for a decreasing share in the total external debt.

For many years to come, a continued a massive inflow of foreign exchange is likely to be needed to maintain present economic levels and also to secure a minimum of economic growth. It also seems plausible to assume that the foreign public debt will continue to increase.

The industrial sector is in great need of rehabilitation. This implies rehabilitating those enterprises which would have a good chance of becoming viable in a competitive environment. Concerted action is needed to establish criteria for industrial rehabilitation.

Some of the existing enterprises may only have a minimal chance of becoming viable, while others could be good candidates for rehabilitation. The risk remains that resources will continue to be channelled to inefficient enterprises which have little possibility of rehabilitation, and that the resources available to good candidates for rehabilitation would be reduced accordingly.

3.6. Human resource development needs

Compared to most other African countries, Tanzania's human resources are well developed, and are being applied in a way which enables its relatively well-trained people to make a significant contribution toward economic regeneration. Nevertheless, there are constraints in this regard which must be addressed. Management which is capable of operating in a competitive environment is scarce. Entrepreneurial skills, although difficult to define, need to be further developed. The lack of technological know-how is another limiting factor in industrial growth. Taken together, these less tangible skills are needed for successful industrial rehabilitation; the possibilities for rehabilitation within each enterprise will be conditioned by the availability of these skills.

Taking into account these needs for human resource development, as well as the other financial and technological constraints described earlier, the scope for industrial rehabilitation in Tanzania should be examined carefully, with the aim of securing maximum developmental effects from the allocation of scarce foreign exchange for industrial rehabilitation ventures.

CHAPTER 4

OVERVIEW OF INDUSTRIAL REHABILITATION IN ZANZIBAR

4.1 General characteristics

Zanzibar and its sister island, Pemba, lie 6 degrees south of the equator in the Indian Ocean, about 32 kms off the east African coast and 97 km north of Dar es Salaam. The islands have an equatorial climate, with a rainy season extending from March to the end of May.

The Arab influence has always been particularly strong in Zanzibar, which became the capital of the Sultanate of Oman in the nineteenth century. In 1890, the Sultanate became a British Protectorate. In 1964 it became independent and united with Tanganyika to form the United Republic of Tanzania.

Zanzibar has a population of about 650,000, of which 110,000 live in Zanzibar town, its capital.

Zanzibar and Pemba together have their own Government and President. The Constitution of the United Republic of Tanzania stipulates that, whenever the President of the Republic is from the the mainland, then the Vice-President must be from Zanzibar, and vice-versa. The current President - Ali Hassan Mwinyi - is from Zanzibar.

4.2 Economic profile

In terms of size, Zanzibar represents only a small element in the Union, having only 3 per cent of the population and approximately 4 per cent of the combined GDP. Per capita incomes are, however, some 50 per cent higher than on the mainland.

Until the 1980s, Zanzibar had a relatively stronger economy than the mainland, primarily due to its international monopoly of the trade in cloves. This monopoly cushioned it to a great extent from the severe economic decline which occurred on the mainland. However, the strong downward pressure on clove prices experienced in the mid-1980s as a result of reduced demand in Indonesia has created enormous problems for the Government of Zanzibar and has forced it to reappraise its economic policies.

An examination of economic trends in Zanzibar reveals that GDP declined in real terms by 25 per cent between 1976 and 1986, and that there is a declining trend in real investment. There has been a steady deterioration in the balance of payments, with foreign exchange reserves falling from US$ 39 million in 1980 to US$ 26 million in 1987.

While the primary cause of these problems has been the deterioration in the revenues generated by cloves exports, Zanzibar has also suffered from the negative effects of economic policies pursued on the mainland, including:

- the overconcentration of production and trade in the public sector and the detrimental effects this has had on private initiatives;
- declining Government revenues and a rapidly rising population;
- rigidity in the pricing system, which failed to provide adequate incentives to producers;
- irrational and arbitrary allocation of foreign exchange.

Moreover, the deterioration in the economy has resulted from the inefficient use of the revenues generated through cloves exports. These have been largely consumed through the importation of rice, which has been sold at subsidized prices, the provision of free basic services, and the continued employment of surplus staff.

Given the likelihood that revenues from cloves exports will stabilize at around US$ 8 million per year in the medium term, compared with an average of US$ 16 million per year over the last five years, the Government has started to take steps to bring about some restructuring of the economy. In addition to adopting the general Economic Recovery Programme being pursued on the mainland, it has commissioned its own Economic Recovery Programme, which is designed to exploit the considerable resource potential of the islands and to upgrade their infrastructure. A new foreign investment code is also in the final stages of drafting and should be released in the not too distant future.

4.3 Strategic sectors

(a) Agriculture

Agricultural production has stagnated in recent years, due to competition from increasing imports of heavily subsidized rice, low producer prices paid to farmers, and lack of investment in supporting infrastructure.

While cassava, bananas, sweet potatoes and yams are the major food crops, the attainment of food self-sufficiency has been hampered by the strong consumer preference for rice.

With respect to cash crops, the principal export is cloves, although prices have fallen to a third of those in the 1980s, due to reduced demand from Indonesia. Future prospects suggest a market of around 6000 tons and the Government is taking steps to raise producer prices in order to increase and stabilize production.

Coconuts are the second largest cash crop. Purchases of copra have declined substantially, due to a fall of over 50 per cent in real terms in the producer price.

(b) Fisheries

Tanzania's annual catch, estimated at between 18,000 and 20,000 tons, provides an important source of protein. Most of the fish are caught through traditional techniques, although Government attention has increasingly concentrated on strengthening the Zanzibar Fisheries Corporation, which operates a fleet of seven modern fishing boats.

(c) Tourism

Zanzibar's climate, fine beaches and historical heritage offer substantial tourism potential. Between 1982 and 1986, the number of tourists increased from 5,000 to 23,000, with the largest proportion coming from Europe. While present hotel accommodation is below international standards and in need of refurbishment, new hotels are being constructed which should make the islands more attractive. A new hotel complex funded by the Aga Khan Fund for Economic Development is being constructed near Zanzibar town.

(d) Infrastructure

Zanzibar's transport and communications system has deteriorated rapidly over the last 25 years due to lack of maintenance and inadequate investment. This has severely hampered communications with the island and acted as a major constraint on agricultural production.

In recent years, however, investment has greatly increased. Work on lengthening the runway and upgrading facilities at Zanzibar airport began in January 1989, financed by a US$ 5 million grant from Oman, and work on rehabilitating the EC-financed port facilities at Zanzibar and Pemba is expected to be completed in 1990.

Access to the island has improved with the introduction of a hydrofoil service between Dar es Salaam, Zanzibar, Tanga and Mombasa, although this has as yet proved irregular, and a more reliable service needs to be established. This should improve when a new hydrofoil service is introduced later in 1989.

Extension of the airport runway and improvement of port facilities will permit more direct links with other countries in the future.

4.4 The manufacturing sector

The manufacturing sector in Zanzibar is primarily oriented towards the production of consumer goods; its processed products include coconut oil, soap and detergents, sugar, animal feed, cigarettes, shoes, dairy products and beverages.

All these subsectors are run by parastatals, of which there are presently six. These were established in an environment of surplus foreign exchange and enjoyed preferential status vis-a-vis the private sector in terms of resource allocation. Unfortunately, as the external situation of the Union deteriorated and foreign exchange became increasingly scarce, these plants have been starved of inputs and production has dropped dramatically. Furthermore, the deterioration in the transport network, combined with low producer prices offered to farmers, caused a severe shortfall in the supply of raw materials for processing.

Coconut oil production, for example, declined from 3,558 tons in 1983 to 1,645 tons in 1985, while that of soap and detergents declined from 2,172 tons to 14 tons over the same period. Cigarette production declined from 97 million in 1982 to 7 million in 1985.

Economic decline has also been severe in the Jitegemee Small-Scale Industrial Estate, which was established in 1973/1974 with the assistance of the Government of India. Most of the units have now stopped operation, and the five that are still working are doing so at well below capacity. The hydrogenated oil plant has still to be commissioned. Like the public sector, this estate has suffered from lack of foreign exchange, the inexperience of staff, inadequate supply of inputs, and increasing competition from the private sector.

The Economic Recovery Programme proposed by the consultants employed by the Government of Zanzibar include the following proposals for the industrial sector:

- reappraisal of the role of parastatals and the closing down of inefficient enterprises;
- closing down of all but two units at the Jitegemee Small-Scale Industrial Estate;
- efforts to attract private investors to purchase part or full control of viable parastatals.

Some progress has been made in rehabilitating the industrial sector, and China is actively involved in the rehabilitation of the Mahonda sugar mill and its sugar cane fields. It is also lending its support to the rehabilitation of the leather and shoe factory. Consideration is also being given to providing cotton seeds from the mainland as a substitute input to the Saateni oil processing mill, although it would appear to be a simpler proposition to provide coconut producers with adequate incentives.

In summary, Zanzibar offers significant potential for industrial investors, in view of the renewed climate of economic liberalization. It has a good natural resource base; well-established trading links, particularly with Oman; infrastructural links which are being improved; and a dynamic and resourceful planning department.

4.5 Plant selection

At the request of the Ministry of Industry and Trade in Dar es Salaam, and upon the invitation extended by Mr. Siba Abdulkadir Ahmed, Director, Department of External Finance and International Co-operation of the Zanzibar Government, part of the UNIDO mission visited Zanzibar from 26 February through 1 March 1989.

Of the six candidates for industrial rehabilitation which were proposed for study by the UNIDO team, the Zanzibar Dairy Development Corporation was selected for inclusion in this study. The selection process, and the reasons for selecting this particular enterprise, are discussed in Chapter 7 below.

CHAPTER 5

THE MANUFACTURING SECTOR AND ITS REHABILITATION

5.1 Overall characteristics

Industrial growth in Tanzania can be divided into four phases. From 1961 to 1973, there was a period of rapid growth, with manufacturing value added (MVA) increasing by an average of 10 per cent per year and the manufacturing sector's share of GDP rising from 4 to 10 per cent. Between 1974 and 1979, production stagnated, with the GDP contribution declining to 9 per cent. Thereafter value added in industry decreased rapidly, at an average rate of about 5 per cent per year, with a corresponding decline in the share of GDP to 5 per cent in 1986. Since 1987, however, there has been an upturn in industrial performance, with value added rising by approximately 4 per cent in 1987 and continuing to grow at approximately the same rate in 1988.

While the Basic Industries Strategy (BIS), adopted in 1974, was designed to bring about a structural transformation of industry, with the emphasis on self-reliance, greater domestic production of consumer goods and stronger linkages, industrial production stagnated due to the heavy import content of new industrial investments and acute shortages of foreign exchange. As a result, the situation in the early 1980s was one of an oversized industrial sector receiving excessive amounts of domestic resources and imports, yet functioning at an extremely low level of capacity utilization due to the deteriorating external environment and the concomitant foreign exchange deficit. Furthermore, lack of investments in the infrastructural sector led to an acute deterioration particularly in transport networks, which in turn exacerbated the already deteriorating performance of industry.

Since 1986, however, there have been encouraging signs of economic revival in the industrial sector, as a direct result of the Economic Recovery Programme (ERP). While this has entailed a substantial reduction in resource allocations to industry, investments in other sectors, particularly agriculture and transport, together with the rehabilitation of industrial enterprises, have reduced some of the major production bottlenecks.

In examining the structure of the manufacturing sector (Table 5.1.1), it is apparent that this is dominated by two subsectors - food and beverages, and textiles. In 1986, the former accounted for 31.8 per cent of gross output and 33.5 per cent of manufacturing value added, while the figures for the latter were 16.0 per cent and 16.2 per cent respectively. These two subsectors thus have accounted for more than 60 per cent of total manufacturing employment. Other significant subsectors include petroleum products and chemicals, basic metals and metal products and transport equipment.

Table 5.1.1: Structure of the manufacturing sector
(percentage)

(Key to subsectors given below the table)

ISIC Code	Sub-sector	Share of gross output			Share of value added			Share of employment		
		1984	1985	1986	1984	1985	1986	1984	1985	1986
311-312	1	22.6	22.7	22.7	20.4	20.4	20.2	20.5	18.7	18.7
313-314	2	8.8	9.1	9.1	11.9	12.9	13.3	7.1	9.2	9.2
321-322	3	16.4	16.1	16.0	19.4	16.4	16.2	34.5	34.5	34.5
323-324	4	4.5	3.7	3.7	3.4	3.5	3.5	5.8	5.9	5.9
331-332	5	2.5	2.4	2.4	2.5	3.0	3.4	5.3	5.3	5.3
341-342	6	5.2	5.8	5.8	7.7	7.0	7.0	4.5	4.6	4.6
351-353	7	11.6	10.6	10.6	12.9	11.0	11.0	5.8	5.2	4.6
355	8	2.1	3.3	3.4	2.1	4.0	4.0	0.9	0.9	1.0
356	9	0.7	0.6	0.6	1.0	0.6	0.6	0.7	0.6	0.6
361-362, 319	10	4.8	5.2	5.2	1.7	1.5	1.2	3.3	3.7	3.7
371-372, 381	11	11.7	9.8	9.8	8.8	9.1	9.1	4.5	4.8	4.8
382-383	12	3.4	4.1	3.5	3.7	3.4	3.5	2.6	2.8	2.8
384	13	3.7	7.6	6.4	4.1	6.6	6.6	4.0	3.4	3.4
385, 390	14	0.8	0.7	0.7	0.5	0.6	0.6	0.9	0.9	0.9

Key:
1 Manufactured food products
2 Beverage and tobacco products
3 Textiles and wearing apparel
4 Leather products, including footwear
5 Wood and wood products
6 Paper and paper products; printing and publishing
7 Industrial and other chemicals
8 Rubber products
9 Plastic products
10 Pottery, china, earthenware and glass products
11 Metals, ferrous and non-ferrous
12 Machinery, including electrical machinery
13 Transport equipment
14 Professional and scientific equipment

Source: MFEAP. Economic Survey 1987. Dar es Salaam, June 1988.

It would appear that the overall structure of manufacturing production, despite large-scale investments in new plant in the 1970s, has undergone very little change in terms of value added calculations in domestic prices. However, measured in world prices, there has been a significant change in the structure, with the consumer goods share of value added increasing from 56 per cent in 1965 to 85 per cent in 1984 while the share of the intermediate goods subsector declined from 40 per cent to 11 per cent over the same period. This was due to the fact that extremely high protection was afforded firms producing at a negative value added in world prices.

Manufacturing employment in Tanzania grew from 28,000 in 1965 to 84,000 in 1977 and then stabilized at approximately 100,000, which would account for about 1.5 per cent of the labour force. Despite the substantial drop in production during the 1970s, employment was not significantly affected, with the result that the industrial sector has been overburdened with surplus labour. This has resulted in a significant decline in productivity levels. There are signs, however, that employment in industry has been decreasing, with the 1985 figure standing at 94,097, although it subsequently picked up a bit, rising to 96,271 in 1986 (Economic Survey 1987).

Small-scale industries have played an important role in Tanzania's overall drive for self-reliance. According to the last census of manufacturing (1978), there were 1600 small-scale enterprises employing 24,500 persons (21.5 per cent of employment in manufacturing) and contributing 9.8 per cent to manufacturing value added. While a significant decline was experienced in this subsector, productivity levels and value added per employee remained stable. The small-scale industries, therefore, seem to have adjusted more efficiently to the changing economic climate. However, it should be noted that there are problems with official statistics regarding small industries (e.g. uneven coverage of the censuses by regions, omission of units employing less than 5 persons, etc.)

5.2 Major problems and constraints

Problems affecting the performance of the manufacturing sector are the result of over-ambitious industrial policies pursued in the 1970s and the deteriorating economic environment in which the sector has had to operate. Although the ERP has provided a framework for the regeneration of the economy, this is still in its embryonic stage and many of the problems persist. These include:

(a) Oversized industries with a high import dependency

Policies pursued following the Basic Industries Strategy led to a proliferation of oversized, capital-intensive plants with an excessive dependence on imports. Rather than bringing about the desired level of structural transformation, they reinforced the existing structure and significantly increased the dominance of the consumer goods sector. Large-scale investments in the intermediate and capital goods sector have not produced the contribution to value added that was anticipated.

(b) Foreign exchange shortages

The deterioration in the balance of payments in the 1970s and early 1980s, combined with high debt repayments, caused an acute shortage of foreign exchange. As a result, the manufacturing sector has been unable to purchase the spare parts and production inputs necessary to run plants. Given that the new enterprises developed under the Basic Industries were heavily import-dependent, the lack of foreign exchange has exacerbated the difficulties of these firms.

(c) Devaluation

The progressive devaluation of the Tanzanian Shilling from its overvalued rate in the 1970s and early 1980s made imports more expensive and reduced the supplies of spares and production inputs to those enterprises whose liquidity position has weakened as a result.

(d) Agricultural bottlenecks

The over-emphasis on the industrial sector, combined with the relative neglect of the agricultural sector (e.g. low producer prices and low investments), has resulted in a significant decline in agricultural production. As a result, processing plants have been faced with substantial shortfalls in raw material inputs. While this problem could be partially overcome with an overvalued exchange rate and greater use of imports, the continuing devaluation of the Shilling has made this an unattractive proposition. Under the ERP, a major proportion (25-30 per cent) of investments are to be channelled to the agricultural sector and producer prices have been raised. It will take time, however, for these policy changes to bring about sufficient marketable surpluses.

(e) Transport bottlenecks

Lack of investment in infrastructure has led to a rapid deterioration in the transport network. As a result, raw materials are unable to reach the processing plants, finished goods are cut off from their markets and high transport costs are incurred in production. Plants are often unable to operate at reasonable utilization levels due to obstacles in the supply of raw materials and their inability to transport the finished products to their market outlets. An example of this problem is the cotton gins, whose rate of plant utilization is low due to major bottlenecks on the rail line to the east.

(f) Organizational weaknesses

The 1970s saw the transfer of most of the major production units to the public sector and the proliferation of parastatals. Given preferential status in resource allocation and higher levels of protection from international competition, some of them have, however, performed quite inefficiently and have incurred excessive losses. Their decision-making process is cumbersome, and some units are overstaffed and inefficient. Enterprises operating under the major holding corporations are also cushioned from the realities of economic survival.

(g) Private sector discrimination

While the problems of the public sector have grown more and more acute, the private sector has not been actively supported. In practice, the private sector has faced severe problems, particularly in terms of foreign exchange allocation and access to finance.

(h) Management weaknesses

Public sector managers have not been exposed until recently to the harsh realities of running enterprises in a highly competitive environment, and thus have limited managerial experience. Furthermore, management information systems and cost control procedures are acutely lacking, due to the cumbersome organizational structures of the parent parastatals.

The present Economic Recovery Programme has, however, focused on resolving many of these problems in order to bring about the rehabilitation of the manufacturing sector. Access to foreign exchange has been improved by the introduction of the Export Retention Scheme and the Open General Licence system, which have reduced administrative controls. Agricultural bottlenecks are gradually being removed through higher producer prices, market liberalization, and improvements in the trunk and feeder road system. Efforts are being made to improve the performance of the parastatal enterprises.

5.3 Linkages

The Tanzanian manufacturing sector is heavily dependent on the country's natural resource base, which is extensive although significantly underutilized.

There are numerous examples of small industry based on locally produced inputs. Cotton and sisal are used in the manufacture of textiles. The paper and packaging industry uses domestic wood and recycled paper. The food, beverage and tobacco subsector relies heavily on domestic supplies of meat, fish, fruits and vegetables, grains, tobacco, dairy products, oils and sugar. The sawmills rely on domestic timber production.

The larger manufacturing industries are also, to some extent, based on local resources: for example, the cement industry is based on indigenous limestone and gypsum, the glass industry on local silica, and fertilizers on local phosphate rock.

Tanzania has many natural resources, although the rapid deterioration in the transport network, combined with low agricultural output and an overvalued exchange rate in the 1980s, reduced the supply of production inputs to the manufacturing sector and made imports more attractive. While steps have been taken to raise producer prices and adjust the exchange rate, there are still severe shortfalls in supply. As a result, manufacturing industry is still heavily dependent on imports (i.e. approximately 70 per cent in 1984 in world prices).

Forward linkages are very limited, although some examples are to be found: the textiles, paper and chemicals industries which supply the packaging industry, the sawmills which provide intermediate inputs for furniture and packaging, and the tanneries which supply the leather industries.

5.4 Spatial distribution

Table 5.4.1 shows the overall distribution of the industrial sector in Tanzania.

Table 5.4.1: Number of establishments in industry by region

(Key for industries after table)

Region	Type of Industry														Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
Arusha	3	15	7	4	9	5	4	1	3	7	5	4	2	2	71
Coast	-	3	3	-	-	1	-	-	-	-	-	-	-	3	10
Dar es Salaam	6	36	54	9	29	32	16	8	7	26	3	4	16	13	259
Dodoma	-	4	1	-	2	-	-	-	-	-	-	-	-	2	9
Iringa	-	10	1	-	2	-	3	1	-	1	-	-	-	2	20
Kagera	-	5	1	-	1	1	1	-	-	-	-	-	-	1	10
Kigoma	1	2	1	-	-	-	-	-	-	-	-	-	-	2	6
Kilimanjaro	5	11	13	5	14	3	3	1	1	4	1	-	1	1	63
Lindi	3	3	-	-	4	-	1	-	-	-	-	-	-	-	11
Mara	-	5	4	-	-	1	-	-	-	-	-	-	-	-	10
Mbeya	-	9	4	1	6	-	1	1	1	-	-	1	1	3	28
Morogoro	1	17	9	2	13	2	1	-	2	-	1	-	-	1	49
Mtwara	-	3	-	-	2	1	-	-	-	1	-	-	-	1	8
Mwanza	1	11	22	3	7	4	4	-	1	5	1	-	1	3	63
Rukwa	-	-	-	-	3	-	-	-	-	-	-	-	-	1	4
Ruvuma	-	2	-	-	3	1	-	-	-	2	-	-	-	1	9
Shinyanga	2	8	8	-	5	-	-	-	-	-	-	-	-	1	24
Singida	-	-	1	-	6	-	-	-	-	-	-	-	-	1	8
Tabora	-	3	1	-	6	1	-	-	-	-	-	-	-	1	12
Tanga	-	18	20	1	22	5	14	2	3	3	4	1	3	6	102
Total:	22	165	150	25	134	57	48	14	18	49	15	10	24	45	776

Key:
1. Mining
2. Food, beverages and tobacco
3. Textiles
4. Leather
5. Wood
6. Paper and printing
7. Chemicals
8. Rubber and plastics
9. Non-metallic
10. Iron, steel and metal products
11. Machinery
12. Electrical
13. Transport equipment
14. Miscellaneous

Source: Bureau of Statistics. Survey of Industrial Production, 1982-1983.

The above table shows that Dar es Salaam has the largest concentration of industrial establishments (259, or about one-third of the 776 through Tanzania), particularly in the food, beverage, textiles, paper and printing, fabricated metal products and transport equipment subsectors. The Dar es Salaam region also contains the largest concentration of private sector establishments.

Following Dar es Salaam, the next most important industrial centres in Tanzania are in Tanga (102 establishments), Arusha (71), Kilimanjaro and Mwanza (63 each). In all these centres, food, beverages, tobacco and textiles are important, although Tanga's major industry is the fertilizer plant and the steel-rolling mill. Areas where there is little industrial development include Kigoma, Mtwara, Rukwa, Ruvuma, Singida and Dodomo, each with less than 10 establishments.

Government policy is aimed at achieving a better spatial balance for industrial growth. Having divided the country into six industrial growth zones, the Government has placed emphasis on the Lake Zone (Mara, Mwanza, Shinyanga, and Kagera), Central Zone (Dodoma, Singida, Tabora, Kigoma), South-eastern Zone (Mtwara, Lindi, and Ruvuma), and the South-western Zone (Iringa, Mbeya and Rukwa). Fundamental to the success of this programme will be the rapid rehabilitation of the transport network, so as to overcome the major transport bottlenecks between factories, consumers and suppliers.

The Small Industries Development Organization (SIDO) has also established 17 industrial estates, located in Dar es Salaam, Songea, Arusha, Iringa, Kigoma, Lindi, Mbeya, Moshi, Shinyanga, Singida, Tanga, Sumbawanga, Musoma, Tabora, Morogoro, Mwanza and Mtwara.

5.5 Ownership patterns

The adoption of the Arusha Declaration in 1967 resulted in the transfer of the ownership of major industrial units to the public sector. Prior to this, most manufacturing units were privately owned, although a number of parastatals had already been established, including the National Development Corporation, the National Housing Corporation and several marketing boards and financial/banking institutions. Some were nationalized entirely, others had the Government as the largest shareholder, others were established as new public enterprises. The State assumed overall responsibility for investment in the public sector, although private foreign investment, particularly on the basis of joint ventures, was still permitted.

The result of the Arusha Declaration was the rapid growth in public sector organizations, with the number of parastatals increasing from 43 in 1966 to more than 410 in 1988. A number of economic regulations and controls were introduced at the same time, including central control of investments, administrative allocation of foreign exchange, imports and credit, price and wage controls, which gave preferential treatment to these parastatals. At present, there are 89 operating companies grouped under nine industrial parastatal holding companies which account for most of the public sector participation in the manufacturing sector. For medium- and large-scale industry, the public sector accounts for almost all production in tobacco and iron and steel and over two thirds of production in food and food products, tanneries and leather, paper, glass, cement and rubber.

The main parastatals include:

1. Board of Internal Trade
2. National Chemical Industries
3. National Development Corporation
4. Small Industries Development Organization
5. State Motor Corporation
6. Tanzania Breweries Co. Ltd.
7. Tanzania Karatasi Associated Industries
8. Tanzania Leather Associated Industries
9. Tanzania Saruji Corporation
10. National Textile Corporation
11. Tanzania Wood Industries Corporation
12. National Milling Corporation
13. Tanzania Cigarettes Company
14. Sugar Development Corporation

The 1988 World Bank report on parastatals concluded that 54 per cent of all the activities performed by these organizations in the industrial sector were extremely unproductive in that they produced negative value added when imports were valued at world prices. The World Bank report also found that:

- there were too many parastatals, in view of shortages in managerial skills and lack of resources;

- the parastatals had been protected from domestic competition by exclusive rights to operate in certain fields, and from internationai competition by import licensing and the foreign exchange allocation system;

- the parastatal organizations operated in an environment with an absence of incentives for efficient performance;

- the plants operated by the parastatals were too large, too capital-intensive, and too dependent upon imported inputs.

The ERP has placed the parastatals under substantial pressure, since access to funding through the budget and credit institutions has been strictly limited, price controls and restrictions on trade and transport have been reduced considerably, and an export retention scheme has been introduced. These changes have strained the financial position of those manufacturing parastatals which could not easily switch to export-oriented activities or improve their efficiency by internal restructuring.

Private sector enterprises are dominant in the manufacture of household products, plastics, paints, soaps, cosmetics, motor vehicle bodies and electrical equipment assembly. They are also dominant in small-scale industries. Recent trends indicate that the ERP is having a positive effect in the private sector, with private sector investments increasing from 60 to 70 per cent of all local investments.

An investment code for both foreign and domestic investors has been prepared by the Government and is expected to be released in the not too distant future.

5.6 Trade in manufactures

The export of manufactured products has not featured in the policy debates in Tanzania as a major policy issue. In the First (1964-1969) and Second (1969-1974) Five-Year Development Plans, the export of manufactured products was generally alluded to with some reference to the processing of primary products so as to increase their value added and their export revenue generation. During the Third Five-Year Development Plan (1975-1981), in which the Basic Industries Strategy (BIS) was adopted, the role of manufactured exports was regarded as a logical extension of the domestic demand and resource use relationships. This meant that the primary objective of manufactured production would be to utilize domestic resources to produce manufactured goods for the domestic market. The surplus over and above the domestic market requirements would be exported along the logic of the "vent-for-surplus" principle. In practice, this meant that industries were set up primarily to cater for the domestic market, in accordance with import-substitution industrialization principles. There was no deliberate policy to set up industries specifically for export or to choose production technologies targeting specific export markets.

Against this background it was expected that, as the size of the manufacturing sector increased, manufactured exports would also increase as primary product processing advanced to higher stages and as surpluses above domestic market requirements increased. In practice these expectations were realized for some time, as the share of manufactured exports of total exports increased from 9.9 per cent in 1960 to 16.2 per cent in 1965 and further to 23.1 per cent in 1970. This rising trend did not continue into the 1970s, however, and the share of manufactured exports in 1975 dropped to 19.2 per cent, which increased moderately to 23 percent in 1980. With the decline of manufactured output in the 1980s, the shortage of manufactured goods on the domestic market became common. Under these conditions surpluses for export were reduced and even in some cases (e.g. cement, textiles) exports were only realized by starving the domestic market. The result, however, was a general decline of the share of manufactures from 23 percent in 1980 to about 15-17 per cent during 1981-1984. This decline was reinforced by the overvaluation of the Shilling, making the export market relatively less attractive. With the introduction since 1984/85 of the export retention scheme, which was particularly favourable to non-traditional exports (mainly manufactures) reinforced by devaluation, there are signs of recovery of exports of manufactures. This has resulted in an increase in the share of manufactures to 18.9 per cent in 1987.

Among manufactured exports, textile and non-metallic products (e.g. cement) have been dominant, with their combined share fluctuating around 50 per cent in the 1980s. The exports of petroleum products (20-30 per cent of all manufactured exports) were essentially exports of the surplus products of the oil refinery which uses imported crude oil as its major input. In this sense, this item is more of a re-export than a manufactured export as such. Table 5.6.1 illustrates the commodity composition of manufactured exports.

Table 5.6.1: Manufactured exports, 1980-87
(millions of Tanzanian Shillings)

(Key to type of export given below the table)

SITC code	Type of export	1980	1981	1982	1983	1984	1985	1986	1987
33	1	204	130	126	145	328	516	143	556
(% share of ME*)		(19)	(20)	(22)	(25)	(31)	(40)	(11)	(15)
41-43	2	13	16	8	4	5	4	9	44
53	3	25	26	32	27	57	47	84	273
51, 54-59	4	7	6	1	4	12	2	2	3
64	5	1	2	0	3	11	6	63	458
65	6	253	113	125	123	218	167	314	1,180
(% share of ME*)		(23)	(18)	(22)	(22)	(20)	(13)	(25)	(33)
66	7	376	260	192	171	294	409	425	374
(% share of ME*)		(35)	(41)	(33)	(30)	(28)	(32)	(34)	(10)
61-63, 67-69	8	38	19	26	25	32	32	68	203
72	9	22	28	31	28	41	58	59	150
71, 73	10	2	1	1	1	9	2	6	32
81-89	11	141	40	32	39	63	49	91	337
Total ME*		1,082	641	574	570	1,070	1,292	1,264	3,610
Total DE*		4,700	4,706	4,119	4,187	6,028	6,048	10,905	19,103
(% of ME in DE*)		(23)	(14)	(14)	(14)	(18)	(21)	(12)	(19)

*In this table, ME denotes manufactured exports, and DE domestic exports.

Key:
1. Petroleum and products
2. Animal and vegetable oils
3. Dyeing and tanning materials
4. Other chemicals
5. Paper manufactures
6. Textile and products
7. Non-metallic mineral manufactures not elsewhere specified
8. Other manufactured goods, by material
9. Electrical machinery
10. Non-electrical machinery and transport equipment
11. Miscellaneous manufactures

Source: MFEAP. Foreign Trade Statistics. Dar es Salaam, December, 1988.

On the import side, the bulk of imports have been manufactured goods. The composition of imports has shifted from consumer goods towards intermediate and capital goods imports, as shown in Table 5.6.2.

Table 5.6.2: Structure of Imports, 1960-1987

	1960	1965	1970	1975	1980	1985	1986	1987
Percentage share of consumer goods in total imports	49.0	42.0	30.0	31.4	14.0	8.7	7.0	17.2
Percentage share of intermediate goods in total imports	6.7	16.0	40.4	41.4	40.2	41.2	39.0	34.2
Percentage share of capital goods in total imports	44.3	42.0	29.6	27.2	45.8	50.1	54.0	48.6

Source: MFEAP. Economic Surveys (various years).

The share of consumer goods in total imports has declined from 40-50 per cent in the 1960s to 20-30 per cent in the 1970s, and to below 20 per cent in the 1980s. The share of intermediate and capital goods imports has increased considerably over the same period, reflecting the standard pattern of import substitution industrialization, whereby domestic industrial production starts with simple consumer goods that had previously been imported.

CHAPTER 6

EMPHASIS ON AGRO-RELATED INDUSTRIES

6.1 Justification

The role of agro-related industries in economic development has become increasingly recognized. The backward linkage effects of these industries serve as a strong stimulus to agricultural growth and development. Since most of the inputs are produced domestically, the drain on foreign exchange tends to be smaller than in other industries. The forward linkages are also important, as these industries produce key outputs for agricultural growth. In addition to their greater export potential, domestic consumers are better served, in that they gain access to a greater variety of goods over longer time intervals than would be possible with unprocessed foods.

The importance of agro-related industries has been emphasized by the Government of Tanzania as well. Both the Economic Recovery Programme and the current Five-Year Plan (1988/89 - 1992/93) assign priority to agro-related industries, a reorientation of policy that may result in a more viable long-term development strategy.

Shortages of food products and of raw material supplies to the agro-industries have been a salient feature in the development of Tanzania for many years. As the Economic Recovery Programme gains momentum, there will be an increase in the supply of agricultural goods for consumption, for agro-industry and for exports. This positive development will in turn create new demands on infrastructure such as for transport and storage facilities. Moreover, as supplies to the agro-industrial sector increase, it must be in a position to absorb the increasing capacities delivered to it.

Most agro-industrial factories presently operate far below their installed capacities. One of the major reasons for this is the shortage of raw material supplies. However, even if raw material supplies were available, the factories would not be in a position to handle significant increases in supplies for a number of reasons. The existing machinery in many factories is obsolete, since the necessary replacement investments have not been made. In many cases, the management is of poor quality and maintenance has been deficient. There is, therefore, an urgent need to rehabilitate the agro-industrial sector within the Economic Recovery Programme.

It should also be mentioned that this policy of rehabilitation forms an integral part of the overall development effort of Tanzania. The objective is for the agricultural sector, in addition to providing increased export earnings (some of which are much needed for the rehabilitation of agro-industries), to also provide increasing supplies of raw materials for the agro-industrial sector.

The strong linkage effects existing between the agricultural sector and agro-industry can thus have both positive and negative effects. An increase in agricultural production is necessary, but Tanzania's agricultural growth potential might not be achieved unless accompanied by a programme of agro-industrial regeneration.

The following section provides essential background information on agricultural production and indicates the potential for raw material supply from the agricultural sector to the agro-industrial sector.

6.2 Agriculture as a raw materials base

Agriculture contributes 40-45 per cent of Tanzania's GDP and directly supports the livelihood of 80 per cent of the population. It contributes 80 per cent to export revenues and supplies industry with agricultural raw materials. The share of agro-based industry in total manufacturing is considerable; it accounts for 55-60 per cent of the manufacturing value added and 75 per cent of total employment in the manufacturing sector. The role of agriculture in supporting manufacturing activities directly as a source of raw materials and indirectly as a source of foreign exchange earnings for the importation of intermediate and capital goods is of paramount importance.

The performance of the agricultural sector, however, has been less than satisfactory in the 1970s and early 1980s. The annual growth rate of agricultural GDP was 2.4 per cent during 1970-1975, declining to 1.0 per cent per year during 1976-1980. It recovered moderately to 2.3 per cent per year during 1980-1984, and recovered more substantially during 1984-1987 to an annual growth rate of 5.4 per cent.

The stagnation of agriculture in the 1970s resulted from low producer prices, inadequate incentives (e.g. resulting in deterioration of research and extension services and availability of agricultural inputs), poor marketing arrangements (e.g. delayed payments for collected crops, failure to purchase crops promptly) and failure to raise the level of technology employed in agriculture. For instance, the bulk of agricultural production is still characterized by hoe cultivation (85 per cent of cultivated hectareage), with only 10 per cent and 5 per cent of the land under ox-drawn ploughs and tractor respectively. Fertilizer utilization has been increasing at 2.6 per cent per year, but this is well below the annual population growth rate of 3.3 per cent.

When the long-term industrial strategy was formulated (for 1975-1995), the importance of the supply of agricultural raw materials was recognized, but it lacked any elaboration of the necessary strategy for the agricultural sector. Although it was suggested that, at a later stage, an agricultural strategy would be formulated which would be consistent with the long-term industrial strategy, in practice this was not done. Failure to formulate an agricultural strategy consistent with the industrial strategy meant that the highly dependent relationship between agriculture and industry was not given the attention it deserved. One of the consequences of the neglect of agriculture was the frequent shortfall in agricultural raw material supplies for industrial production, especially for the processing industries. As a result, the productive capacities of many agro-based industries were grossly underutilized due to the lack of agricultural raw materials. For example, cashewnut processing factories, oilseed-based industries (e.g. soap-making), sugar factories, pyrethrum-extracting and food manufacturing industries were victims of this phenomenon.

6.3 Agricultural trends

Tanzania encompasses a wide range of agro-ecological zones, allowing for the cultivation of a variety of food crops (e.g. maize, wheat, rice, beans, fruits, vegetables, millet, sorghum, bananas) and export crops (e.g. coffee, cotton, cashewnuts, sisal, tea, tobacco, pyrethrum). The output trends of selected major food and export crops are shown in tables 6.3.1 and 6.3.2, respectively.

The output of most export crops has tended to stagnate (e.g. coffee and tobacco) or decline (e.g. sisal and cashewnuts), with the exception of cotton, which has exhibited a strong upward trend. The output of some food crops has been increasing (e.g. maize and rice), while the output of most other food crops (e. g. cassava) has been fluctuating without showing a clear trend.

One of the principal causes of decline had been the transfer of purchasing responsibility to parastatal crop authorities. This proved inefficient, particularly in the case of the National Milling Corporation (NMC), which was responsible for food crop purchases. In 1985, this responsibility was passed back to the co-operative unions.

Fruits and vegetables are seen as contributing to better nutritional standards. Government policy is therefore to increase preservation and canning in order to reduce wastage/spoilage and to make them available to consumers even during the off-season. It is admitted, however, that marketing continues to be a serious bottleneck.

During the next Five-Year Plan, greater attention will be paid to increasing the production of fruits and vegetables. Efforts will be made to strengthen research and extension, to produce improved seeds, and to involve the private traders more in marketing. Preservation and canning will be encouraged. There are plans to develop nurseries for fruit and vegetable plants.

The livestock population census of 1984 shows that there were 12.5 million cattle (98 per cent raised on traditional farms), 6.5 million goats and 3.1 million sheep. The number of pigs and chickens is estimated at 214,853 and 13.5 million respectively in 1988/89. The offtake level of locally consumed and marketed stock is low, however, averaging only 10 per cent according to FAO estimates.

During 1984 about 26.6 million litres of standardized milk was produced and sold. This decreased to 14.9 million litres in 1986. Dairy farms had a livestock population of 4,882 in 1987.

Table 6.3.1: Total production of main food crops
(thousands of tons)

	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87
Maize	1654	1651	1939	2067	2127	2359
	(89)	(86)	(71)	(85)	(178)	(173)
Paddy	320	350	356	425	496	644
	(15)	(21)	(22)	(12)	(16)	(11)
Wheat	95	58	74	83	71	72
	(23)	(31)	(28)	(33)	(50)	(34)
Mixed pulses	297	282	281	406	345	424
Cassava	1658	1967	1894	1923	2052	1709
Millet and sorghum	970	793	1157	850	922	954
Beans	(14)	(11)	(8)	(4)	(13)	(17)

Note: The figures in brackets indicated the quantity of crops purchased from farmers by the National Milling Corporation. The remainder was either consumed or sold in the parallel markets.

Sources: (1) Tanzania Economic Trends: A Quarterly Review of the Economy, Vol.1, No.2, July 1988. Published by ERB and MFEAP.

(2) Ministry of Agriculture and Livestock Development.

Table 6.3.2: Official purchases of selected export crops
(thousands of tons)

	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88
Coffee	54.8	53.3	49.2	48.3	54.0	51.2	50.0
Seed cotton	133.0	128.0	140.4	154.8	167.8	213.1	226.1
Sisal	60.8	46.2	38.3	32.3	28.5	36.9	36.0
Tobacco	16.2	13.5	11.1	13.4	12.5	16.4	16.7
Tea	15.6	17.6	15.2	16.7	15.5	14.1	17.0
Cashewnuts (raw)	44.3	32.2	48.3	32.5	18.0	16.5	20.0
Pyrethrum	1.9	1.6	1.4	1.5	1.4	1.2	1.3

Source: Marketing Development Bureau, as quoted in Tanzania Economic Trends: A Quarterly Review of the Economy, Vol. 1, No. 2, July 1988.

6.4 Agro-industries: characteristics, problems, constraints and linkages

During the current Five-Year Plan, the major thrust in the agricultural sector is to increase food production, to increase foreign exchange earnings, and to provide sufficient raw materials for the domestic industrial sector.

In the industry sector, the Five-Year Plan envisages the development of basic industries (e.g. paper), and those industries which meet basic needs (e.g. food manufacturing, textiles and clothing). With regard to agro-related industries, the Party Programme (1987-2002) and the Five-Year Development Plan (1988/89 - 1992/93) envisage the expansion of agro-industries, especially those processing agricultural products in order to increase value added, either for domestic consumption or for export.

The development of agro-related industries is also expected to provide more employment and incomes and to reduce waste through spoilage of perishable products (e.g. fish, fruits).

The structure of agro-related industries is indicated in the table below.

Table 6.4.1: Structure of agro-related industries in 1983

ISIC code	Industrial activity	Number of employees	Gross output (TSh millions)	Manufacturing value added (TSh millions)
311-312	Food manufacturing	22,080	2,588.9	638.2
313	Beverage industries	3,641	877.7	186.7
314	Tobacco manufactures	3,375	551.9	278.2
321	Textiles	32,335	1,990.7	648.4
322	Wearing apparel except footwear	3,890	481.1	100.9
323	Leather products except footwear	1,695	203.8	447.8
324	Footwear - leather	3,533	414.4	116.3
331-332	Wood and wood products including furniture and fixtures	5,947	360.3	84.4
341	Paper and paper products	1,648	174.2	70.5
342	Printing and publishing	2,455	450.2	148.8
Total manufacturing sector		103,620	12,767.5	3,619.8

Source: Bureau of Statistics, MFEAP. Survey of Industrial Production. August 1986.

Within the group of agro-related industries, food manufacturing and textiles are the most important activities, followed by leather-based industries and tobacco manufacture.

Within food manufacturing, the main activities relate to meat and dairy products, sugar, vegetable oils and fats, grain mill products, fruit and vegetable canning and bakery products. All these branches within the food manufacturing subsector obtain their main raw materials from the agricultural and livestock sector.

Textiles are mainly based on the utilization of locally grown cotton and sisal. In both cases, however, there seems to be competition for cotton and sisal between the export market and the domestic market. The policy is designed to encourage both exports and local industries although future expansion of domestic processing industries is envisaged. The leather and footwear subsector uses leather from local tanneries and livestock as the main input.

The paper and paper products subsector obtains its inputs of basic paper from Southern Paper Mills, which uses locally grown softwood to make pulp and paper. Most of the other paper industries either use the products of SPM or waste paper as their main inputs. Printing and publishing uses basic inputs from SPM and provides a useful service to the packaging industry. Packaging materials such as bags are also essential for the marketing of food products and other agro-industrial products.

According to the current Five-Year Plan, the demand for bags is expected to continue to exceed supply. Imports will, therefore, continue to meet the difference between demand and domestic supply until the bag manufacturing plants are rehabilitated and able to expand production. Completion of the Southern Paper Mills (SPM) has enabled paper-using enterprises to use locally produced paper. Efforts will be made to improve productivity and production efficiency at SPM (e.g. substitute coal for petrol, and also search for a larger market to allow higher output). There are plans to increase the production of paper packages from 3,000 tons per year to 18,000 tons at the end of the current Five-Year Plan (1992/93).

Some developments have been made or are being made to encourage the greater use of local raw materials in industry. For example, production of beer now uses some of the malt made from locally grown barley, and small portions (10-15 per cent) of sorghum are used. The manufacture of tyres and tubes will soon begin to use rubber from plantations in Muheza. Soap manufacturing is envisaged to rely more on the use of local caustic soda and oil seeds. Mafura nuts are being developed for this purpose.

The main problems facing the agro-related industries result from a shortage of basic raw materials, power, and water, and also from a lack of investment. These supply and investment shortages have resulted in a low rate of capacity utilization. Table 6.4.2 shows that, among agro-related industries, capacity utilization rarely exceeds 50 per cent, except for locally consumed beverages (malt, beer, and a local brew known as chibuku) and for paper and bag production. In many cases, the figures are exceptionally low, such as for the leather and shoe industries, blankets and soap.

Table 9.4.2: Capacity utilization in selected agro-related industries

INDUSTRY	1976	1985	1986	1987	Rate of utilization (%)
Beer (million litres)	87.5	127.5	75.75	58.8	46
Chibuku (million litres)	22.2	22.2	10.9	12.4	56
Malt (thousand tons)	..	15.0	13.4	8.8	59
Cigarettes (billion pieces)	4.8	5.9	2.67	2.73	46
Soft drinks (million litres)	..	..	40.95	57.54	--
Cooking oil (thousand tons)	..	34.5	5.58	5.23	15
Textiles (million sq m)	90.0	252.1	63.1	66.6	26
Bags (million pieces)	8.4	10.0	3.5	5.0	50
Blankets (million pieces)	6.0	6.0	0.68	0.67	11
Leather (million sq ft)	11.8	30.0	5.3	3.08	10
Shoes (million pairs)	2.6	8.6	1.26	0.82	10
Paper (thousand tons)	..	79.0	16.0	38.5	49
Paper packages (thousand tons)	14.0	31.7	8.04	7.5	24
Soap (thousand tons)	..	85.9	12.96	15.03	17

Source: Budget Estimates for the Ministry of Industry and Trade for 1988/89. June 1988.

CHAPTER 7
THE CHOICE OF PLANTS

7.1 Plant selection on the mainland

The choice of plants for this study was made by the mission after consultations with the Ministry of Industry and Trade, and with other government departments, including the Ministry of Agriculture and Livestock, and the Ministry of Finance, Economic Affairs and Planning, as well as with Tanzania's main bilateral and multilateral co-operation partners.

During a preparatory mission in December 1988, a list of fourteen candidate enterprises was put forward by the Ministry of Industry and Trade. Upon the arrival of the mission, the Ministry forwarded an additional list of plants to be considered. The enterprises submitted by the Tanzanian authorities represented both the public and the private sectors, and for the most part were based in the Dar es Salaam region. Before the final selection of companies, the mission visited a great number of the candidates, examined company reports and accounts, and held in-depth discussions with company management. The mission also took into account the Government's desire to achieve greater regional dispersion of industrial development. Given the need to avoid the overconcentration of industrial growth in Dar es Salaam and to reduce problems caused by transport bottlenecks, visits were also made to industrial enterprises in Morogoro and Zanzibar. The latter was considered to be extremely important, given the extensive resource base of the island, the degree of foreign interest in its development, and the desire to achieve some equilibrium in resource allocation between the mainland and the islands.

The Economic Recovery Programme and industrial rehabilitation have high priority in Tanzania. The Tanzanian Government's efforts to implement these policies have received increasing support from the donor community. In order to avoid duplication of work and to assure co-ordination in industrial regeneration efforts, the mission also interviewed officials from the various Tanzanian bodies mentioned above, as well as representatives of different bilateral and multilateral aid agencies.

7.2 Plant selection in Zanzibar

During the selection process, the Ministry of Industry and Trade suggested that the representative of the Government of Zanzibar in Dar es Salaam should be approached to assess this Government's interest in having the UNIDO mission visit the island to study industrial rehabilitation needs. Subsequently, at the specific request of the Government of Zanzibar, four members of the mission visited the island from 26 February to 1 March 1989.

Upon the arrival of the mission in Zanzibar, the Ministry of Industry and Trade in Zanzibar presented a list of six candidates for industrial rehabilitation. These included a coconut-processing plant, an animal feed mill, a dairy plant, a fruit-canning plant, a vegetable oil hydrogenation plant, and a shoe and leather factory.

After having visited a processing plant for coconuts, the mission concluded that it certainly had a need for physical rehabilitation, but that there were seven other plants on Zanzibar which were reportedly to be equally in need of rehabilitation. One of the major problems identified was the difficulties the plants faced in obtaining an adequate supply of coconuts, due to the relatively low, controlled price, and the fact that the coconut trees are old and need to be replaced. Taking these factors into consideration, the mission is of the opinion that a survey of the coconut sector is needed. Such a study could also investigate whether some, if not all, of the processing plants could be operated by private owners or co-operatives.

The animal feed plant is also in need of rehabilitation. Since most of the inputs have to be imported from the mainland (grain and fishmeal) and from abroad (concentrates), the backward linkages would not be significant. Since the Government assigns priority to dairy farm development, there is a need for supplying quality animal feeds to improve milk yields. Since the Government is introducing high-yieldings cows (mainly Jersey) and for several years has supported an artificial insemination programme (about 2,000 inseminations per year), these investments will pay off only if quality feed is available.

The fruit-canning plant of the Small Industries Development Organization has never functioned since the original investment was made in 1981, and the recommendations provided by a mission to the plant by the Commonwealth Secretariat in 1986 have not been followed up. The possiblities for successful rehabilitation would seem limited.

The vegetable oil hydrogenation plant at the Jitigemee Small-Scale Industrial Estate has yet to be commissioned.

The mission decided to exclude the shoe and leather factory, as not being sufficiently related to the food industry.

The mission therefore decided to choose the dairy plant on the grounds that there was a definite need for rehabilitation of the plant, and also because the Government of Zanzibar has assigned high priority to dairy and livestock development.

7.3 Criteria for selection

The process for plant selection on both the mainland and in Zanzibar applied the following criteria:

(a) The plants selected should be located within a strategic industrial subsector, preferably in the agro-industrial branch.

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

(c) In view of shortages of foreign exchange resources, the projects should be "bankable", i.e. able to attract funding from donors, international and regional financial institutions, commercial banks and/or commercial enterprises.

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

(e) In order to enhance the impact of eventual rehabilitation efforts, the selected plants should exhibit a significant number of interlinkages.

(f) The projects should be able to mobilize domestic resources and inputs.

(g) The enterprises should be drawn from both the public and the private sectors.

(h) The plants should be easily accessible, given the time and transport constraints of the mission.

(i) There should be no other donor commitment to the companies.

7.4 Selected enterprises

After further consultations with the Tanzanian authorities and representatives of the Zanzibar Government, the mission was of the opinion that only four companies could be properly examined in the time available for the plant visits. The companies selected were:

(a) Tangold Products Co. Ltd.

(b) Twiga Paper Products Ltd.

(c) Tanzania Animal Feeds Company Ltd. (TAFCO)

(d) Zanzibar Dairy Development Corporation (ZADACO)

An effort was made to arrive at as broad a sample as possible, given the fact that only four enterprises could be selected for study. One of the four enterprises, ZADACO, is based in Zanzibar, and the other enterprises have plants spread throughout Tanzania. Three of the four selected enterprises are publicly owned, while Twiga Paper Products is privately owned. As their names imply, the major products of these firms are distinctly different: fruit drinks (Tangold), paper products (Twiga), animal feeds (TAFCO), and dairy products (ZADACO).

7.5 Justification and linkages

The four selected enterprises have different characteristics, but have one important point in common, namely that each has potential for rapid growth following implementation of an appropriate rehabilitation strategy, and that the benefits of rehabilitation will be spread broadly through a range of linkage effects.

(a) Tangold Products Co. Ltd.

In 1987, almost 60 per cent of the turnover of Tangold came from the sale of blackcurrant squash, made largely from imported concentrates, while the processing of locally produced fruits into juices and pulps represented less than 10 per cent of the single-shift capacity for the processing lines

involved. The availability of sufficient cans of good quality has been a major constraint in the past, but this will probably be removed soon with the rehabilitation of the can making factory. There is, therefore, an urgent need to rehabilitate the fruit processing operations and management at Tangold, to enable it to produce more processed fruit juices and associated products to meet local demand in the short term, and export demand in the medium term. In the long term, alternative technologies such as concentration, freezing and antiseptic packaging should be considered.

(b) Twiga Paper Products Ltd.

Twiga Paper plays a major role in secondary packaging as it is one of two converters producing corrugated cardboard cartons, which are essential for packaging fresh fruits and canned and bottled goods. Although the production capacity for corrugated cartons is estimated to be 50 per cent over current demand, there is a need to assist Twiga, as its better quality cartons are in demand for exported goods. Twiga's other major product is a range of brown paper bags for the local grocery trade, and yellow paper bags for tea, much of which would go for export, if the correct quality of machine-glazed paper was available. The demand for brown and yellow bags is well undersubscribed and rehabilitation is therefore urgently needed.

(c) Tanzania Animal Feeds Co. Ltd.

TAFCO is a producer of essential commodities and is critically in need of total rehabilitation. The estimated total animal feed production in Tanzania is currently under 70,000 tons per year, as compared with an estimated annual requirement of over 200,000 tons, of which over 90 per cent would be for poultry feeds. The TAFCO plant in Dar es Salaam produced a little over 7,000 tons in a single shift, against a potential output of over 60,000 tons, working a three-shift system.

(d) Zanzibar Dairy Development Corporation

The dairy of the Zanzibar Dairy Development Corporation is operating at a little over 30 per cent of installed capacity for its reconstituted milk, while butter and yoghurt production is severely limited by the lack of fresh milk supplies. Dairy development in Zanzibar has received strong support from the Government there. The World Food Programme is also co-operating in this field. The rural development component in dairy production should attract donor attention. There are strong backward linkage effects, involving a number of peasant families as well as state farms. Dairy products have the potential of providing an important nutritional supplement to the Zanzibar diet. Rehabilitation of ZADACO and improved management of the dairy industry generally is therefore urgently required.

CHAPTER 8
BRANCH PROFILES

Introduction

The choice of plants was discussed in the preceding chapter. Having identified the plants, it is useful to provide information on the corresponding branches. This background is essential for chapter 9, which analyses each plant in detail. However, the dairy products branch is not discussed in this chapter, as ZADACO is the only dairy producer in Zanzibar; all relevant information is therefore included in Chapter 9, Section 4.

8.1 Food processing branch

8.1.1 Overall characteristics

In Tanzania there are reportedly 26 small processing plants (of which only five are currently capable of producing) for canning and bottling of fruit products. Two of the five currently operating factories, Tangold Products and Tanganyika Packers, are parastatals, while the others are privately owned. Tangold and Tropical Foods, one of the three privately owned firms currently in operation, were visited by the mission.

In general, fruit canning and bottling factories in Tanzania operate on a comparatively small scale, using manual operation and filling techniques and open steam-jacketed pans for cooking and concentrating, assisted by mechanical pulpers and finishers, semi-automatic MBI seamers, exhaust boxes and small vertical retorts.

Processing of fruits generally follows the cropping season, with preserved tomato puree and orange juice and imported concentrates, notably blackcurrant, used for supplementary products out of season.

Canning was originally the main operation in these factories, but various factors, notably the price and shortage of cans, have led them to supplement production with glass bottles, which are now becoming expensive and in short supply, together with plastic bottles (usually made of polyvinyl chloride, or PVC), which are bought in from local manufacturers or moulded on site.

Tropical Foods has recently embarked on a modernization programme which includes a juice/pulping line capable of handling up to eight tons of fruit per hour, with the intention of installing a fully automatic pasteurizing and long-life carton line.

8.1.2. Major problems and constraints

The main problem facing this branch is the poor quality, lack of regular supply and high price of its primary packaging materials, viz. cans and ends, glass and plastic bottles, caps, and labels. The price and quality of cartons is also causing concern.

Metal Box Limited is the sole source of supply of open-top cans and ends, and the most popular size (301, 16-oz and 8-oz) is currently limited to only 100 cans per minute (cpm), to supply canning factories with an installed workingcan seaming capacity of over 400 cpm. Besides this shortfall, the quality is poor, mainly from defective side seams.

It has been reported that, fortunately, Metal Box (UK) and the Tanzanian Investment Bank have agreed on a policy to refurbish all the lines of Metal Box (Tanzania) Ltd. with new, or where appropriate completely overhauled equipment so as to enable all future requirements to be met in full with good quality cans. The most significant change for the food canners will be the introduction of a unit to weld side seams, to replace the present outdated lead soldering technique on the round (16-oz and 8-oz 301 size) food can line. Metal Box (Tanzania) Ltd., estimates that the rehabilitation programme will be completed within 10 months of securing the necessary funds.

Kioo Glass Ltd. manufactures all the glass bottles and jars, with a capacity range of 25-50,000 units of one size per day, and a total output of up to 210,000 units. When peak production is required for beer and soft drink bottle production, there is no spare capacity. Consequently, sauce and squash bottles need to be purchased at least six months in advance to cover this period.

Glass bottles suffer from the disadvantage that there are no pilfer-proof, reclosable caps of local or imported manufacture. These are required to meet the legal standards laid down by Tanzanian Bureau of Standards. Crown caps used on beer and soft drinks are not suitable for squashes and sauces.

Manufacturers of sauces and squashes have therefore started to use moulded plastic bottles, made from imported granules, which are sealed with roll-on, imported aluminium caps, or with locally made plastic flip-top closures.

Apart from the occasional shortage, there is generally an adequate seasonal supply of fruits such as oranges, mangoes, pineapples, passion fruit and tomatoes for processing. The problem lies in supplying the fruits to the factories on a regular basis and in good condition. There is a chronic shortage of lorries, none of which are converted or refrigerated for fruit cartage. The outlying roads are in very poor condition, which extends the journey time from harvesting to arrival at the factory to over two days on occasions, and also causes extensive damage and losses, reported to be as high as 50 per cent in extreme cases.

While there is little large-scale fruit farming in Tanzania, with the horticultural sector being supplied almost exclusively by small-scale subsistence farmers, the success of the proposed expansion in food-processing facilities at Tangold Products would depend on the following:

(i) The development of some form of commercial farming practices in close proximity to the plant. This would reduce the variations in the volume and price of material inputs and would also minimize damage due to extended transport distances.

(ii) The provision of cool storage facilities at the plant level to store unprocessed fruit for processing out of season.

(iii) The provision of adequate foreign exchange to permit the importation of essential inputs such as preservatives, analytical reagents, plastic granules for bottles and caps, boiler water treatment chemicals and spare parts.

Given improved incentives to the agricultural sector in the form of improved producer prices, better marketing channels, improved credit and better transport networks, the desired increase in agricultural production should be realized.

There is very little large-scale fruit farming in Tanzania, the horticultural sector being supplied almost exclusively by small-scale subsistence farmers, each cultivating only a few hectares. Commercial contract cropping has therefore not been feasible to date. None of the factories has a significant area of its own land to act as a nucleus estate to ease the supply problem.

None of the factories has refrigerated cool storage facilities to store unprocessed fruit. This is a required facility, especially when deliveries tend to be so unreliable.

The lack of foreign exchange severely limits the importation of otherwise unobtainable essential inputs such as preservatives, analytical reagents for quality control purposes, plastic granules for bottles and caps, boiler water treatment chemicals, and mechanical spare parts.

The shortage of well-trained and qualified management, of all required professions - accountants, technologists, engineers, chemists - and also the lack of training facilities and courses poses severe staffing problems.

The Sugar Development Corporation (SUDECO) is the source of supply of sugar, which is made in two grades (excluding raw) in Tanzania: double-refined (white) sugar, which is required in the manufacture of juices, squashes, and fruits in syrup, and single-refined (off-white, containing some molasses) sugar, which is suitable for domestic use.

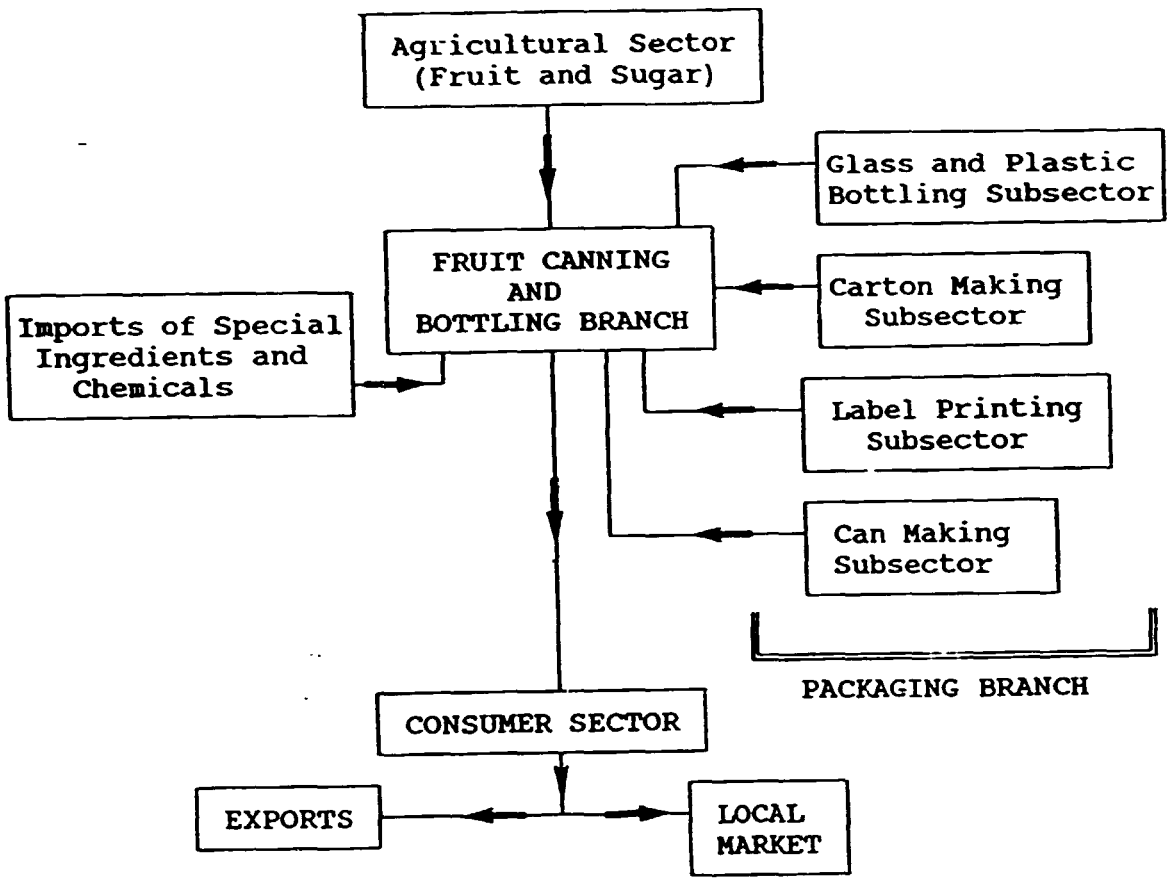
There is a critical shortage of double-refined sugar, and it has been reported that its production may cease in future. Fruit processors will therefore need to resort to importation of the white sugar, if quality is to be maintained.

There is a possibility that syrup made from the single-refined, off-white sugar, which is also in very short supply, may be suitably refined by passing it through a bed of activated charcoal.

8.1.3 Linkages

Linkages between the food canning and bottling branch and other branches, including both forward linkages (e.g. to packaging plants) and backward linkages (primarily to the agricultural sector), are shown in Figure 8.1.1.

Figure 8.1.1: Linkages in the fruit-canning and bottling branch



Source: Tangold Products Company.

8.1.4 Spatial Distribution

Of the reported 26 fruit processors presently in operation, 7 have been identified by the mission. Three of those capable of processing fruits - Tangold, Tropical Foods, and Tanganyika Packers (mainly meat processing, with one line suitable for fruit juices) - are situated in and around Dar es Salaam. A second Tangold unit is at Korogwe, some 290 km to the north, while Dabaga is 500 km to the south-west in the southern high plateau region at an altitude of approximately 1500 metres. There is also a small factory in Mbeya in the far south-west, which was closed in recent years, and another in Zanzibar, which was installed in 1981 but which has not operated at all.

8.1.5 Ownership patterns

Out of 26 registered fruit-processing units in the country (many of which are not operating) 6 are registered as public companies and the other 20 are registered as private companies.

Within the public sector, two large factories are operated under Tangold, a subsidiary of the National Milling Corporation. NMC is a parastatal under the Ministry of Agriculture and Livestock Development and is the sole

shareholder in Tangold. One small fruit-canning line is operated by Tanganyika Packers, which again is a parastatal enterprise under the same Ministry as Tangold. There are three small plants which are run by District Development Corporations under their respective district councils in Kyela, Lushoto and Mukeza.

Within the private sector there are three main factories - Dabaga Fruit and Vegetable Canning Company, Tropical Foods Ltd and Mbeya Canning Industries, which is now closed. The remaining units in the private sector, many of which are not operating, are very small scale.

8.1.6 Policies and institutions

All the units have obtained their licences and certificates from the Ministry of Industry and Trade. However, the two units which are owned by Tangold and the unit under Tanganyika Packers belong to the Ministry of Agriculture and Livestock Development.

The Government is committed to raising the nutritional standards of the population and to reducing the wastage of fruits (especially in peak production periods when some areas have surplus supplies) through spoilage. To this extent the fruit-canning industry is given priority by the Government within the other agricultural processing industries.

The development of the food-processing sector is consistent with the Government policy stipulated in the Economic Recovery Programme, which emphasized "food security" and an expansion of domestic self-sufficiency in food and beverage supplies.

Policies initiated by the Government to stimulate agricultural production include:

- An increase in producer prices for agricultural products;
- The transfer of marketing to co-operative unions and the de-monopolization of purchasing power by the parastatals;
- A policy of increased credit for farmers;
- Improvements in technological inputs;
- The promotion of an export retention scheme to enable farmers to retain a proportion of the foreign exchange they earn;
- The promotion of private/foreign investment in the production of export crops.

8.2 Paper processing

8.2.1 Overall characteristics

As most of the units are small to medium size, this branch is dominated by Southern Paper Mills (SPM), located at Mufindi, with an overall installed capacity of 90,000 tons per year of newsprint, kraft, machine-finished paper and pulps.

Most other converters rely on SPM to a greater or lesser extent for paper (kraft and machine-finished) and/or pulp.

The pulp and paper board mill division of Kibo Match Corporation, Moshi, is independent of SPM, but has difficulty with the cost and reliability of supplies of waste paper from Dar es Salaam. They manufacture board for conversion to plain cartons.

Kibo Paper Industries in Dar es Salaam relies on SPM for unbleached pulp in the manufacture of its corrugated carton board, all of which it uses for its own carton manufacturing business, as well as kraft paper for conversion to cement and grain sacks. The thicker white-lined boards are purchased from Kibo Match Corporation.

Twiga Paper, in Dar es Salaam, is almost entirely dependent upon SPM for its kraft liner and test liner for corrugated board manufacture, and kraft paper for conversion into grocery bags, etc.

It also uses some yellow machined paper from SPM for tea bags for local use. The quality is not good enough for exports, however, and imported machine-glazed paper is used instead.

All companies in the sector face stiff competition from better quality and cheaper imported products, when foreign exchange is available.

8.2.2 Major problems and constraints

There are two major constraints, firstly the high cost and unreliability of road and rail transport, and secondly the high price charged by SPM for its domestic products. This high local price arises from high initial production costs, which are further increased by the need to subsidize paper exports at world market prices in order to earn foreign exchange.

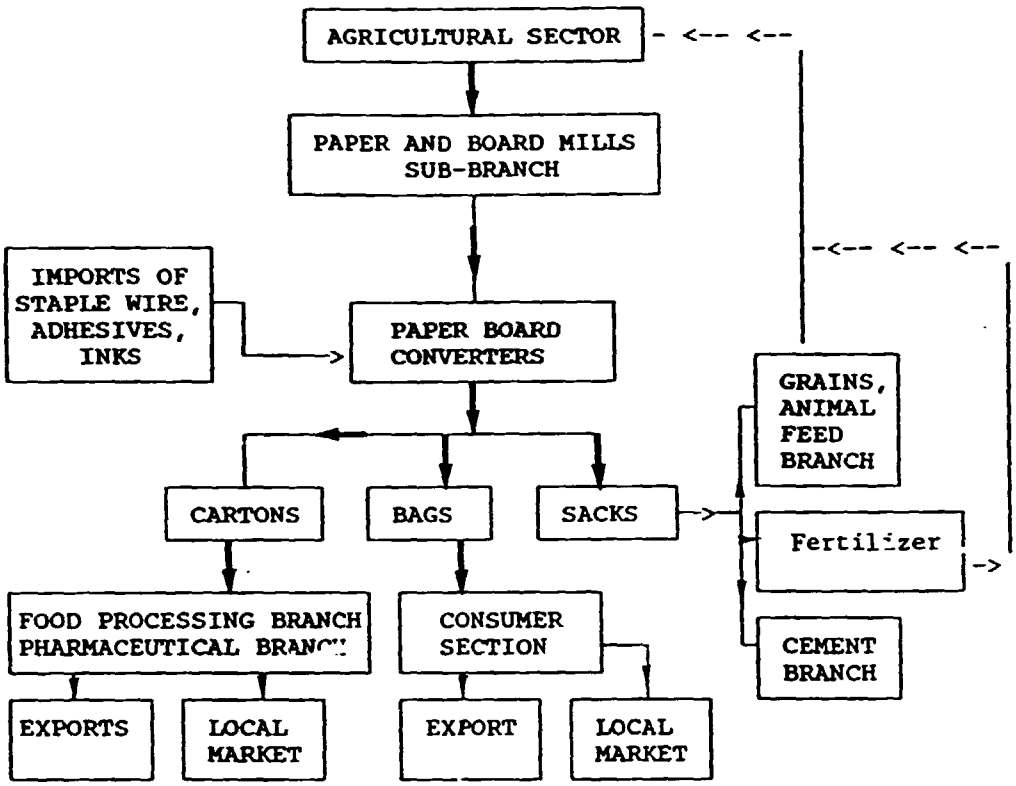
Another constraint is the non-availability of spare parts for aging machinery, and of the foreign exchange needed to purchase them.

The lack of adequate heavy road and rail transport for ferrying raw materials and finished goods poses extra problems of irregular trading patterns and lack of adequate storage space to accommodate the fluctuating deliveries of raw materials and dispatch of finished goods.

8.2.3 Linkages

Linkages in the Paper Processing Branch are shown in Figure 8.2.1. Note that, in addition to the backward linkages to the paper and board mills sub-branch of the agricultural sector, there are numerous forward linkages to the food processing, pharmaceutical, animal feeds, fertilizer and cement branches, among other industries serving both local and export markets.

Figure 8.2.1: Linkages in the paper processing branch



Source: Twiga Paper Products Ltd.

8.2.4 Spatial distribution

Most units in this branch are small to medium size. In all, there are fourteen registered enterprises producing paper packaging materials, most of them concentrated in Dar es Salaam because it offers a very large market. Eight units are located in Dar es Salaam and one each in Tanga, Arusha, Moshi, Zanzibar, Iringa and Mosi. Not all the plants are currently operational, and the range of products vary from paper milling to cardboard boxes to sweet wrappers and small paper bags.

The four largest processors are: SPM in Mufindi, 720 km from Dar es Salaam by road via Iringa and Makambako or 600 km by rail, with a capacity of 90,000 tons per year; Kibo Match Corporation, on the outskirts of Moshi, approximately 560 km from Dar es Salaam by road or rail, with a capacity of 9,000 tons per year; Kibo Paper Industries, in Dar es Salaam, with a capacity of 10,000 tons per year; and Twiga Paper Products Ltd., with a capacity of 3,000 tons per year, also in Dar es Salaam.

8.2.5. Ownership patterns

Only two of the largest enterprises are publicly owned (Kibo Paper and Southern Paper Mills), while the rest are privately owned. Kibo paper is a subsidiary company under Tanzania Karatasi and Associated Industries (TKAI) as its holding parastatal with 10 per cent private participation by Tanzania Development Finance Ltd. (TDFL). Southern Paper Mill is a subsidiary company under the National Development Corporation as its holding parastatal. In both cases the Ministry of Industry and Trade is the parent Ministry.

8.2.6. Policies and institutions as they relate to the paper processing branch

A critical problem that needs to be addressed is the apparent contradiction between the desire to satisfy World Bank directives with respect to the price levels required to export sufficient paper to repay the financial investment for the project and the excessively high cost of domestic paper sales needed to cover annual operating costs to the detriment of the local packaging industry.

8.3 Animal feed branch

8.3.1 Overall characteristics

This branch relies mainly on locally-produced raw materials such as maize, oilseed cake, wheat bran, fishmeal, bone-meal, limestone and salt, supplemented by imported vitamins, amino acids, and trace minerals.

The branch is dominated by the plants owned by TAFCO, a parastatal group, with a total installed capacity of 170,000 tons per year, the largest of which has a capacity of 10 tons per hour and is in Dar es Salaam. The smaller private units have an estimated capacity of 80,000 tons.

In 1988, the output of TAFCO was only a little over 15,000 tons, of which just under 8,000 tons were produced in the Dar es Salaam plant. The private sector contributed an estimated 50,000 tons, towards an approximate need of 220,000 tons for the whole country.

About 95 per cent of the outputs are for various poultry feeds, the remainder being for pigs, cattle, and special experimental animal feeds.

The low output levels have been attributed to a shortage of supplies of raw materials, coupled with mechanical breakdowns due to the age of the equipment and lack of maintenance.

8.3.2 Major problems and constraints

The shortage of essential ingredients, especially the animal protein supplements, means that most of the animal feeds produced fall short of the specifications laid down by the Tanzania Bureau of Standards.

Fishmeal has been in short supply, since the meal plant in Mbeya ceased to operate on a regular basis in 1986. The plants now rely on an irregularsupply of small dried fish from the lakes purchased from fishermen and middlemen at widely fluctuating prices. Meat and bone-meal from Tanganyika Packers has been unobtainable since the abattoir was closed in 1984.

Oilseed cake is also in short supply, since several of the oilseed processors have broken-down, worn-out expellers which have reduced outputs. There is also a shortage of cottonseed at the plants, since sufficient transport is not available to bring the seed from the cotton-growing areas.

The lack of spares and the foreign exchange to purchase them and the absence of regular preventive maintenance has led to an ever-increasing occurence of breakdowns and complete stoppages.

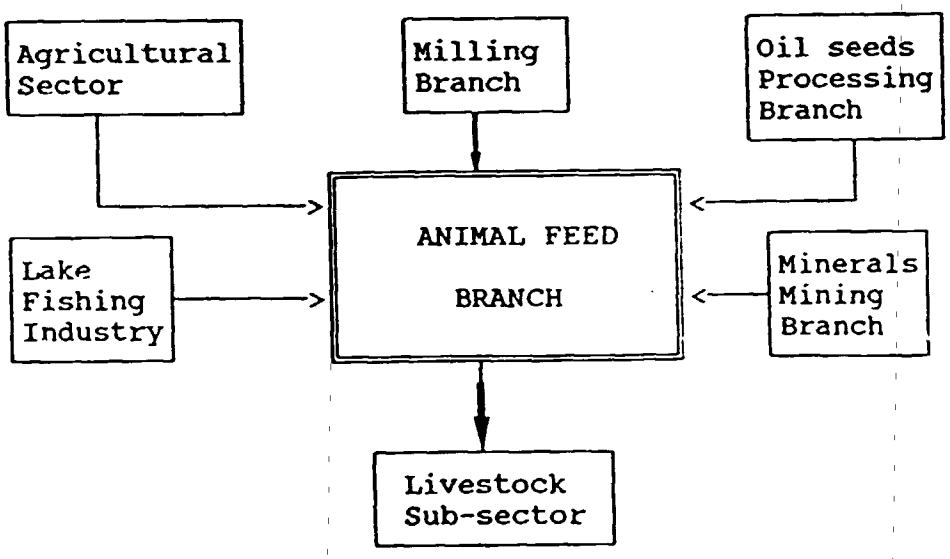
Other serious problems result from the poor roads, and the lack of 7- to 10-ton lorries to ferry raw materials and finished goods.

The importation of essential vitamins, amino acids and trace minerals was restricted until recently, when Canada started to supply them as part of an aid package.

8.3.3 Linkages

The animal feed branch has strong backward linkages to the agricultural sector for its grains, the milling branch for its brans and wheatmeal, the oilseeds processing branch for its seed-cake, and the fishing industry for its dried fish. The forward linkage is to the livestock subsector, as illustrated in Figure 8.3.1 below:

Figure 8.3.1: Linkages in the animal feed processing branch



Source: Tanzania Animal Feeds Company.

8.3.4 Spatial distribution

There are 24 animal feed plants on the Tanzanian mainland, 14 located in Dar es Salaam, two in Moshi, two in Arusha and one each in Lindi, Mbeya, Mtwara, Mwanza, Kigoma and Shinyanga. The present raw material input supply shortage has led to intense competition for supplies, and many of the smaller feed mills have operated on a random basis when supplies allow. In addition, there is one unit located in Zanzibar.

8.3.5 Ownership patterns

The largest four animal feed plants are owned by Tanzania Animal Feeds Company (TAFCO), a subsidiary of the National Milling Corporation. These plants are located in Dar es Salaam, Moshi, Mbeya and Mwanza and have a combined installed capacity of 170,000 tons per year. Output from the scattered private plants is estimated to be a maximum of 80,000 tons per year, although only 50,000 tons were produceded in 1988.

There are at least 16 privately-owned companies (according to the number of industrial licences issued), many of which are fairly new but very small. In particular, seven plants received their industrial licences in 1986 or later.

8.3.6 Policies and institutions

Although industrial licences for the manufacture of animal feeds are granted by the Ministry of Industry and Trade, the public sector company (TAFCO) is owned by the National Milling Corporation, a parastatal operating under the Ministry of Agriculture and Livestock Development. The Government is committed to the development of the livestock farming sector in order to raise income levels of livestock farmers and improve the nutritional standards of the general population (through the consumption of milk, eggs, meat, etc.). The Government therefore considers the production of animal feeds as an essential input into the livestock industry.

CHAPTER 9
PLANT PROFILES

9.1 Tangold Products Company Ltd.

9.1.1 Existing situation

(a) Plant history

Tangold Products Company Limited was established as a private company in 1953 under the ownership of Pure Food Products Company Limited.

The main activities of Tangold Products during the years 1953-1968 were in the production of fruit squashes, syrups, cordials, vinegar, sauces, jams, pickles and marmalades.

In the wake of the Arusha Declaration, which was announced in 1967, the company was nationalized and became a public enterprise in 1968 under Act of Parliament No. 19. As a result, the company was handed over to the National Milling Corporation (NMC) which, in 1968, made Tangold Products one of its company branches. The firm was incorporated in July 1979 as a subsidiary of the NMC and became an independent entity with its own management team under the Board of Directors.

Additional production lines were introduced in 1969 which were capable of canning orange juice, pineapple juice and mango juice.

A second production branch of Tangold Products Company Ltd., located in the Korogwe - Tanga region, some 350 kilometres from Dar es Salaam, was commissioned in 1976. The Korogwe factory can produce orange juice, sauces, jams, pickles, marmalade and beans in tomato sauce.

(b) Management and organization

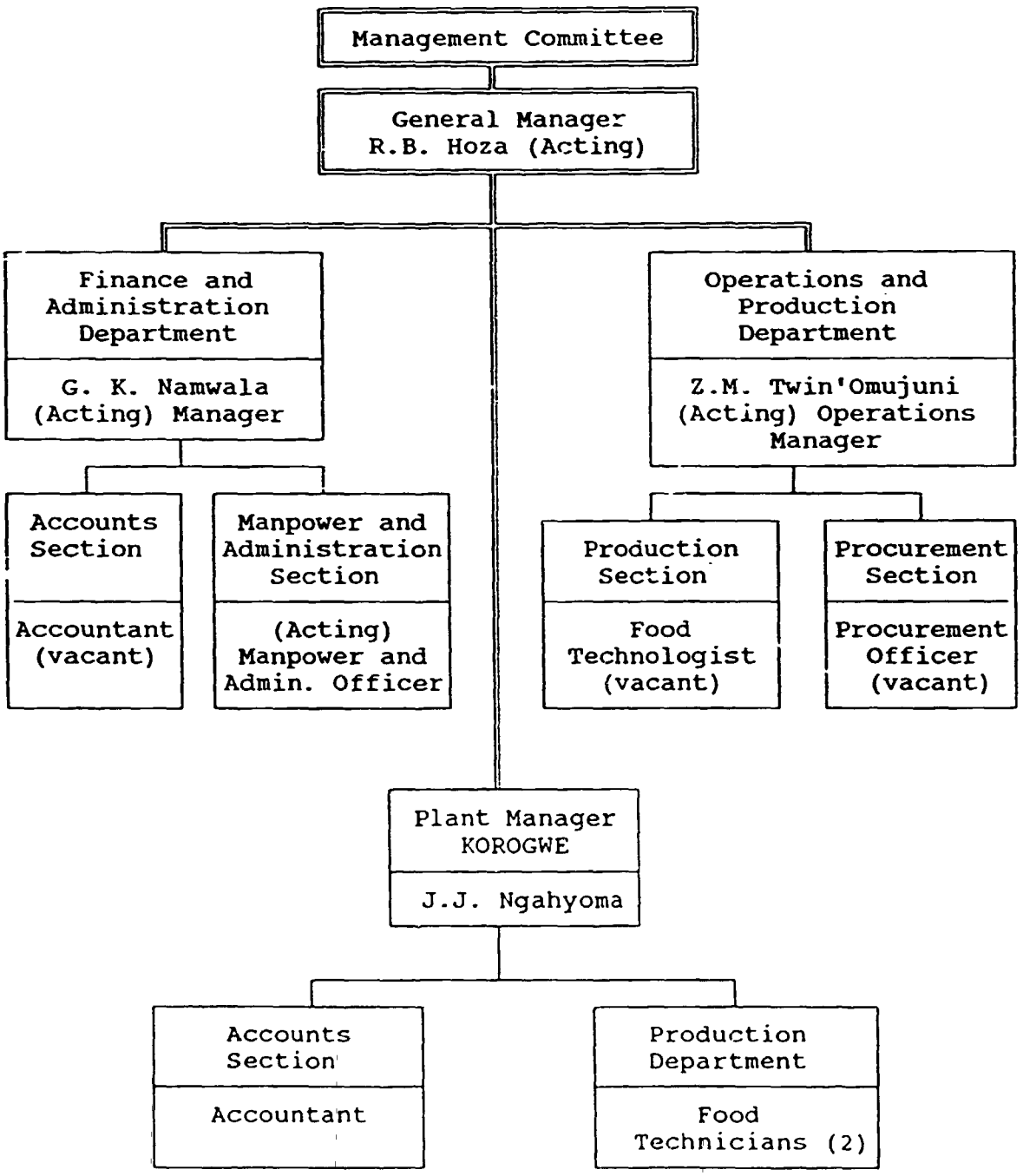
Tangold Products Company Limited (as mentioned above) developed from a private company established in 1953 to a canning division of the parastatal NMC in 1968. It became an independent company in 1979, although it remains a 100 per cent publicly-owned company operating under the NMC.

The company has two plants - one in Dar es Salaam, with 80 employees, and the other in Korogwe some 300 kms to the north, with 30 employees. The authorized share capital of the company is TSh 45 million, of which TSh 33 million is paid up.

The organizational structure of the company is shown in Figure 9.1.1 and was adopted in August 1985 as part of an overall rationalization programme.

The Management Committee (Board of Directors) is appointed by the Minister of Agriculture (with the exception of the Party Member) and serves for three years unless reappointed by the Minister. In theory, it should meet four times per year to review company performance and to report back to the NMC. In practice, they probably meet only twice per year.

Figure 9.1.1: Tanpold Products Company: organizational structure



Source: Tanpold Products Company.

There should be six members of the Committee, although at present there are only five. The Committee comprises the following individuals:

Dr. Khalid - Chairman.

Managing Director of private consultancy (Agriconsult).

J. Rubibira - On secondment from NMC and responsible for procurement.

E.M. Masanja - Representative of Ministry of Finance.

E. Moyo - - Representative of Ministry of Agriculture.

S.A. Mwejeka - Party member.

The most striking aspect of the organizational structure of the company is that most of the senior management positions have not yet been confirmed in their posts and instead have acting managers. Moreover, many intermediate posts, particularly at the Dar es Salaam plant, are vacant.

The current General Manager, Mr. R.B. Hoza, has only held the position for two months following the sudden death of the former manager and was formerly in charge of the Operations and Production Department. The Acting Manager of the Finance and Administration Department has remained in this post due to the dismissal of the former manager following allegations of financial mismanagement. Mr. Twin'Omujuni took up the position of Acting Operations Manager in Dar es Salaam only two months ago, although he spends a substantial proportion of his time at the Korogwe plant.

The Korogwe plant has a Plant Manager who has been resident there since 1983, one accountant and two relatively inexperienced food technicians. As a result, the acting Operations and Production Manager has to spend an inordinate amount of his time in supervising production at Korogwe.

The professional and educational backgrounds of the key individuals are as follows:

R.B. Hoza (Age 41) - Acting General Manager.

B.A. Education, University of Dar es Salaam (1973).

Five years teaching in secondary schools, followed by two years as a Training Officer with the NMC, four years as the Manpower Development and Administration Manager with Tangold and three years as the Operations Manager.

G.K. Namwala (Age 38) - Acting Manager, Finance and Administration Department.

Diploma in Accountancy, Institute of Finance Management.

Z.M. Twin'Omujumi Acting Operations Manager.
(Age 39)

HND Food Technology, Grimsby, UK.

With Tangold since 1974.

J.J. Ngahyoma - Plant Manager, Korogwe
(Age 38)

Diploma in Business Administration, Institute of Finance Management

With Tangold since 1983.

The core management team, therefore, has considerable experience in running the two plants, although the recent enforced positional changes have created some disequilibrium in functional roles and responsibilities. While it is difficult at this stage to make an objective judgment of Mr. Hoza's capabilities as a General Manager, since he had only been in this position for two months at the time of the UNIDO mission, he would appear to be an appropriate choice, as he has extensive experience in other areas of management in the operations and manpower development fields.

The weaknesses in the organizational and management structure are as follows:

- the combination of the accounting and administration functions under the responsibility of the Chief Accountant;
- the lack of intermediate staff in the Dar es Salaam accounting department and the absence of any cost accounting experience;
- the lack of support staff in the Operations and Production Department;
- the absence of any sales/marketing function;
- extremely poor communications with the Korogwe plant;
- ineffective budgetary control and accounting procedures;
- inadequate training programmes.

(c) Financial structure

Tangold Products Company Limited is a subsidiary company of the National Milling Corporation, who are the sole shareholders. Total share capital value of Tangold is TSh 45 million, of which TSh 33 million has been paid up by NMC.

Table 9.1.1 shows the financial structure of Tangold Products (1988 figures unavailable), including share capital and retained earnings.

Table 9.1.1: Tangold: total assets and capital employed
(thousands of Tanzanian Shillings)

	1986	1987
Fixed Assets	25,906	24,293
Current Assets		
Stocks	12,675	19,779
Debtors	3,130	801
Group company balances	268	1,043
Short-term deposits	1,870	-
Bank/cash balance	1,388	163
Total Assets	45,237	46,079
Current Liabilities		
Creditors	1,397	4,208
Group company balances	4,294	5,657
Taxes payable	305	155
Bank overdraft	-	85
Capital Employed		
Share capital	33,388	33,388
Retained profits	3,353	86
	36,741	33,474
Long-term loan	2,500	2,500
Net Assets	39,241	35,974

Source: Tangold Products Company.

The stated depreciation rates for Tangold Products have been calculated to write off the cost of fixed assets over their remaining useful lives. Depreciation rates are given as:

Buildings	4 per cent
Vehicles	25 per cent
Plant and machinery	12.5 per cent
Office equipment	12.5 per cent

These rates are thought to be generally realistic. Depreciation figures for 1986 and 1987 are calculated at TSh 1,648 million and 1,627 million respectively, while purchase of fixed assets for the same years is calculated as TSh 78,000 and 14,600. Little reinvestment has taken place, due to the lack of local manufacturers of quality spare parts and the difficulty in obtaining foreign exchange to import spares from abroad.

The financial situation of Tangold has in recent years been seriously affected by numerous external and internal constraints on factory production.

Average yearly losses of TSh 3.5 million in 1986 and 1987 have required mobilization of the Company's retained profits and development loan capital through the National Milling Corporation (its parent company) to compensate for the company's losses.

The present problem is further heightened by Tangold's rent arrears on the use of their pineapple and orange juice extractor lines which, being rented from Europe, require mobilization of foreign exchange. The total sum owed is US$ 50,000.

The company also has a very large percentage of its current assets tied up in stock (90 per cent in 1987). The two major reasons for this accumulation of stock could be:

1. Packaging items such as bottles are often not available for long periods, which makes it necessary to buy in large amounts in order to ensure availability throughout the production year.

2. Goods manufactured at Tangold are, on occasion, restricted from going to retail as packaging/quality standards fall short of the guidelines of the Tanzanian Bureau of Standards.

The 1987 detailed accounts have only recently been released to shareholders and preliminary figures for 1988, estimated by the management, show a near break-even situation. However, Tangold Products has already had TSh 7.5 million allocated to it by the National Milling Corporation to erase the losses for the years 1985-1987. Undoubtedly, without the support of the NMC, the continued survival of Tangold Products Company Ltd. would be in serious doubt. Furthermore, the NMC is itself in a bad financial position, having a large bank overdraft with the National Bank of Commerce, and is therefore unlikely to provide financial support indefinitely.

The internal organization of Tangold's accounting functions is poor, with only one accountant at the Dar es Salaam factory and one at Korogwe. There are no qualified cost accounting personnel, which makes both accurate costing and hence price-setting (using the cost-plus approach) very difficult.

(d) Buildings, installations and the production process

(i) Buildings and installations

Tangold Products Company Ltd. comprises two manufacturing plants, one located in Dar es Salaam and another in the Korogwe-Tanga region. The Dar es Salaam plant is situated along the Pugu Road, while the Korogwe plant is about one kilometre from the town of Korogwe beside the Korogwe-Tanga railway. The Dar es Salaam plant is the larger of the two, occupying nearly one hectare, and houses the company's head office. It consists of two main buildings; the larger building, covering an area 60 m x 30 m, contains the processing rooms and the offices while the smaller building houses a co-operative shop. The main building consists of the following major sections:

	m^2
Raw materials receiving shed	720
Processing room	700
Packaging cans elevator room	144

	m^2
Bottling line room	140
Labelling room	72
Laboratory	30
Boiler house	80
Intermediate products storage area	84
Inputs storage area	60
Chemicals storage room	48
Finished products storage	300
Offices	264
Auxiliary rooms	60

The offices are placed separately from the process buildings and are situated one floor above.

(1) The main building

The main building is over 36 years old and has had no regular maintenance over those years. The flooring terrazzo and the wall tiling are completely worn out, and the corrugated iron roofing sheets are so corroded that when it rains (which is often) the processing equipment is exposed to rainwater through roof leakage. The walls of the building as a whole have not been repainted for over 15 years and are consequently very dirty, even in the General Manager's office.

The windows, for practical purposes, have no covers and the original glass louvres have mostly been broken or removed. Not a single window had any wire netting to keep out flying insects from areas such as the process room which should be maintained at a high level of hygiene.

The plant location has ample open space for future expansion and is strategically placed along the main highway joining the airport and the city centre.

Figures 9.1.2(a) and (b) depict the process flow for incoming fruits through to the dispatch of canned and bottled juices, pulp and slices.

(2) Raw materials receiving shed.

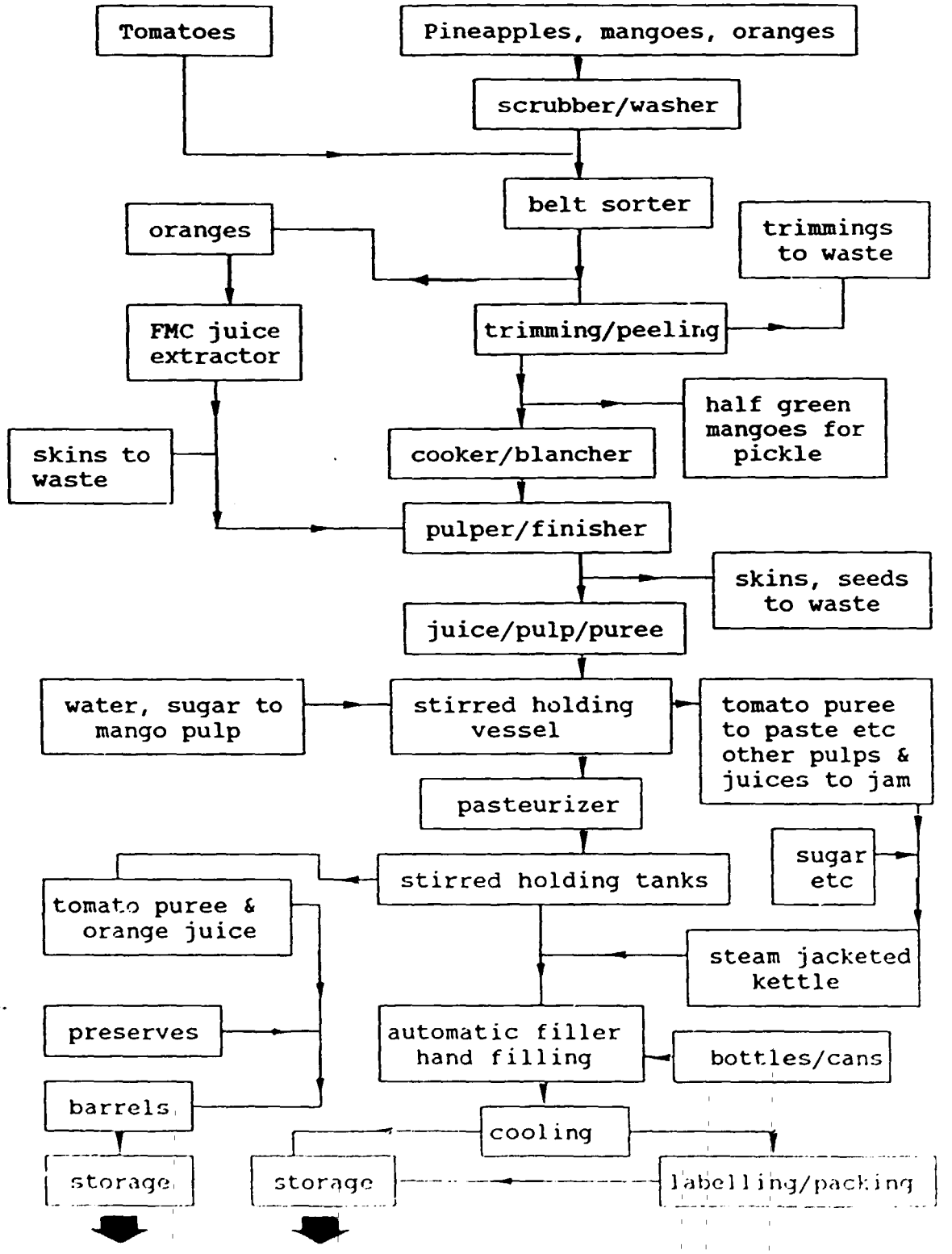
The space allotted for receiving fruits consists of an open shed covering an area of 720 sq m, with a height of about 5 metres. The far end of the shed is fitted with a metal-roller elevator and a waste-water tank for the pineapple line. In the middle of the shed, attached to the wall, is a compressor used in the process lines. The roof is covered with corrugated iron sheets.

(3) Processing and quality control equipment

Excluding the 8-ton per hour extraction equipment at Tropical Foods, the Tangoid factory has a potentially greater fruit processing capacity than all the other similar factories in Tanzania combined. It is equipped with one semi-automatic line for pineapples (from FMC Ltd.), with a theoretical capacity of 3.5 tons per hour to produce slices, cubes, pulp and juice. The line has not run properly since its installation in 1971, or indeed at any time since 1983.

Figure 9.1.2: Tangold: process flow diagram

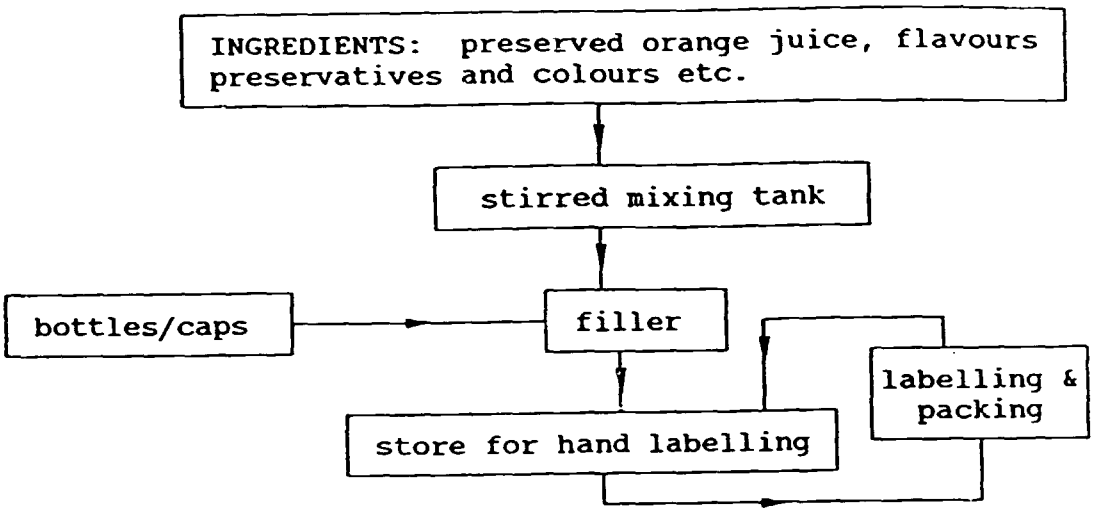
(a) fruit processing



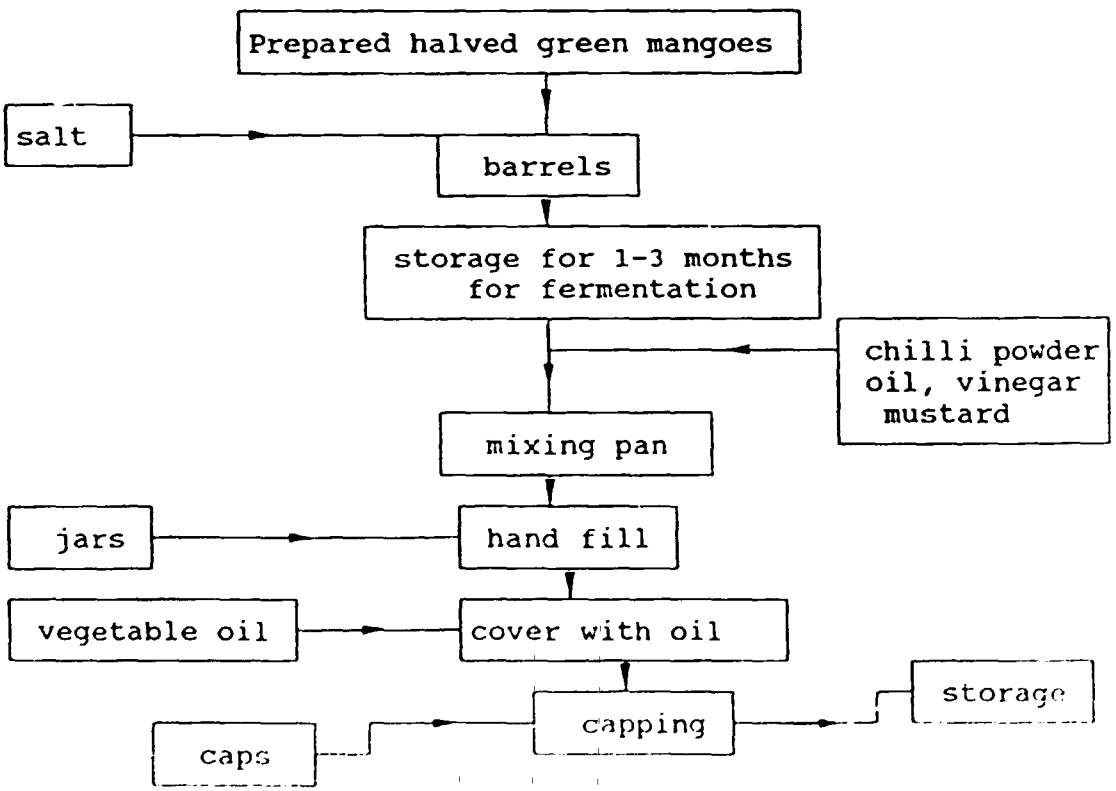
Source: Tangold Products Company.

Figure 9.1.2: Tangold: process flow diagram

(b) squashes and cordials



(c) Hot mango pickle



Source: Tangold Products Company.

The problems have been stated as being due to the lack of some spare parts and the varying size and maturity of the pineapples. The machine for peeling and coring was said to be the root of the problem, and the fruit cuber and juice extractor was also said to be inefficient.

The second line is used permanently for oranges, for which it is equipped with a sorting conveyor, brush washer and elevator leading to a 5-head reaming orange juice extractor capable of handling 35 tons in a 7-hour shift, although the maximum normal throughput is 20 tons/day to yield 7,000 litres of orange juice. The juice is pumped from the extractor through two parallel plate heat exchangers to effect pasteurization and into stainless steel holding vessels equipped with stirrers. The hot juice from the holding vessels is filled into 15-oz 301 cans on an 8-head filler at a rate of 100-120 cpm, followed by seaming on a 4-head automatic seamer. The cans are then inverted and passed through a combined water-spray/air-cooling tunnel. The filled, cooled cans are removed manually from the conveyor belt and stored for hand labelling.

This orange juice processing equipment is supplemented by a thermascrew cooker/blancher and a pulper and finisher to enable pulps and juices to be prepared from mangoes, pineapples and tomatoes. However, there is no peeling machine for the mangoes and a corresponding feed elevator is not provided. Peeling and subsequent feeding into the system is effected manually.

The transport of pulp from the pulping machine to the steam-jacketed pans is also done manually with an absence of a pump and pipes for the pulp transport. It appears that these fittings have been cannibalized. There is also a separate filler and seamer for A10 (3-litre) cans, capable at operating at 50 cans per minute.

The parallel plate heat exchangers used to pasteurize straight orange, pineapple and mango juice (a mixture of 40 per cent pulp and 60 per cent water), is thought to have clearances too narrow to process mango and pawpaw (papaya) pulps which are too viscous. This potential problem could be overcome by using WHX plates with wider clearances. Other equipment for batch operations includes three 50-gallon fixed open steam boiler pans, for concentrating tomato paste, jam making and cooking purees, three MBI semi-automatic seamers, and three sterilizing retorts. Four tilting steam-jacketed pans are considered to be unusable. Batched processed products are filled by hand and seamed on one of the MBI seamers.

Produce which is not directly filled into cans, such as early season orange juice and tomato puree, is pumped into barrels, preserved with sodium metabisulphite, benzoate and used for off-season manufacture of tomato sauce, chilli sauce and orange squash.

Soft green halved mangoes with added salt are fermented in barrels for several months for later use in the manufacture of hot mango pickle, whereupon chilli powder, other spices, vinegar and vegetable oil are added. This final product is hand-filled into jars, topped with oil to seal it and closed with a lid.

The squashes and syrups are made in a separate room by mixing the ingredients, including preservatives, in a stainless steel holding vessel and filled on an old bottle filler, said to be pre-1953, at a rate of about 15-20 bottles/minute before being capped, labelled by hand, and packed into cartons.

There is a small quality-control laboratory, basically equipped with an analytical balance, hand refractometers, micrometer gauges to measure can seams and a few glasswares and chemicals for acid and salt content titrations. There is no pH-metre, no portable thermometers to monitor filling temperatures, no headspace gauges or facilities for any microbiological determinations. Apart from the production technologist, who has responsibility for both factories, there is no other technically qualified senior or junior staff to assist him. Currently the quality control laboratory is not used for analysis.

Quality control merely consists of visual observations of fruits, related inputs, packaging materials, storage monitoring, shop hygiene and product-handling practices. Periodically, samples are sent outside Tangold for analysis and certification at the laboratories of the Tanzanian Bureau of Standards (TBS). Recent test results from TBS certified that Tangold products conform reasonably well to internationally accepted specifications.

(4) Water and electrical supply

Tangold's water supply is provided directly from the central city water supply system. The company has two water reserve tanks with total storage capacity of some 100,000 gallons.

There are also three tanks for storage of fuel oil for the boilers. The receptive capacities of the tanks are 4500, 2250 and 200 litres. The largest tank is installed underground.

The supply of electricity has been reported to be regular and of constant voltage.

(5) Compressor

The processing plant is served via a single compressor unit, placed attached to the wall on top of the raw material receiving shed. The compressor was installed in 1971.

(6) Boiler house

The Company owns two steam boilers at the Dar es Salaam plant and one boiler at the Korogwe plant. Of the two boilers at the Dar es Salaam plant, one is a Perkins Patomatic 1000 Boiler, Type SBS 10, No. 720/1/7, of British manufacture, and the other is a Continental Boiler Ser. No. USA 15231 (1972), made in the United States. During the mission's visit to the plant, both boilers were not in operation.

One of the boilers, (Perkins Patomatic) was reported to be operational and has been kept so by regular spare-parts cannibalizing of the Continental Boiler for the Perkins Patomatic Boiler.

When operational, the capacities of the steam boilers are 90 psi steam supply each, 1,000 lb/hr.

(7) Liquid effluents

The liquid effluents are mainly wash-water from the cleaning of raw fruits, process equipment, process floors and walls and employees. These are drained without any prior treatment into the city sewerage system, which has recently been rehabilitated. The gutters are eroded and dirty by food processing plant standards.

(8) General hygiene

Although Tangold Company has a room spared as a laboratory, there is not a single qualified chemist or technician in the room. There is no laboratory equipment or apparatus for determining the quality of raw materials and products. The windows are not sealable and the cloth curtains hanging from them are dirty and loose. The room has neither an air-conditioner nor a ceiling fan.

There are no wash-basins equipped with the necessary cold and hot water taps anywhere in the process plant area. The existing practice involves drawing hot water from the cooking pans for cleaning floors and gutters. Not a single high-pressure hot water hose (cleaner) is provided.

The shop floors and equipment are cleaned with "Vim" powdered soap and sterilizing agents. Bacteriocides are generally sprayed on all contact surfaces after each cleaning day. The employees everywhere in the process plant or laboratory had no uniforms, laboratory coats, rubber boots, gloves or head-covers. The general plant cleanliness is poor and the hygienic standards are minimal.

(9) Maintenance

There is no practice of rigid preventive maintenance scheme for the process plant and other equipment. Spare parts ordered six years ago have not been purchased by the time of the UNIDO mission (February 1989). Even where spare parts are not required, there is no attention to regular maintenance, and Tangold has no competent maintenance engineer for the purpose.

(e) Inputs

(i) Fruit Supplies

According to the management, there is generally no shortage of fruit, except for mangoes, available from the growing areas for processing.

However, the lack of a regular scheduled supply of produce is one of the major problems faced by all the processors. Tangold owns one seven-ton lorry, which is used to transfer goods between Dar es Salaam and its other satellite factory at Korogwe, or to collect some produce from less accessible villages. Otherwise farmers organize transport, sometimes borrowing the Tangold lorry, to deliver produce to the factories, or the transaction is carried out by middlemen who specialize in the trade by buying the fruit "on the tree" and distributing it to processors and fresh fruit markets. Their produce was reported to be more expensive than that purchased direct from the farmers, but the amount was not quantified.

At present, farming is carried out at the small-scale subsistence level, generally on small plots of a few hectares, and large-scale contract cropping is not being undertaken. Tangold's lorries frequently return with half a load or less, which should be regarded as a reflection of poor synchronization of procurement rather than as a shortage of either fruit or funds to purchase them. The critical shortage and poor state of repair of lorries, together with the poor condition of many major and all minor feeder roads means deliveries cannot be guaranteed, the journey time from harvesting to arrival at the factory sometimes taking over two days. As none of the lorries are specially equipped or refrigerated for fruit cartage, damage and losses are reported to be as high as 50 per cent (tomatoes) in extreme cases. Fruit would arrive in better condition if the lorries were fitted with some form of racking to prevent contents in lower containers (usually open weave baskets or "tengas" made from palm fronds with 50-kg capacity) from being crushed. To partly alleviate the problem, attempts are made to pack the less mature, harder fruits at the bottom of each tenga.

The present system of fruit buying prevents the processor from having direct control over variety, size or maturity of goods arriving; although suppliers are aware of what is required, parameters cannot be guaranteed.

Processors often negotiate a price at the factory gate, according to the quality delivered. Pineapples and mangoes pose particular problems since they arrive in a variety of sizes and a wide range of maturity, which necessitates extra sorting, those underripe being put to one side to mature. This inevitably slows down the manufacturing operation unless extra sorters are employed. Underripe fruit are gathered, particularly by middlemen who have previously bought the whole crop, to reduce pilferage in the field. Tomatoes suffer from being crushed, when they split and quickly sustain mould growth, and lose consistency from the effect of pectinase enzymes destroying the thickening properties of the pectin which occurs naturally in the fruit.

Fruits are conveyed to the Tangold factory in Dar es Salaam from several outlying areas: oranges and mangoes from Rufiji, pineapples from Kiwangwa, and these fruits plus tomatoes from Morogoro, all at a distance of 60-250 km, and tomatoes from Iringa, over 500 km away. The Korogwe factory is supplied with tomatoes, oranges, mangoes and passion fruit locally from the Lushoto district, and Muheza and Cronja in Tanga region some 60 km away.

There is a rail link from Korogwe to Tanga, and to Dar es Salaam, but the lack of rolling-stock prevents this from being used regularly for fruits or finished goods.

To operate efficiently the management has expressed the need for eight lorries of 5- to 7-ton capacity, to be shared between the two factories.

ii) Sugar

Sugar is purchased from the SUDECO factory in Kilombero, 350 km to the south-west. It is in short supply, with reports of the output being below half the installed capacity of 230,000 tons per year. The low output has been attributed to lack of foreign exchange for spares and chemicals, local money for services, cane cutters, and transport to convey the cane to the factories. The sugar shortage for processing is exacerbated by the poor, variable quality of the output.

In order to make clean-tasting, clear syrup, double-refined white sugar is required. This sugar from SUDECO is so variable that at times Tangold substitutes the lower grade, slightly brown, single-refined (containing some entrained molasses). As there is no means of analyzing sugar samples, Tangold has sought the assistance of the TBS, which has laid down the specifications for the various sugar grades. Tangold believe the production of the double-refined grade for manufacturing purposes will cease shortly, when they would have to revert to single-refined, intended for domestic use, or else find foreign exchange to import white sugar. During the UNIDO visit it was suggested to Tangold that it may be feasible to refine syrup made up from single refined, off-white sugar to a satisfactory standard by passing it through a bed of activated charcoal.

iii) Other local ingredients

Oil for cooking and inclusion in some pickles, and spices such as mustard, chilli powder, and cardamom are purchased from a number of local suppliers. Labels, adhesives, and gummed tape are also bought from local suppliers.

iv) Imported inputs

Imported inputs include preservatives (sodium metabisulphite and benzoate), anti-oxidants, food acids, colours, flavours and fruit concentrates (mainly blackcurrant), and chemicals for quality control analysis and boiler water treatment.

v) Cans

Until the present time the intermittent supply of cans and ends of poor quality has been an acute problem. Fortunately it has been reported that Metal Box (UK) Ltd. and Tanzania Investment Bank (TIB) have agreed on a rehabilitation package which will result in the demand for good quality cans and ends being met in full for the foreseeable future. Cans and ends are delivered to the factory by Metal Box, the sole supplier, in cartons provided by Tangold.

vi) Glass bottles

Currently, Kioo Glass Ltd., in Dar es Salaam, is the only manufacturer of glass bottles and jars, although another is said to be due to open in Mwanza, and a producer of lamp tubes in Dar es Salaam is understood to be planning to diversify into glassware. Bottles are delivered to the factory from Kioo packed in cartons, with dividers, provided ready assembled by Tangold.

vii) Plastic bottles

These can be supplied by a number of moulders in the Dar es Salaam area; Tangold buys from Simba Plastics and Industrial Projects Promotion. They are the least favoured packaging containers, as the PVC which is used sometimes cracks, possibly due to the inclusion of too much recycled plastic by the producers, and does not have such a good shelf life as glass, since it permits loss of flavours, or some ingress of air or oxygen.

viii) Bottle caps

There is no suitable equipment available to enable pilfer-proof, reusable screw caps to be applied to glass bottles. Crown caps from Metal Box used on beers and carbonated drinks are not suitable for squashes and sauces as they are not reclosable. A pilfer-proof facility has been made a legal requirement by TBS, so processors have started to use PVC bottles with imported roll-on, aluminium caps.

ix) Cartons

Cartons, in which cans and bottles are packed for dispatch, are obtained from Twiga Paper Ltd., or Kibo Paper Ltd., both situated in Dar es Salaam. The standard quality for local use is 125-150 g/sm liner paper on either side of 150 g/sm fluting medium. For future export use, a 33 per cent increase in grammage of the liner paper is recommended. The quality of the cartons for local use is generally adequate, but often poorly prepared (flexographically); the cartons are sometimes too soft, probably from lack of moisture content control during manufacture. Occasionally the layers separate, due to the poor quality dextrin glue which is used whenever imports are unobtainable.

(f) Product range

Tangold Products Company Limited produces four major groups of products: fruit juices, squashes, sauces and pickles. Annual production figures for major products for 1987 and 1988 are as follows:

	1987	1988
Orange juice	32,100 litres	9,500 litres
Other juices	4,500 litres	5,100 litres
Tomato sauce	12,200 litres	19,000 litres
Blackcurrant cordial	108,000 litres	134,000 litres
Vinegar	9,600 litres	11,700 litres
Orange squash	60,700 litres	62,000 litres
Mango pickle	5,500 kgs	-

Source: Tangold Products Company.

The number of different products produced by Tangold has decreased from 45 in 1980/81 to only 11 in 1988. The product output mix is unlikely to change in the short term, although work on product/market research should lead to streamlining the product output mix to those products which prove to be most economically viable. There has been great variability in quantities produced from year to year, under constraints of raw material supply, poor packaging, transportation problems and foreign exchange availability.

(g) Plant performance

(i) General

An accurate assessment of the plant performance of Tangold was impossible to make in the short time available to the mission. The necessary data regarding individual fruit purchases, etc. to give yields and net out-turn volume of and type of product made from them is not available.

Table 9.1.2: Tangold: total output and sales, 1987

Product	Quantity (litres)	Sale value (TSh millions)	% of total sale value
Orange juice	32,100	1.83	9
Other juices	4,500	0.30	1
Tomato sauce	12,200	2.9	13
Blackcurrant cordial	108,000	13.0	58
Vinegar	9,600	0.8	4
Orange squash	60,700	3.5	15
Total	21,000	22.33	100

Source: Tangold Products Company.

Using the figures for total output and sales of Tangold products for 1987 (Table 9.1.2), the number of days products made has been assessed as follows, presuming all produce was made in Dar es Salaam:

The orange juice line in its present state can produce and fill 7000 litres in a single seven-hour shift. For other canned juices, the production capacity is lower because of the need to incorporate the cooker/blancher and/or the pulper/finisher. With present equipment, about 5,000 litres per seven-hour shift is a reasonable figure. On this basis, it is estimated that the plant ran for the equivalent of only five complete seven-hour shifts for orange juice and two shifts for other juices, i.e. 7 days out of a total 260 working days, or 2-3 per cent of the time.

On the bottling line for squashes and sauces, it is currently possible to fill 500 cartons per day at the rate of 15-20 bottles per minute (bpm). From the production figures given, filling at a rate of 15 bpm, blackcurrants would have taken 27 days (seven-hour single shift), orange squash 14 days, and tomato sauce 7 days, for a total of 48 days or 18-19 per cent of the time.

The separation of the two lines is feasible, as they involve entirely different sets of filling equipment.

No figures are available for the time spent making tomato puree and orange juice for storage in barrels to make the tomato sauces and orange squash. As a first estimation, assuming the total contents of the bottles is tomato puree and orange juice respectively from the extraction line, then these ancillary products would have taken an estimated 2-3 days to process tomatoes and 8-9 days for the oranges, a total of say 12 days or 4-5 per cent of the time.

The total days of seven-hour shifts when the factory was working is therefore estimated to be 19 on juice extraction and processing (7-8 per cent) and 48 days on making and filling bottled goods (18-19 per cent). Total days working, one line at a time, is therefore 67 (25-26 per cent). This compares with the estimate of the production technologist of 13-14 per cent of total capacity. It should be noted that these estimated percentages are of days worked i.e. 260 working day year, and not the percentage of capacity of the plant.

If the orange juice plant was thoroughly overhauled to enable it to handle its design capacity, orange juice output would be increased from 7,000 to 12,250 litres per day, and the overhauling of the other equipment would increase output to an estimated 8,000 litres per day. An output of 7,000 litres orange juice can be handled in 2.5 hours, filling 450 ml cans at 100 cans per minute (cpm) and 12,250 litres in approximately 4.5 hours. In the latter case, the limiting factor is likely to be the rate of cooling of the cans, after filling by the main water supply. Overhauling or replacement of the bottle filler would increase throughput to 45-120 bpm, depending upon the availability of spares for the new machine chosen. This increase in throughput is not critical, as it is reported that estimated maximum sales of 1.5 million bottles could be handled in 180 days at the present rate of operation.

Note that the above percentage figures have been computed ignoring the contribution from the subsidiary plant at Korogwe, for which there were no separate recorded figures. The Korogwe plant which was not visited but was reported to have a typical daily capacity of 7 tons of oranges (to yield 2500 litres of juice), 4-5 tons mangoes (2.5 tons pulp) and 7 tons passion fruit (3.5 tons juice) separately, not simultaneously. Tomato processing capacity was not given.

These daily outputs represent about 30 per cent of the daily juice capacity of the Dar es Salaam plant, and if considered to be included in the total output figures in that ratio, the overall total days performance for juice extraction and processing at Dar es Salaam would be reduced by about one quarter to say 6% of the 260 days available for manufacturing.

(ii) Profit and loss accounts

Table 9.1.3 shows the profit and loss accounts for Tangold Products Company Limited for 1986 and 1987.

Table 9.1.3. Tangold: profit and loss accounts
(thousands of Tanzanian Shillings)

	1986	1987
Sales	23,996	22,347
Cost of sales	17,380	13,736
Gross profit	6,616	8,611
Other income	248	776
Operating Expenses (including depreciation)	10,737	12,653
Net loss before tax	3,873	3,266
Tax	-	-
Loss for year after tax	3,873	3,266

Source: Tangold Products Company.

Losses for the two years averaged TSh 3.5 million. The mobilization of loan capital from the National Milling Corporation , at zero interest, has financed the recent losses made by Tangold but servess only as a temporary solution to its problems. There is a need to rectify the poor performance in the long term and to inhibit the constraints to efficiency of plant production, as listed under 9.1.1 (j).

(iii) Imports and protection

Tangold obtains much of its agricultural raw material and packaging inputs from local suppliers in Tanzania. However, the company requires on average 34,000 kgs of imported chemicals per year, of which preservatives, food acids, fruit concentrates and chemicals for quality control analysis are the main needs. Generally there is little problem in acquiring the foreign exchange from the Bank of Tanzania to import these chemicals, so production is not readily affected. Imported chemicals are on average subject to a 25 per cent import tariff.

The situation is very different for the acquisition of spares parts for machinery. Very little if any foreign exchange has been allocated for this purpose in the last several years. The lack of necessary imported spare parts is one of the primary reasons why the factory is performing well below its intended capacity. In recent years, Tangold, in an unsuccessful attempt to secure foreign exchange allocations, has only submitted figures to the Bank of Tanzania for their minimum requirements of spare parts. Furthermore, a tariff of 20 per cent is charged on imported spare parts, which is costly in the short term but has a knock-on effect in that production and plant efficiency will increase in the long term due to the investment made.

(h) Cost and price structure

There are no Government policies fixing the prices for Tangold products, the Company being free to determine its own prices.

The adoption of a cost-plus approach to pricing ensures that Tangold maintains the 25 per cent profit margin it has pre-determined as the minimum percentage profit on top of costs. However the high cost of raw material inputs, both imported (i.e. citric acid) and local (i.e. cans), coupled with a 50 per cent sales tax imposed by the Government, distorts the price the consumer pays for Tangold products.

Table 9.1.4: Tangold: prices of main products
(Tanzanian Shillings per litre)

Product	1987/88	1988/89
Orange squash	83	121
Vinegar	83	121
Blackcurrant cordial	121	176
Mango pickle	121	-
Tomato sauce	242	242
Orange juice	58	80
Other juices	58	80

Source: Tangold Products Company.

The markets in which Tangold's products are sold are becoming increasingly price-sensitive, due to the emergence of strongly competitive substitute products (carbonated beverages) which are marketed aggressively and are more reliably available to consumers, and also to the expansion of producers of similar products. Also, static or declining real incomes have made consumers more price-conscious.

Tangold sells its products at the factory gate either directly to consumers or retailers and middlemen, or uses them on a barter basis to secure raw material inputs.

The company allows cash-only sales but has liquidity problems since it is squeezed between the necessity to control its product prices and constantly increasing input prices. Although Tangold is operating at a loss, the development loan facility mobilized through the National Milling Corporation goes some way to easing the liquidity problem.

The shortage of foreign exchange for spare parts and imported raw materials is a recurrent problem. Because Tangold is not not an exporter of finished products, it cannot participate in the export retention scheme for foreign exchange and is believed to be low in priority for allocation of foreign exchange by the Bank of Tanzania.

(i) Markets and competitors

The market for Tangold's products has been, in the broad sense, a sellers' market and Tangold sells all it can produce. In such a market situation there is little need to adopt conventional marketing techniques. Tangold and its market competitors cannot satisfy the local demand for the majority of their products.

Since 1980 the number of products marketed by Tangold has decreased from 45 to 11 in 1988. Such a decline has served to at least concentrate production on those products that are easiest to produce in the difficult economic climate.

With widely fluctuating output quantities from year to year, it is difficult to estimate the market share Tangold enjoys for its major products.

Major competitors for Tangold products are Tropical Foods of Dar es Salaam, Dabaga Vegetable and Fruit Canning Company Ltd. of Iringa, and Tanganyika Packers of Dar es Salaam. Other small producers include Equator Products Limited and Mbeya Canning Industries. There are in total 26 registered plants, not all of which are producing. Tropical Foods and Dabaga Canning produce many of the products Tangold produces, such as fruit juices, tomato sauce, blackcurrant cordial and vinegar. Tanganyika Packers is a major competitor in canned fruit juices. With the present largely unsatisfied demand of the local market these companies are not in the strictest sense competing against each other for market sales. The situation is likely to change in the near future, especially as Metal Box of Tanzania is undergoing rehabilitation and will ease the problem of the shortage of cans for packaging. Marketing will play an increasingly important role in the sales of these products as competitiveness and total output onto the market increases.

Tangold has no sales organization as such, with almost all sales taking place at the factory gate. No agents or distributors are used to sell products or purchase inputs; in general, the retailers of Tangold products also act as distributors.

Some measure of local sales promotion has been undertaken by Tangold through exhibitions and advertising at public rallies. However, with the largely sellers' market for its products it is unnecessary to promote sales to any large degree.

Exposure has been given to Tangold's orange juice and mango juice products in export markets with the help of the Board of External Trade of Tanzania, which promotes local food products at international food fairs. Research has shown there is some interest in the export of concentrated orange juice, mango pulp/juice and pineapple rings, but caution is well advised before Tangold, or its competitors, enter onto the world market. Present difficulties in packaging standards, supply shortages and, in some cases, product quality would have to be sorted out before attempting to export. The rehabilitation programme for the Metal Box can-making factory greatly increases export potential as more cans will be readily available, each manufactured to export standard.

(j) Constraints

Tangold Ltd. faces several constraints, all of which affect the company in the short run. Taken together they represent a formidable obstacle for the company to become a viable enterprise. Among those constraints currently operating which can be mentioned are:

- a lack of foreign exchange to import necessary spares, raw materials and intermediary inputs;
- an irregular supply of tin cans of unreliable quality, as well as other needed packaging inputs;
- a relatively new management structure that is still in a state of flux;
- a critical shortage of technical staff;
- an absence of an incentive structure for both workers and management;
- a weak financial situation;
- a lack of replacement of worn-out machinery;
- a lack of transport to supply fruits etc.;
- unreliable supply and variable quality of sugar.

In a longer perspective, it is expected that the supply and quality of tin cans will greatly improve. Supply of raw materials such as fresh fruit and vegetables may become an important constraint insofar as the factory is located away from the raw material producing regions. This implies a high cost for raw materials.

9.1.2 Rehabilitation requirements

(a) Management and organization

Although the company has a core of managers with substantial experience in running the plant, recently enforced reorganizational changes have placed them in new positions, none of which have yet been confirmed. It is, therefore, important that these individuals be confirmed in their posts to minimize potential conflicts. Furthermore, given that these managers have had to assume new levels of managerial responsibility, they need some form of retraining particularly in managerial and financial planning techniques.

With respect to the existing Finance and Administration Department, it would appear more appropriate to separate the finance function from that of administration and to give responsibility for the latter to a personnel officer reporting directly to the General Manager who has extensive experience in training and manpower development.

Given the absence of any cost accounting expertise in the Finance Department, it would seem appropriate to retrain the existing Chief Accountant in this particular accountancy discipline and to support him by the appointment of a junior accountant. This could be done by transferring the accountant from the Korogwe plant.

The Operations and Production Department needs immediate reinforcing to relieve the pressure on the existing Manager - Mr. Twin'Omujuni. Quite apart from his new responsibilities for operations, he also has to spend an inordinate amount of time in supervising the operations side of the Korogwe plant due to the lack of experience of the two technologists there. A procurement officer and junior food technologist need to be recruited as soon as possible.

In view of the increasing competition that Tangold will face in the market, there is also a need to establish a sales/marketing department, with an experienced marketing person reporting directly to the General Manager.

Communications with the Korogwe plant need to be improved through better telephone lines. The Branch Manager and food technician need skill upgrading.

Given the apparent absence of cost control procedures, there is a strong case for introducing a microcomputer into the Dar es Salaam office and linking it to Korogwe via a terminal. Financial planning, payroll and accounting functions could then be centralized and the basis of a management information system started. Training in computing skills would have to be developed from senior management downwards.

Finally, staff training needs to be improved, both for managers and for intermediate staff and skilled workers. This could be best achieved by short, intensive management courses, either in Arusha or in neighboring African countries, and also by day-release schemes and on-the-job supervision. The introduction of some form of incentive scheme would be an important component of the training programme.

(b) Physical plant

The rehabilitation needs of the Tangold factory need to be considered for two conditions. Firstly in the short term for products to be sold locally and in the longer term to include exports.

Although most of the processing equipment dates from 1971, apart from the defunct pineapple line, all is said to work reasonably well to meet all foreseeable local requirements, despite the lack of spares and maintenance. The plant was not functioning during the visit, which made it difficult to make an accurate assessment. Nevertheless, the following recommendations can be made:

- Remove the defunct pineapple line, which is badly corroded in parts, especially the overhead can feed runways, and a trap for dust and dirt. Salvage any usable parts for later consideration, especially the fruit washer and elevator, which appeared to be sound.

- Obtain spare screens for the pulper/finisher, as none are on site.

- Obtain spare seamer parts, particularly the chucks and first and second operation rolls.

- Obtain spare parts for the can end coder which is not used, or replace with new if repair is not feasible.

- Replace all broken thermometers and temperature and pressure gauges.

- Rehabilitate the quality control laboratory.

- Overhaul or replace the bottle filter.

- Repair and renovate walls, windows, floors and roofs; the processing floor and the laboratory should have the terrazzo flooring restored as well as walls being tiled with ceramic tiles.

- Install hot and cold water wash-basins accessible to all production staff, in compliance with FAO recommendations.

- Provide mobile or fixed cleaning and sterilization facilities for the premises and equipment, in conformity with FAO design standards for food processing installation.

- Improve and extend personnel hygiene and comfort facilities such as toilets, showers, washrooms, lockers, protective clothing (caps, coats, gloves, rubber boots for all workers). Implement adequate laundry practice at the plant or on a contract basis.

- Establish an adequate inventory of running and replacement spares, considering the problems and implications of running out of such critical imported items.

- Establish a preventive maintenance schedule for all machinery and equipment.

- Train relevant staff in proper maintenance practices and techniques.

- Train relevant staff in proper quality control practices and techniques.

- Train relevant staff in proper plant operation practices and techniques.

In the longer term, to enable exportable goods to be made, the rehabilitation needs are much greater, as the whole factory will need to be brought up to standard to meet the requirements of an international factory audit, and alternative more applicable technologies may need to be applied.

Firstly, the TBS Code of Hygiene ref. T2S 113 1981, circulated to intending exporters in which requirements for personal and plant hygiene are detailed, will need to be implemented very strictly.

Secondly, all aspects of quality control must be implemented and include detailed recordings of all measurements taken, which can be readily accessed in the event of a factory inspection.

Thirdly, all process procedures and parameters, and all job descriptions should have formal written descriptions which should be reviewed and revised on a regular basis.

For the long term, applicable technologies which should be considered for future adoption in a detailed feasibility study should include the production of concentrated juices for freezing, canning, or aseptic packaging into cartons or large drums. A vacuum boiling pan should also be considered to reduce fuel usage. It will be difficult for Tanzania to enter the export for single strength juice and canned fruits such as pineapples, although there is a potential market for good quality pineapple rings. To exploit this, new pineapple processing equipment would be required and a very careful marketing feasibility study would also be required before undertaking such a step.

Consideration should also be given to the chlorination of cooling water supplies, and the use of a cooling tower to allow process cooling water to be recirculated.

Table 9.1.5 provides an indication of the equipment, machinery and buildings that require rehabilitation in the short term, together with the respective cost estimates.

The foreign exchange costs are for the importation of spare parts and components. The local element is inclusive of service costs. On the basis of Tangold's estimates, the aggregate cost of rehabilitating the plant and equipment is TSh 90,373,000 as of 1 February 1989.

Table 9.1.5: Tangold: capital requirements for rehabilitation

	Estimated Cost		
	Foreign (US$)	Local ('000 TSh)	
Production machinery			
(1) Perkins Patomatic Boiler	30,000	3,900	
Continental Boiler			
(3) Steam-jacketed pans (tilting)	8,000	3,120	
Assorted stainless steel containers	2,000	260	
(4) Spare pulper/finisher screens	500	260	
Assorted general spare parts for seamers, can end coder, thermometers, pressure and temperature gauges	5,000	650	
Laboratory			
(1) Portable temperature recorder	500	65	
(1) Refractomer 0-45 deg.Brix	100	13	
(1) Refractomer 45-80 deg.Brix	100	13	
(1) pH-meter	400	52	
(1) Set of facilities for bacteriological checks, including incubator, sterilizer, etc.	8,000	1,040	
Buildings		26,000	
Rehabilitation of floors			
Rehabilitation of walls			
Rehabilitation of windows			
Rehabilitation of roof			
Removal of pineapple line			
Vehicles		55,000	
(1) Worker bus - 60 passengers			
(2) 10-ton lorries			
(3) 5-ton lorries			
(1) Pick-up van			
(1) Passenger vehicle			
Total local cost (TSh)		90,373	
Local cost equivalent (US$)			695,000
Total foreign cost (US$)			54,500
Total local and foreign cost (US$)			749,500

Source: Tangold Products Company.

Estimate do not include the following:

- inventory of running and replacement spares;
- development and installation of a scheduled plant maintenance programme;
- staff training in maintenance operation, and quality planning and execution;
- workshop equipment, tools and personnel acquisition;
- improving and extending personnel hygiene and comfort facilities
- detailed study and planning of rehabilitation programme, including equipment supply contract negotiations, procurement, etc.

(c) Inputs

The major input needed for rehabilitation is at least four 5- to 7-ton lorries for the collection of fruits from outlying areas.

Another longer-term requirement is at least one and possibly several nucleus estates to supply up to 50 per cent of the factories' requirements for the various fruits, especially tomatoes (which are very perishable and which currently are brought from as far away as 500 km).

(d) Cost and price structure

The present performance of Tangold is difficult to analyze because of the apparent lack of completed financial records for 1988. The problems arise from lack of qualified personnel for both the costing and accounting functions of the factory. Rehabilitation should start here with the recruitment of qualified staff coupled with the possibility of installing a microcomputer-based accounting system.

The cost-plus approach to pricing products has its limitations in a price-sensitive market, in which prices of inputs increase regularly. Some control on pricing of raw material supplies should be investigated so as to prevent a continuing squeeze on Tangold's profitability. Tangold would need to estimate the cost of production for each product line, and assess the market demand for the different products. On the basis of this appraisal, it should concentrate production on the more profitable lines. The trend of input costs has to be monitored closely, and output prices adjusted accordingly, taking into account the market potential for each product.

With the lack of locally manufactured spare parts, a review of tariff policies would serve to encourage local fabrication of spare parts and restrict the entry of competing imports. Those spare parts which cannot be produced locally and must be purchased from overseas should be subject to low or zero tariff rates.

(e) Marketing

Tangold Products Company Ltd. has existed in what was predominantly a sellers' market. This situation, however, has changed, and marketing conditions are increasingly becoming the determining factors for the operations of the company. Under these changed circumstances, marketing must become an essential part of the company's activities and business strategy.

Should the present problems of raw material supply and packaging difficulties become less restrictive on production, as in the case with Metal Box, the market could become more competitive. Attention should then be focused on the possibility of restricting production to the most economically viable products, in which case some sales/marketing expertise would have to be employed to enhance Tangold's share in the marketplace.

Furthermore, it is likely, as production increases, that markets further afield than Dar es Salaam would become increasingly important. It might therefore become advisable for the firm to investigate the possibilities of establishing agents at strategic points throughout the country for the purchase of raw materials and sales/distribution of its products.

Interest has been shown in both the Middle East market and to a lesser extent in Europe, for possible exports of orange juice concentrate, mango juice/pulp (Tangold product) and pineapple slices (not produced by Tangold in 1988). However, present irregularities in the supply of raw materials and packaging inadequacies do not make it possible to export these products. If the situation changes, exporting should only take place if the local market is sufficiently well developed to cover the majority of the costs incurred by the company, as it is likely that export prices are going to be low in relation to the high costs of production experienced in Tanzania in general. Furthermore, it should be emphasized that possible export markets should be well researched.

(f) Foreign exchange availability

Tangold Products Company has access to foreign exchange only through the Bank of Tanzania, as it does not export and therefore cannot participate in the export retention scheme. There has been no allocation of foreign exchange for the last three years from the Bank of Tanzania for purchase of spares or for payment of rent arrears on their pineapple processing and orange juice extractor lines.

In the short term, there is a real need to amend the rent arrears on the pineapple and orange extractor lines. With respect to foreign exchange, the OGL has been expanded to permit the importing of a wider range of goods. Thus, in the near future, the OGL scheme could become one important source of foreign exchange. Moreover, as the rate of exchange for the Tanzanian Shilling approaches equilibrium, Tangold's overall profitability and liquidity will become more important constraints for the importation of spare parts, replacement investments and certain inputs.

(g) Liquidity

Tangold does have some liquidity problems as its profitability is squeezed between high input prices and the need to control its product price. However, the firm has access to an interest-free development loan through the National Milling Corporation, which eases the immediate cash-flow problems.

Large amounts of assets are tied up in stock (working capital), either as stored inputs (six month supply of bottles and imported raw materials) or as outputs restricted from entering the market as they do not meet packaging quality standards laid down by the Tanzanian Bureau of Standards. Improving the packaging on this product line and obtaining TBS approval would enable Tangold to sell this finished product and alleviate some of its cash-flow problems.

9.2 Twiga Paper Products Ltd.

9.2.1 Existing situation

(a) Plant history

Twiga Papers Products Company started operations in 1961 under the sole ownership and complete management of Dr. K.H. Patel, who had earlier emigrated from India to Tanzania. Dr. Patel served in the capacity of Managing Director until 1975.

In 1975 the the running of the company was taken over by an English expatriate who remained with the company until 1983. The management changed hands for a second time in 1983, as two Tanzanian citizens of Asian origin took control.

The main activities of the company have always been the manufacture of paper bags and corrugated cardboard boxes. The company makes two types of paper bags, brown unprinted single sheet flat-bottomed bags and yellow printed flat-bottomed tea packaging bags.

In the initial years of production, 1961 to 1978, the production capacity was 2,000 tons of cardboard boxes and 400 tons of paper bags per year. In 1978, larger new machinery parts were installed, increasing the plant capacity for the corrugated cardboard boxes to 3,000 tons per year. However, during the years after 1980, average production levels have not exceeded 50 per cent of the installed capacity.

(b) Management and organization

Established in 1961 by the former Managing Director, Mr. K.M. Patel, Twiga is a 100 per cent privately owned company.

The current Board of Directors consists of Mr. N.K. Patel (Chairman) and Mr. D.K. Patel (Managing Director), who has a degree in Business Administration from the United Kingdom.

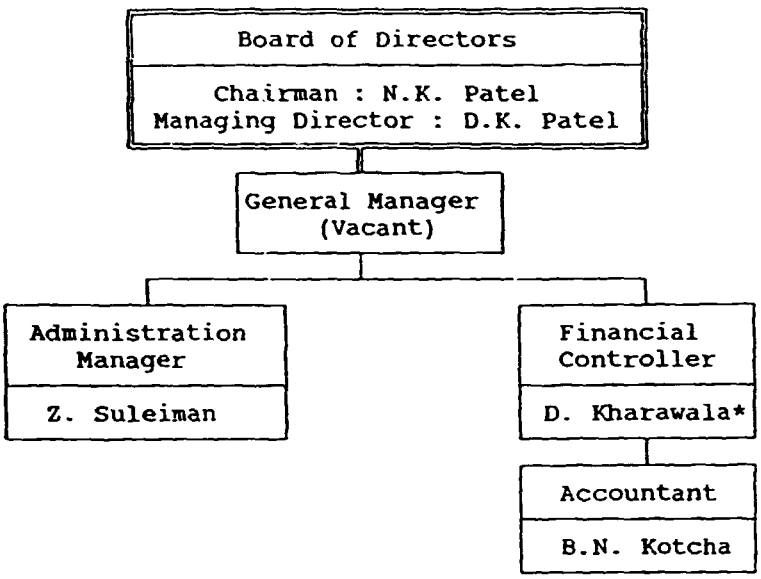
The present organization chart is shown in Figure 9.2.1. The General Manager's position is currently vacant and the Financial Controller - Mr. D. Kharawala - has assumed responsibility for this post. He is 59 years old and has held the position of financial controller for the last 7 years. Although he has no accounting qualification, he is very experienced, having spent 33 years in banking in Tanzania both with Grindlays and the National Bank of Commerce.

The Administration Manager, Mr. Z. Suleiman, is 33 years old and has been with the company for 14 years. He is a qualified accountant.

The company accountant - Mr. B.N. Kotcha is also a qualified accountant and was formerly employed by the Lint and Seed Marketing Board. He joined Twiga Paper Products in 1983.

The senior management of the company therefore have extensive experience in running the plant and are well qualified in accountancy and business practices.

Figure 9.2.1: Twiga Paper Products Ltd.: organizational structure



* Acting General Manager, Feb. 1989

Source: Twiga Paper Products Ltd.

Management meetings are held monthly to review performance and the orders situation and meetings are held once a month with the Workers Committee. The plant has 40 permanent staff, which is supplemented by 10 to 150 casual labourers who are hired when the need arises. The company provides on-the-job training to its employees and subsidizes the workers' lunches.

In summary, the company has a sound management structure, with an appropriate blend of youth and experience.

(c) Financial structure

Twiga Paper Products Ltd. is a privately owned company. It has a total fully paid-up share capital of TSh 2 million, divided into 20,000 share units each valued at TSh 100. Dr. K. H. Patel (deceased), the founder and first Managing Director of the Company, and N. K. Patel (his widow) each hold 50 per cent of the shares. The shares of Dr. Patel are in the process of being transferred to his son.

Table 9.2.1 shows the balance sheets of Twiga Paper Products for the last three years, including retained profit and paid-up share capital. Figures for 1988 are draft accounts only, but audited figures should not vary greatly, in the opinion of the mission.

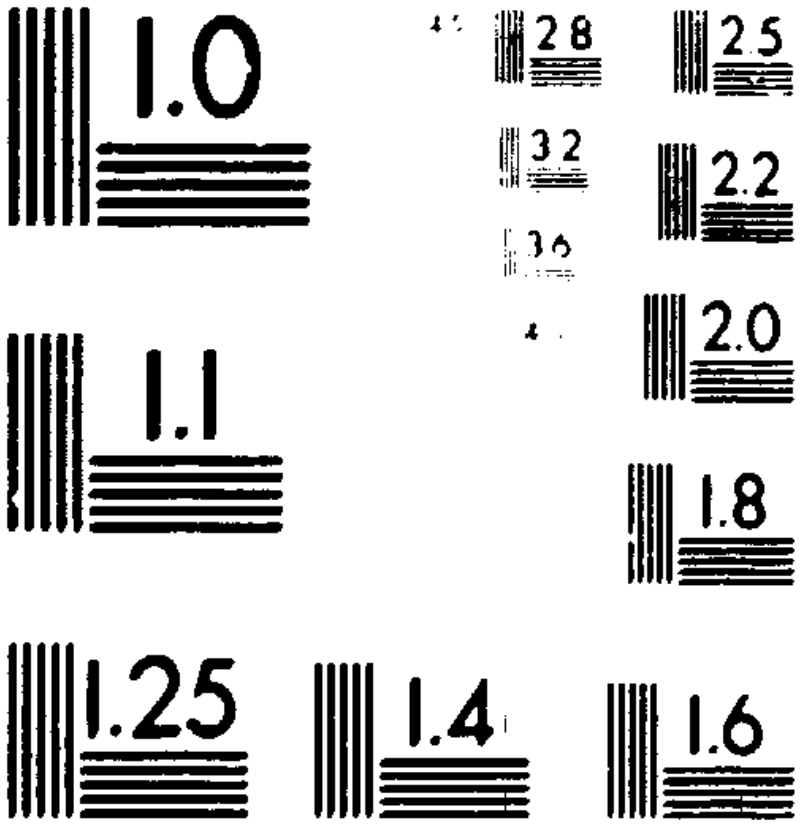


Table 9.2.1: Twiga: balance sheets, 1986-1988
(thousands of Tanzanian Shillings)

	1986	1987	1988
Fixed assets	3,939	4,544	4,404
Capital investment	13	13	13
Current assets			
Stock in trade	7,656	21,517	27,992
Debtors	5,665	7,730	9,030
Loan advances	19	22	24
Other assets	1,614	2,057	5,088
Cash on hand	0	14	36
Total assets	18,906	35,897	46,587
Current liabilities			
Trade	2,673	19,909	22,224
Shareholders	500	500	1,234
Loans/deposits	670	0	0
Management fees	240	480	253
Others	210	151	0
Bank overdraft	3,262	3,915	9,122
Income tax reserve	3,485	1,933	2,212
Paid-up capital	2,000	2,000	2,000
Profit/loss (appropriation account)	5,866	7,009	9,542
	18,906	35,879	46,587

Source: Twiga Paper Products Ltd.

Although only a small company with a single accountant, it is well organized and managed. The Administration Manager is a part qualified accountant and can be used as a back-up for the accountant as and when required.

In terms of financial performance, Twiga Paper Products still maintains a small profit margin under what should be described as difficult economic conditions. Constantly increasing input prices, recurrent local currency devaluation and a price-sensitive market are major constraints. Twiga is operating in a competitive market in which the level of demand has been low due to low levels of economic activity. In spite of these difficulties, it is still making an appreciable profit.

Fixed assets only take up a small percentage of the total assets of the company (10 per cent in 1988). The reason for this is that machinery, buildings and other fixed assets are still valued on the basis of their original value in 1978/79 and are being depreciated on this face value. Replacing the fixed assets of the company would cost an estimated TSh 50 million, in the present financial circumstances (i.e., with the ever-weakening Tanzanian Shilling, which has devalued approximately 1,700 per cent in the last 13 years.)

Depreciation rates for the various capital items have been set as:

Buildings	0 per cent
Vehicles	25 per cent
Plant and machinery	12.5 per cent
Office	12.5 per cent

The management believes that in the present circumstances the plant buildings are actually appreciating in value as the factory occupies a prime industrial site. The other depreciation rates are acceptable given the useful life expectancy of capital items in Tanzania. Depreciation for 1988 has been calculated at TSh 228,000. There has been little incentive in the past to invest in the modernization of the capital stock due to uncertainties regarding prospects for the private sector. This situation has been exacerbated by the general scarcity of foreign exchange for the purchase of spare parts.

Twiga Paper Products has no long- or short-term loans but does use a large bank overdraft facility. This is mainly because their paper suppliers - Southern Paper Mills - only accept bulk orders (three months supply). Coupled with high prices for paper raw material and a prevailing credit system for Twiga customers, the company does suffer some liquidity problems. This necessitates the short-term mobilization of overdraft facilities to pay initial deposits on raw material paper (often in excess of TSh ? million). With interest rates on bank overdrafts running between 29-33 per cent, this becomes an expensive necessity. While the Southern Paper Mills insists on bulk orders, the stockpiling of raw materials is common in Tanzania, since transport problems have often caused irregularities in the supply of raw materials.

With this large stock of raw materials, the company carries the largest percentage of its assets as stocks in trade. Stocks accounted for 59 per centof total assets in 1987 and in 1988, of which 90% were paper, ink and adhesives. Such a large stock holding does tie up a significant percentage of working capital but is necessary in view of the uncertainty and irregularity of suplies. If the company is to respond to market demand, then this policy is appropriate in the absence of greater consistency in supplies.

(d) Buildings, installations and production process

(i) Buildings and process flow

Twiga Papers Company is housed in a single building built in three phases and is located on the Chang'ombe industrial estate in Dar es Salaam. The building consists of two main process plant rooms, and a finished products storage room. In addition, there are office rooms, boiler house, inputs storage room, bale-making machine room and an open space utilized for miscellaneous jobs.

The sizes of the main sections of the building are as shown below:

	m^2
Raw materials storage space	50
Old processing room	250
New processing room including offices ..	900
Inputs storage room (imported)	40
Bale-making machine room	40
Finished products storage room	400
Boiler house	60
Auxilliary storage space	250

The auxiliary storage space is located on top of the old processing room, which originally formed a one-storey building.

The plant location has no rail-siding facilities and no extra space on the existing site for expansion. However, the management has secured a 0.8 ha plot with provision for rail-siding at Mbagala, about 30 km south of Dar es Salaam city centre. It is used mainly for storing raw materials, i.e. raw paper rolls.

The building, as a whole, is in very good condition. However, the walls and roof are very dusty and full of cobwebs. Maintaining a standard of cleanliness does not seem to be important to the management.

(ii) Raw materials storage

The raw paper rolls are brought in by rail from Southern Paper Mills and received into the Mbagala storage shed. About 20 paper rolls are then transferred to the main plant and stored in the smaller raw materials storage room.

(iii) Processing equipment

Corrugated board processing

Figure 9.2.2 (a) shows the process flow diagram for corrugated board.

... automatic corrugator of Japanese manufacture (Kiakaba) was installed in 1978 in the main manufacturing area. It has an installed capacity of 3,000 tons per year when making 365 g/sm board with a single /B' flute on a single shift basis.

The corrugator is accompanied by a slitter/creaser, limited to a transverse cut of 150 cms only, and longitudinal slits to give board widths ranging from 55 cm to 225 cm. The transverse knife has not been removed for sharpening since installation but it is cleaned and candle-waxed regularly. As the plant has no engineering facilities, the circular slitting knives are sharpened by a local automotive parts manufacturer. The equipment is in generally good working order, but the woven compression belt on the double baker-drier (measuring 12 m x 1.65 m x 0.5 cm thick) will soon need replacing. Replacement gears for the slitter/creaser are also required, since the locally made spares are too imprecise and do not intermesh properly.

The corrugator does not have the capacity to make a double layer fluted board, and is limited to /B' flute size, as there are no change fluting rollers for /A', /C', /D' or /E' sizes.

The pre-1978 semi-automatic corrugator equipment is also in the main area. This is used for short runs of special sizes or white lined finished cartons. Original capacity was 300-400 tons/year.

Also in the main production area is a Japanese two-colour printer/slotter installed in 1978, which runs well.

Paper bags processing

Figures 9.2.2 (b) and (c) shows the process flow diagram for paper bags and yellow tea bags.

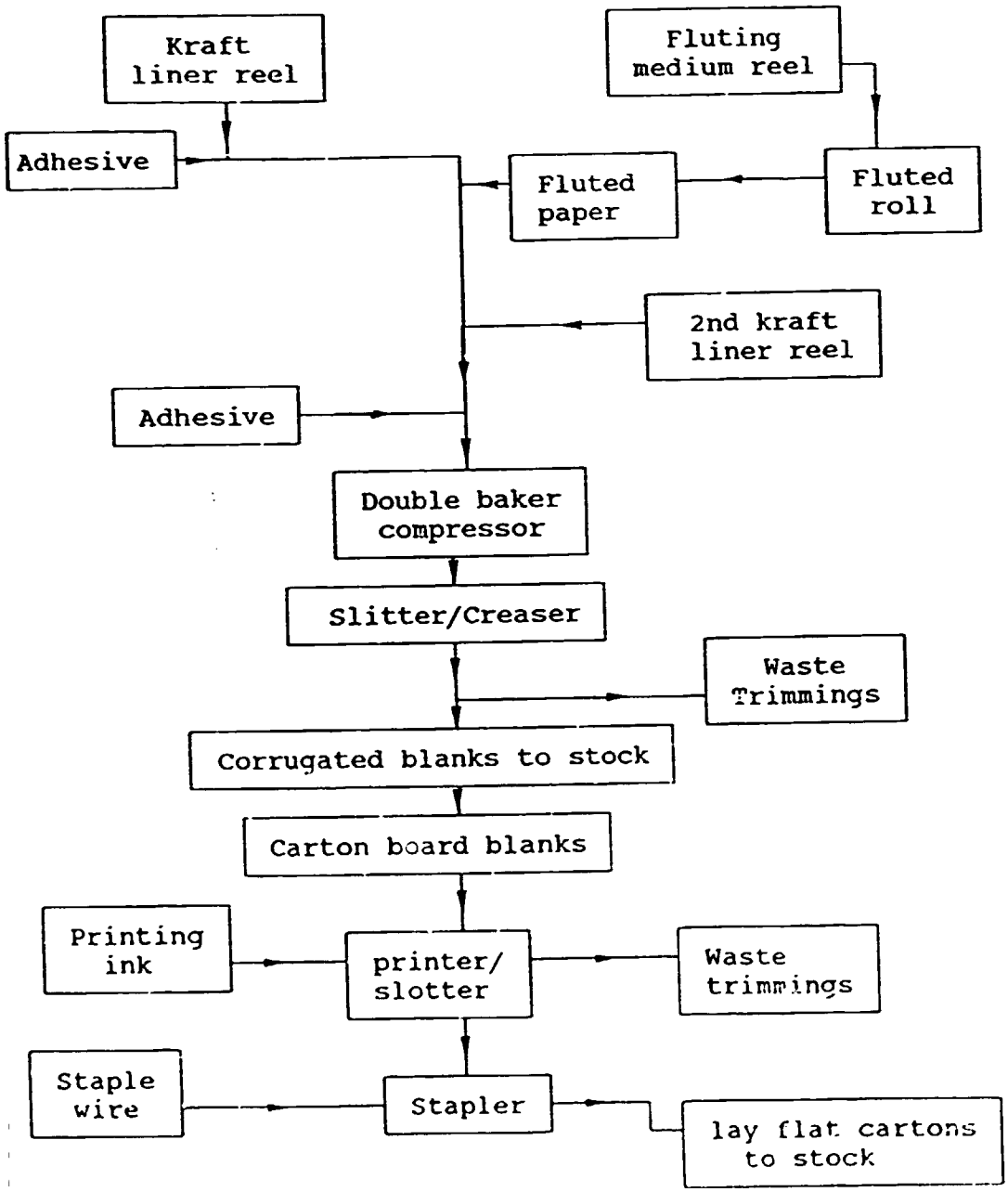
There are three additional paper bag making machines (combi-type) placed in the oldest section of the building. These are very old machines (20 years old), of which only two seemed to be in working condition during the mission's visit. These have two-colour printing facilities which, due to their old age, are characterized by low high printer quality. The machines are utilized mainly for making the small tea-bags. They have a total capacity of some 2,000 tons per year. Additionally, there is a relatively new (1983) two-colour printing machine (Fischer and Krecke, Bielefeld) type 13DF. However, the company has no die-cutting machine.

Staple machine

There are four semi-automatic staple machines, Speckbitel-Hamburg 60 No. 13890, each with a capacity of 12,000 boxes (3-pin staples) in an 8-hour shift. The machines are very old (20 years old), but in good working condition. There is one unit, automatic staple machine with bigger capacity of 10,000 boxes (8-pin staples) per 8-hour shift. The machine was well maintained and in good order.

Figure 9.2.2: Twiga: process flow diagram

(a) Corrugated board

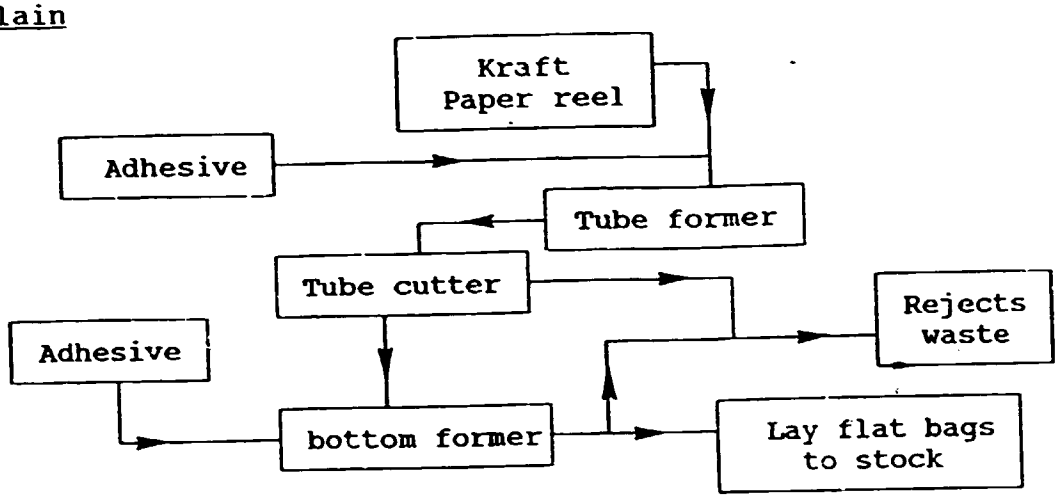


Source: Twiga Paper Products Company.

Figure 9.2.2: Twiga: process flow diagram

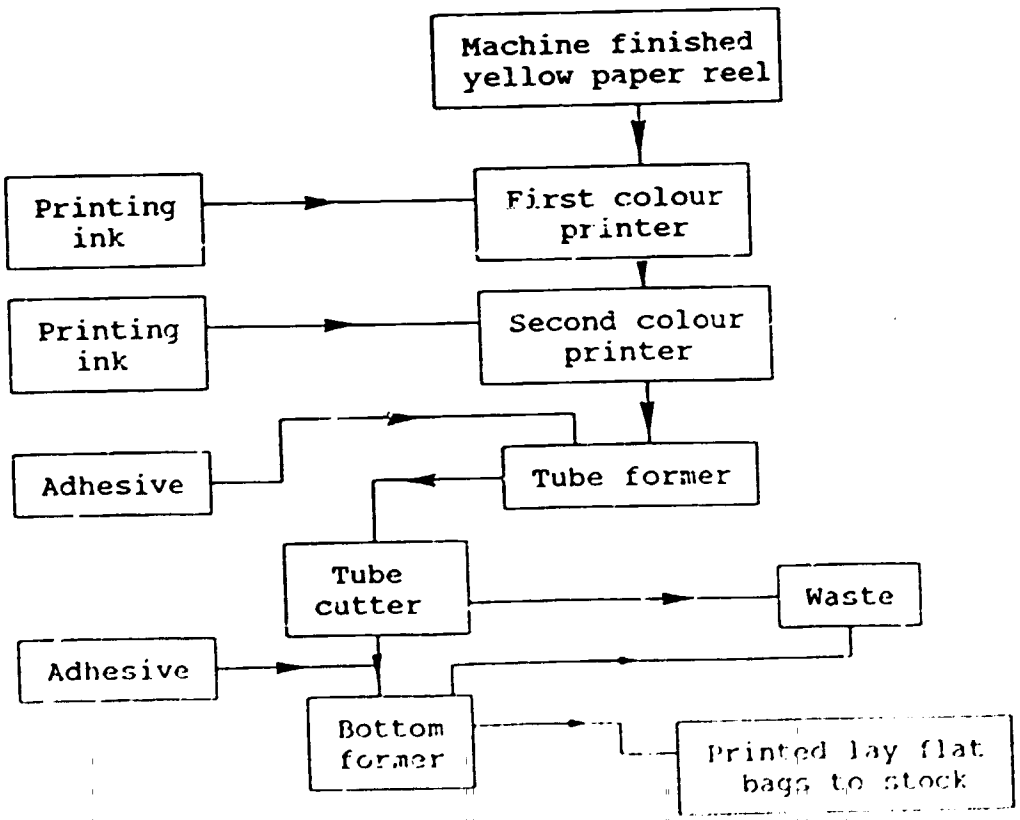
(b) Paper bags

Plain



Source: Twiga Paper Products Company.

(c) Yellow tea-bags



Source: Twiga Paper Products Company.

Boiler house

The process lines are served by a Wee Chieftain 4 - Thompson Cockran 2,000 lb/hr boiler. The boiler is operated on daily basis, with steam-blowing down for 2.5 minutes at the end of every day. Boiler tube cleaning is effected every three months and boiler-water treatment every two days. The intermittent use and lack of regular maintenance of the ten-year-old boiler has resulted in rapid depreciation and low efficiency. Its inlet water-pump and valves are a source of persistent troubles.

Fuel and electricity supply

The company uses heavy fuel oil for the boiler. It has a storage tank capable of storing 4500 litres. As the plant has always operated at low capacity, fuel oil shortage has not been experienced.

It is reported that electricity supply is erratic and electricity cuts may last as long as five hours at a time.

Baling machine

The company has on installation a well-maintained baling machine supplied by Personer Verkstad AB, Sweden. This is a 1978 machine, type SP 12C, rated at 120 bars and in good working condition, for compressing waste trimmings etc.

Quality control

The company has no laboratory. There is no quality control undertaken for either the raw materials or the finished product. Quality control thus consists of visual checking of intermediate and finished products. The national standards set by the Tanzania Bureau of Standards for paper and paper products are not enforced.

The management expressed intentions to set up a laboratory, with the particular intention of improving its ability to comply with local customers' orders for packaging materials for export of the numerous agro-based products.

Maintenance

The company does not have a workshop, and parts fabrication or modification i.e. belts repair, gears fabrication, sharpening corrugator knives, is done at the neighbouring local workshops.

(e) Inputs

Over 80 per cent of the input costs are for locally made 70 g/sm yellow tea-bag and brown bag paper, 125-200 g/sm kraft liner and 115-125 g/sm test liner.

Most of this is purchased from Southern Paper Mills Co. Ltd., Mufindi, supplemented by bag paper and white liner paper from the Paper and Board Mill Division of Kibo Match Corporation, Moshi, at a discounted price in return for the supply of the 10 per cent paper and board waste generated at Twiga.

Other inputs are printing inks, bag and carton dextrin based adhesives, staple wire, flexographic printing rubbers, and water treatment chemicals and heavy fuel oil for the steam boiler, all of which need to be imported. Twiga does use locally manufactured ink and adhesive starch at present because of the complete absence of any allocation of foreign exchange by the Bank of Tanzania to import such raw materials.

(f) Product range

Twiga Paper Products Limited produces three types of paper products for the packaging and consumer sectors of the economy. Total production for Twiga products is seen in Table 9.2.2, together with the product prices and sales revenue generated.

Table 9.2.2: Twiga: total production and product sales, 1988

Product	Total output (tons)	Average price (TSh/ton)	Value (TSh '000)
Corrugated boxes (cardboard)	1,100	62,272	68,500
Brown unprinted paper bags (flat-bottom)	100	120,000	12,000
Yellow printed tea-bags	20	125,000	2,500
Total	1,220	-	83,000

Source: Twiga Paper Products Company.

The corrugator machines can make carton board (for cardboard boxes) in various weights from 125/115/150 g/sm to 200/125/200 g/sm of kraft liner /B' flute test liner/kraft liner paper.

Twiga is performing well below the present restricted capacity of the factory because of limited demand for corrugated boxes and the poor quality of paper for its other products. Improvements in the paper bag machinery and printing and paper quality should boost output and sales of paper bags. All of the corrugated boxes are sold direct to industries whereas 90 per cent of the paper bags are sold to wholesalers who act as distributors for the company.

(g) Plant performance

(i) General

The corrugated carton board line produced only to 1,100 tons last year due to the lack of demand. The other major competitor, Kibo Paper, makes its own liner and fluting medium more cheaply than the paper from BPM and by Twiga. The carton board of Twiga is better quality, and fulfils export orders and emergency seven-day delivery orders for clients who cannot be supplied by Kibo or who cannot afford the four-week delay which this may entail.

If the demand increases, performance will still be limited to 1,500 - 2,000 tons per year, since the paper quality from SPM has recently fallen. It has intermittent faults, which cause paper breakages if the machine is run much above 25 m/min compared with the design speed of 45-50 m/min.

The lack of a diecut machine prevents Twiga from meeting a good demand for specially shaped boxes, especially for export, which again reduces the overall performance of the plant. On the other hand, the demand for paper bags of any type cannot be met, because the old worn-out machinery is continually having to be stopped to make adjustment, and the paper, especially the machine-finished yellow tea paper, from SPM has imperfections, weak points, and also releases paper particles which block the bag forming compressors. As a result of all these problems, output in 1987 was only 70 tons compared with the installed capacity of 2,000 tons. Output has fallen to as low as 12 bales per day compared with 60-100 bales when machines were new. Table 9.2.2 shows output volume and sales revenue of Twiga Paper for 1988.

The underutilization of plant capacity can, therefore, be attributed to a large extent to the quality of raw material inputs, demand for cardboard box products and a desperate need for imported spare parts. Furthermore, Twiga, like many other industries in Tanzania, has to cope with unreliable supplies of electrical energy.

(ii) Profit and loss accounts

Table 9.2.3 shows the profit and loss accounts for Twiga Paper Products Company from 1986 to 1988. Figures for 1988 are draft figures only, but final audited figures should not vary greatly.

Table 9.2.3. Twiga: profit and loss accounts 1986-1988
(thousands of Tanzanian Shillings)

	1986	1987	1988
Sales (less sales tax)	60,825	60,359	83,023
Cost of sales	45,199	45,501	67,131
Gross profit	15,626	14,858	15,892
Operating expenses (including depreciation)	8,877	11,252	11,467
Net profit before tax	6,749	3,606	4,425*
Tax	3,485	2,464	2,212
Profit after tax	3,264	1,142	2,213

* net profit before tax was increased by TSh 506,000 because of the sale of assets and transport services earnings.

Source: Twiga Paper Products Company.

Twiga Paper Products operates in a difficult economic climate. Demand restrictions, raw material quality and quantity, bad transportation, price competition and machine inefficiency are day to day problems that constrict output capacity. Because of the nature of production, the plant at times lies idle, with adverse effect on efficiency and profitability, if orders are not secured that require a full snift work for machinery . The company pays 50 per cent corporation tax on profits at the year end and is subject to 25 per cent sales tax on most of its finished products. In spite of these difficulties, it is maintaining a reasonable rate of profit.

(iii) Imports and protection

Twiga Papers sources the greater part (85 per cent) of its material inputs from local suppliers (i.e. paper from Southern Paper Mills and ink from local suppliers). However, it still relies on imports for such raw materials as flexographic printing rubbers, staple wire and chemical adhesives which are critical to Twiga's success.

The problem arises with foreign exchange allocation from the Bank of Tanzania for spare parts and raw material importation. (This problem has been encountered in the recent past by many private enterprises in Tanzania, but should be eased by the introduction and expansion of the OGL facility.) Twiga has been allocated no foreign exchange over the last five years to import spare parts for box-making machinery and printing machines. This lack of spares, coupled with input supply problems, severely limits the running capacity of the factory's product lines. Imports of spare parts are subject to 20 per cent tariff, adding further to the local cost of importing these items, which is already high with the present weakness of the Tanzanian shilling. However, importing spares should have the long-term effect of increasing production and efficiency, thus offsetting this investment cost.

Good quality yellow machine-glazed tea packing bags are imported into Tanzania from the Federal Republic of Germany (FRG) because Twiga and other market producers cannot supply enough bags to satisfy the local market needs. In the long run, once rehabilitation has taken place some protection from competitive imports may be required (i.e. high import duties on competing foreign products).

(h) Cost and price structure

(i) Cost and price determination

The determining costs for Twiga Paper Products must undoubtedly be those relating to paper, adhesives and ink. Paper is the most influential as it makes up some 85 per cent of the factory production costs. Twiga buys paper for making bags and cardboard boxes from Southern Paper Mills. The World Bank has decreed that a significant tonnage of paper output must be exported by SPM to raise the foreign currency needed for the repayment of the capital loan mobilized for construction of the complex. World market prices are far lower than they could reasonably expect on the local market. Indeed the prices of SPM paper for local requirements are very high so as to cover the loss in value of exporting their products for foreign currency earnings. Since January 1986 local prices of SPM paper have risen some 300 per cent.

Twiga would like to adopt a cost-plus approach to pricing cardboard boxes and be able to maintain a profit margin above costs but market forces rule this out. Competition in a price-sensitive market for cardboard boxes from companies like Kibo Paper Industries (which has a paper recycling mill and hence cheaper paper) means prices change constantly. For large orders Twiga offers some price reductions and vice versa for smaller orders, often using price fluctuations as bargaining tools. Furthermore, many orders for cardboard boxes are tailored for specific needs and therefore costed and priced differently. In general, however, Twiga will set a minimum price to sell, after checking competitors' prices on the market.

The prices for brown paper bags and yellow tea packaging bags can however be greatly influenced by Twiga Paper Products. Prices of yellow tea-bags have, since the end of 1987, moved from TSh 1,200 to TSh 2,000 per 16-kg bale. Mifuko Limited is the only other local company which makes the same size brown and yellow bags and as such collaboration with Mifuko enables Twiga to set the prices they think most appropriate. However, pricing must be done carefully as the local market is extremely price-sensitive, and imported tea packaging bags are bought from West Germany to cover the excess demand for tea packaging bags in Tanzania.

Credit for purchases of raw materials by Twiga as such does not exist. Southern Paper Mills does offer some flexibility, with 30 per cent of the total ordered cost of paper payable on order and the remaining 70 per cent within a month. On the other hand, Twiga offers some customer credit to encourage sales of corrugated cardboard boxes which are generally of better quality than competitors' but unavoidably more expensive. To finance bulk purchases of paper products and provide credit facilities to customers, Twiga has access to a fairly large short-term bank overdraft facility.

A sales tax of 25 per cent on finished product sales from the company is payable to the Treasury, and Twiga passes the full weight of the tax onto the consumer.

(ii) Foreign exchange

As within most sectors of the manufacturing industry in Tanzania, Twiga suffers from the lack of foreign exchange. As they do not export, they cannot take part in the export retention scheme. The only other source of foreign exchange is the Bank of Tanzania, from which they have obtained no foreign exchange allocation for the last five years despite numerous applications. According to the management, several reasons may account for this:

1. Twiga Paper Products Ltd. is a private company and may take second place to parastatal companies for the purpose of foreign exchange allocation;

2. The funds simply may not be available in any substantial quantity;

3. There may be a general lack of understanding about the strategic importance and needs of the packaging industry to develop food exports packing, etc.

(i) Markets and competitors

The markets for Twiga's products in Tanzania vary greatly. The corrugated cardboard box market is highly competitive in the small paper bag market in which demand far exceeds supply and competition is minimal.

Table 9.2.4 shows Twiga's products range and estimates of its total market share.

Table 9.2.4. Twiga: product range and total market size

Product	Output volume (tons)	Total size of market (tons)	Market share (%)
Corrugated cardboard boxes	1,100	6,000	18
Brown unprinted flat-bottom paper bags	100	2,000	5
Yellow printed tea packing bags	20	200	10

Source: Twiga Paper Products Ltd.

There are two main local competitors who produce similar products to Twiga while imports of yellow tea packing bags from the Federal Republic of Germany provide the foreign competition.

The size of the market share for cardboard boxes is limited by demand and by the highly competitive price position of Kibo Paper Industries, which uses recycled waste paper from its own paper recycling mill. The market shares for paper bags, however, could be significantly enhanced with better quality paper supplies, machinery rehabilitation and input supply price control.

The main market for Twiga's products is in Dar es Salaam, where Twiga distributes cardboard boxes to industries and supplies paper bags to wholesalers. It is here, however, that there is stiffest competition from the companies in Table 9.2.5. Undoubtedly bad transport links to other potential markets are the major cause of the problem in developing markets out of Dar es Salaam. In fact, Twiga will not deliver outside of Dar es Salaam because goods in transport often get damaged or lost in transit. Wholesalers who buy paper bags from Twiga act as distributors.

Table 9.2.5 shows the major competitors for Twiga Paper Products.

Table 9.2.5: Twiga: main competitors and their product lines

Company	Product	Market share (percentage)
Kibo Paper Industries	Cardboard boxes	55
	Large paper bags	35
Mifuko Limited	Brown unprinted bags	(unavailable)
	Yellow tea-bags	15
Imports	Yellow tea-bags	(fluctuating)

Source: Twiga Paper Products.

Mifuko Ltd. and Twiga are the only significant producers of small brown paper bags and yellow tea packing bags (Kibo produce multi-wall paper bags for cement and sugar packing). Therefore, Mifuko and Twiga through collaboration have a large influence on the small paper bag market by fixing prices. However, yellow tea packaging bags are imported from the Federal Republic of Germany to satisfy the excess demand, they are then re-exported containing Tanzanian tea. The FRG-sourced bags are cheaper (due to high local costs of production) and generally of better quality. Improving paper quality, printing quality and output could greatly increase Twiga's percentage market share of this product, as it is likely that tea packers would rather expend local currency on good quality bags than draw upon foreign exchange which could otherwise be used for spare parts, replacement machinery, etc.

The size of the market and the current level of production by Twiga has not required the setting up of a separate sales function in the factory. The administration manager has responsibility for for marketing the company's products, among his many other jobs. Advertising in local papers three or four times a year and a placement in the Preferen al Trade Area Business Directory 1988/89 are the only sales promotion efforts by the company.

However, under increasing competition, especially in cardboard boxes, Twiga has budgeted TSh 100,000 for sales promotion in an attempt to help achieve the TSh 100 million sales budget for 1989. It is highly likely that with rehabilitation of the factory (or the industry as a whole) the increasingly competitive market would require the employment of some marketing and sales expertise to maintain or enhance Twiga's market share.

Twiga's products are important for the export of other Tanzanian products such as tea and canned fruits. Although there may not exist an immediate export potential to neighbouring countries, the economic recovery programmes in these countries should reactivate their economies as well. In this respect, there should exist a market potential for some of Twiga's products.

(j) Constraints

The main constraints faced by Twiga Papers are as follows:

- an irregular supply of electrical power;

- an intermittent water supply;
- variable quality of paper supplied by SPM;
- a low throughput due to the old age of machinery;
- a high price for cartons due to high costs of paper raw material, consequently a low level of demand for the company's production;
- a limited product range of cartons (the factory is not capable of making case dividers and has only a limited range of rectangular boxes);
- a lack of foreign exchange to purchase spares;
- a lack of transport means to distribute products;
- difficulties in financing necessary investments in local currency and in foreign exchange.

Most of the problems Twiga is facing are common to other companies in Tanzania. However, Twiga has competent management and, given the right conditions, good growth potential. Nevertheless, in a longer perspective, the limited physical size of the plant area would become a constraint to growth.

9.2.2 Rehabilitation requirements

(a) Management and organization

The only requirement is for the appointment of a new General Manager, which should preferably come from within the existing management structure. A Marketing Manager is not presently required by the plant, although the Administration Manager should target some of his time for following up the proposed increase in sales promotion

The management of the plant is efficient and could readily cope with the increased production from rehabilitation.

(b) Physical plant

The age of the three German-made Combi-type paper bag making machines, and the general status of plant maintenance constitute a major constraint to plant productivity.

The necessary rehabilitation of the physical plant should focus on the following:

- replacement of worn-out and malfunctioning parts or components of those machines and equipment that are now at a stand-still;
- replacement of salvageable equipment;
- dusting, cleaning, painting and general repairs to roofs and walls;
- installation of wash-basins for the workers;

- improving and extending personnel hygiene and comfort facilities, including toilets, showers, washrooms, lockers and protective clothing to production personnel;

- establishment of stock control procedures for replacement of spares, bearing in mind the long and often delayed delivery time for the high precision critical spares;

- drawing up and implementing a scheduled preventive maintenance programme for all machinery and equipment;

- training of relevant staff in proper maintenance practices and techniques;

- training of quality-control staff to maintain enforceable quality-control measures for all raw materials, intermediate and finished products.

Table 9.2.6 provides a list of the equipment, machinery and buildings that require rehabilitation. The Table also provides indicative costs of replacement or rehabilitation of the respective items as estimated by the management of Twiga Paper Products Company. Spare parts and components importation accounts for the foreign exchange costs, while the local element includes service costs, i.e. installations and repairs.

Table 9.2.6: Twiga: capital requirements for rehabilitation
(thousands of Tanzanian Shillings)

		Estimated Costs		
		Foreign (US$)	Local ('000 TSh)	
	Production machinery			
(1)	New Combi paper bag-making/printing machine	60,000	78,000	
	Spare parts for old machines for brown bags	10,000	13,000	
	Replacement corrugated belt	3,000	3,900	
	Buildings	-	5,000	
	Vehicles			
(1)	3.5-ton lorry	-	2,000	
(2)	5-ton lorries	-	8,000	
	Total local cost (TSh)		109,900	
	Local cost equivalent (US$)			845,385
	Total foreign cost (US$)			73,000
	Total local and foreign cost (US$)			918,385

Source: Twiga Paper Products Company.

The estimated figure in Table 9.2.6 may in fact be substantially higher than listed, considering in particular the overestimated costs of building rehabilitati However, additional costs would include:

- inventory of running and replacement spare parts;
- drawing up and implementation of maintenance programme;
- staff training in maintenance planning, quality control planning and execution;
- detailed study and planning of rehabilitation programme, not excluding equipment supply, contract negotiation, procurement etc.

The physical plant rehabilitation, as estimated by the mission, would cost a total of TSh 109,900. A more accurate estimate of rehabilitation costs will have to be determined through a more detailed evaluation study.

(c) Inputs

To reduce the costs of paper inputs, it is recommended that arrangements be made to facilitate Twiga's access to test liner paper from the local paper recycling mill.

Reduced down-time and wastage on the corrugating machine would be achieved if the intermittent faults in SPM kraft and fluting medium were eliminated.

Twiga Paper Products would be able to make yellow tea packaging bags suitable for export if SPM could make machine-glazed paper to the required specifications rather than the poorer quality machine-finished paper, or if the importation of machine-glazed reels was facilitated. However, an evaluation should be made to establish the relative advantages of taking this option or the option of allowing imports of high quality glazed paper which Tangold could use to make yellow tea packaging bags.

The availability of better quality printing inks and flexographic rubbers would improve printing quality and further enhance the export production of yellow tea packaging bags.

(d) Cost and price structure

Twiga Paper Products Company is being squeezed between high input prices, especially paper from Southern Paper Mills, and the need to control product prices. The market for cardboard boxes is controlled by Kibo Papers, which sells its product cheaper than any other source because it can use recycled paper from its own mill. To enhance the competitiveness of the market, it is recommended that supply from the Kibo recycling mill should not be restricted to Kibo subsidiary companies but open to other market competitors such as Twiga and Mifuku Ltd. This could be achieved by making arrangements whereby the mill could cater for the requirements of other paper bag manufacturers, like Twiga and Mifuko Ltd.

While the accounting functions of Twiga Paper Products are well run, it would be of considerable advantage to install a microcomputer-based accounting system for the company.

A review of the credit facilities that Twiga offers to customers does restrict the cash-flow situation of the company. However, the credit facility does help to secure some sales, and is beneficial to the company in the short term.

One of the major difficulties facing the domestic packaging industry is the high cost of paper supplied by Southern Paper Mills. Domestic prices are significantly above the export price and are maintained at a high level to compensate for the lower export prices needed to penetrate international markets to generate sufficient foreign exchange to repay the outstanding loans. If the domestic producers are to achieve export market penetration for packaging, then some realignment of domestic paper prices needs to be achieved.

(e) Marketing

Twiga Paper Products operates in two quite different markets, a very competitive but output-restricted market for cardboard boxes and an undersupplied less competitive market for paper bags. The large percentage of the market cardboard box market is extremely price conscious and large scale marketing would only be effective if Twiga were price competitive. The market for paper bags is restricted by product output and is a sellers' market, thus presenting no immediate necessity for marketing initiatives.

A small sales promotion budget of TSh 100,000 has been allocated for 1989 to try to attract exporters of agricultural produce or manufactured goods to use higher quality Twiga cardboard boxes. There needs to be some time set aside by both the Administration Manager and other senior personnel for the follow-up to these promotions if they are going to have any effect on sales.

Twiga management quite rightly thinks that the possible extra sales of cardboard boxes that could be generated by sales promotion in the marketplace does not warrant the expense of hiring marketing/sales expertise. However, the situation may change in the long run and Twiga would then have to reassess the situation, especially if rehabilitation leads to increased competitiveness.

Twiga's main market is in Dar es Salaam, beyond which bad roads and transport facilities makes it difficult to have adequate access to wider markets. However, with the proposed rehabilitation of the Tanzanian transport sector Twiga would be well advised to plan early for accessing potential customers from other markets.

Direct export of Twiga products is not regarded as a likely possibility for focussing marketing efforts, high production costs (hence high output prices), and poor paper quality being the main constraints.

(f) Foreign exchange availability

As Twiga does not export any products and therefore does not participate in the export retention scheme, its only possible source of foreign exchange is the Central Bank of Tanzania.

Since Twiga has had no foreign exchange allocation for spare parts in the last five years, some modification of fund allocations should be considered. It may be that there are simply no funds available, but it should be borne in mind that machinery rehabilitation in the private sector of the Tanzanian economy is likely to have a far-reaching effect on stimulating other sectors.

The tariff structure on imported spare parts should also be modified to facilitate imports of those spare parts that cannot be fabricated locally, perhaps lowering the rate to zero. Spares that can be made locally should be encouraged by possibly putting high tariffs on competing imports. The effects of the tariff rates have become increasingly restrictive in the light of ever-worsening exchange rates for the Tanzanian Shilling pushing up the payments in local currency. As the exchange rate of the Tanzanian Shilling approaches equilibrium, the cost of foreign exchange and also the tariff rates on imported goods are becoming key factors for the business decisions of the company.

(g) Liquidity

Twiga Paper Products, while maintaining a small profit, does have cash-flow problems caused by the need to purchase high priced inputs in bulk and a system of credit sales to some of their customers. Twiga has access to a bank overdraft facility to alleviate this problem which they consider the most convenient means of assuring quick access to money. Rehabilitation requirements that may help the cash-flow situation are mostly concerned with input price control and are mentioned in more detail in the section dealing with the rehabilitation of the cost and price structures that prevail at Twiga.

9.3 Tanzanian Animal Feeds Company (TAFCO)

9.3.1 Existing situation

(a) Plant history

TAFCO was incorporated in 1983 as a public enterprise and a subsidiary of the National Milling Corporation (NMC). The National Milling Corporation had until that time been involved directly in the production of animal feeds. Originally, the NMC had inherited the buildings housing the Dar es Salaam plant, after a private wheat milling company owned by an Asian expatriate was nationalized in 1968.

In the early 1970s the wheat plant was dismantled and the animal feed plant machinery installed by the NMC. Commercial production began in the late 1970s with equipment and machinery supplied by the Bühler Company of Switzerland.

At the present time, TAFCO has four mills running under the company name, the Pugu road mill in Dar es Salaam, and other mills in Mwanza, Mbeya and Moshi. The Mwanza mill is not operating at present. There are plans to take over two other feed mills, a public mill in Arusha (handover almost complete) and a mill in Lindi.

(b) Management and organization

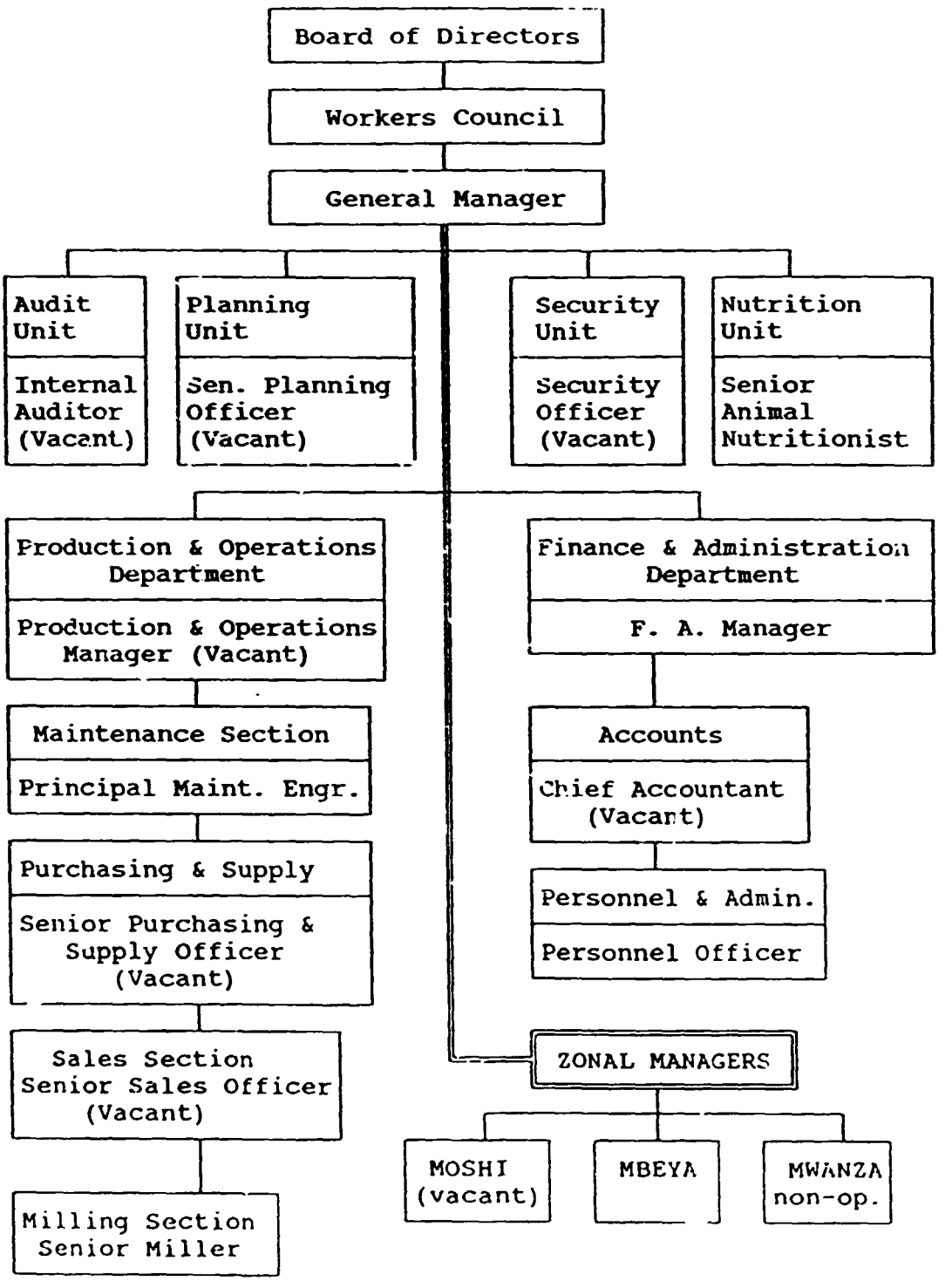
TAFCO's main plant in Dar es Salaam employs 110 people. The two other presently operating subsidiary plants in Moshi and Mbeya employ 47 and 34 people respectively. TAFCO also has one other plant that at present is not operational.

The current Board of Directors was appointed in September 1985 and should have been replaced last September. This has not occurred, however, and the Board of Directors still has overall executive responsibility. There are six Directors, including:

John Kyambora (Chairman)	-	Commissioner for Livestock Development and now Regional Development Director for Tabora.
G.E. Maganga	-	Assistant Commissioner for Public Investment at the Treasury.
Vincent Semesi	-	Director of the National Milling Corporation.
Denis Mabeba	-	Senior Veterinary Officer, Tanganyika Packers, Fellow of the World Bank Development Institute.
Daudi P. Mpiri	-	Director of the Livestock Research Institute.

The Board of Directors meets regularly, as often as six times per year. The organizational structure of the company is shown in Figure 9.3.1.

Figure 9.3.1: Tanzania Animal Feeds Co.: organizational chart



Source: Tanzania Animal Feeds Company.

Details of senior management's educational and professional qualifications are as follows:

John P. Kinabo - General Manager.
(age 38)

MSc Agricultural Sciences (Norway). Joined NMC in 1977 and transferred to TAFCO in 1983. Senior Animal Nutritionist until May 1988, when he became Acting General Manager. Confirmed in this position in January 1989.

A. Taalib - Finance and Administration Manager.
(Age 37)

Certified Public Accountant and worked with NMC as accountant until his transfer to TAFCO in April 1985.

Mary Ngaiza - Senior Animal Nutritionist.
(Age 37)

MSc Agricultural Sciences (Norway) and worked with Tanzania Livestock Research Organization on Animal Nutrition until joining TAFCO in March 1987.

Alfred Komba - Personnel and Administration Officer.
(Age 39)

BA in Public Administration, University of Dar es Salaam, 1978 and Management Diploma from ESAMI (Eastern and Southern African Management Institute). Joined TAFCO in July 1984.

Chigama Nkinda - Principal Maintenance Engineer.
(Age 34)

BSc Process Engineering (Dar es Salaam). Joined TAFCO in 1984 from Polysacks.

Stephen Mkude - Senior Miller.
(Age 41)

Course in Production Management (IAE 1975). Course in Animal Feeds Technology, Moscow 1979. Course in Planning and Control in Agricultural Management, Swaziland, 1979.

Elibariki Mtui - Zonal Manager, Mbeya.
Heriel (Age 35)

Bachelor of Commerce (Dar es Salaam) 1980. Assistant Manager of Tanganyika Farmers Association between 1985 and 1988.

Senior management meetings are held weekly, with major meetings held every month when major production problems and performance are discussed. The workers' council meets twice a year.

Training is provided by the company for the accountancy/finance staff at both the Institutes of Finance and Development Management. Courses for production staff are provided at the Institute for Productivity or overseas through sponsorship schemes. Secretarial staff are given secretarial training. Most of this training is provided out of the company's own funds.

Staff turnover in the company is relatively low, since it would appear that workers are given a wider range of benefits (medical treatment, transport allowances, training courses).

In examining the qualifications of the senior management, Board of Directors and technical staff, it is obvious that the company has an abundance of experience and sound professional qualifications. This is certainly a major asset which could be more effectively utilized with rehabilitated plant and equipment. Furthermore, the company does provide a wide range of training schemes to upgrade its staff.

The weaknesses are also obvious from the organization chart. These include:

- There is a large number of vacancies both at senior management and in essential intermediary posts. There is at present no Production and Operations Manager and this function is currently being handled by the General Manager.

- There are vacancies in the Purchasing and Supply Section and in the Sales Section. The post of Chief Accountant has not been filled.

- Communications with the plants in Moshi and Mbeya are poor and there is no manager at the former plant.

- The Zonal Manager reports directly to the General Manager, and the Finance and Administration Manager does not have direct access to the branch accounts.

- The overall organization of the main plant and its subsidiary factories is poor, and there is a lack of management information systems and cost control procedures.

(c) Financial structure

The Tanzanian Animal Feeds Company is a subsidiary of the National Milling Corporation (NMC), which is the sole shareholder of the company. Share capital is valued at TSh 30 million, which NMC has paid in full.

Table 9.3.1 shows the balance sheets and financial structure of TAFCO over the last three years, including paid-up share capital and retained losses. Accounts for 1987 and 1988 are only in draft form and have not been audited.

Effective management of TAFCO would require much more detailed financial information than is presently available. The necessary information would include balance sheets and profit and loss accounts for each of the four TAFCO feed mill plants. In addition, information on the cost of production and profit margins by product line is needed. In the absence of this kind of plant-level information, the following analysis applies to TAFCO's four feed mills as a whole.

Table 9.3.1: TAFCO: balance sheets 1986-1988
(thousands of Tanzanian Shillings)

	1986	1987	1988
Fixed assets	83,769	83,375	75,404
Capital work in progress	19,831	24,893	26,664
Current assets			
Stocks	8,694	11,828	50,850
Trade/debtors	18,623	25,587	21,824
Cash/bank balance	5,086	(6,996)	(19,434)
TOTAL	136,003	138,687	241,088
Current liabilities			
Trade creditors	160,740	200,478	198,198
Tax payable	2,487	-	-
Bank overdraft	10,994	-	-
Net assets (liabilities)	(38,218)	(61,791)	(42,890)
Capital employed			
Share capital	30,000	30,000	30,000
Capital reserve	92,957	106,005	110,606
Retained profit/(loss)	(160,815)	(197,796)	(183,496)
Total	(38,218)	(61,791)	(42,890)

Source: Tanzania Animal Feeds Company.

Under normal circumstances, the large accumulated debt of TAFCO, reaching TSh 183 million in 1988, would have resulted in the company's closure. However, since TAFCO is part of the parastatal NMC group, being the largest supplier of animal feeds in Tanzania (an essential product to the livestock sector), it is of great strategic importance to the country. Needless to say, TAFCO has numerous financial problems but these are viewed as of secondary importance to the continued survival of the company.

Under the guidance of the NMC, and with access to "development funds" mobilized by the Government, TAFCO has remained in operation despite the debt problem. The increase in capital reserves over the three years reflects the large amount of money mobilized by the Government to "balance TAFCO's books." Recovery of this capital reserve is likely to take some time, despite a profit of TSh 14 million in 1988, which would indicate some revival of plant performance. TAFCO has no long-term commercial loans.

Only three of the four mills owned by TAFCO are operational: Pugu road mill in Dar es Salaam, and the mills in Moshi and Mbeya. A publicly-owned mill in operation in Arusha is presently being taken over by the company. The non-operational mill at Mwanza and the Arusha mill are presently undergoing extensive capital work, amounting to 75 per cent of the cost of capital work in progress in 1988. TAFCO management is presently allocating resources among

the different feed plants for investment and repairs. It is the view of the mission that an overall review of the animal feeds sector, as well as the individual TAFCO plants, is needed before a decision can be made with respect to rehabilitation and/or expansion of plants.

The large retained losses of TAFCO reflected in the balance sheet have been caused by raw material shortages, high input prices and controlled product prices. TAFCO's performance has improved greatly since 1987, with the relaxation of Government control on its product prices. TAFCO's financial rehabilitation has been further enhanced since its recent exemption from paying sales tax. In the past, the market for feeds was a sellers' market. As market liberalization proceeds, however, the financial rehabilitation of the plant will, to a large extent, depend on its ability to operate in a competitive environment.

The value of company liabilities (money owed), all of which is accountable to trade creditors, exceeds the value of fixed assets and current assets combined. It is likely that large amounts of this money have been mobilized by the National Milling Corporation, which has in past years helped the cash flow situation by providing working capital for capital inputs, in order to keep the flow of plant outputs from stagnating.

Depreciation rates on fixed assets are given as follows:

Buildings	2.5 per cent
Office equipment	20 per cent
Vehicles	25 per cent
Factory equipment	33 per cent

The figures for factory equipment and office equipment are a little high (compared to the rates of up to 12.5 per cent obtaining in other companies), and some adjustment may be needed to avoid possible distortion of the book value of the assets concerned.

The general organization of TAFCO and its subsidiary plants is poor, particularly in the area of financial management. Company accounts are aggregated, and no breakdown is given of performance at the individual plant level. Given the acquisition of two new plants, priority should be given to a rationalization programme for the company as a whole.

(d) Buildings and installations

(i) Buildings

The TAFCO plant is located at the junction of Pugu road and Port Access road on Plot No. 74/1 in Dar es Salaam. Other animal feed plants managed by TAFCO are located in Mbeya, Moshi and Mwanza, and there are plans to acquire two mills in Arusha and Lindi.

There are five main buildings: a five-storey mill block, covering a total floor area of 1,650m^2; a finished products storage warehouse, with a floor area of 1,400m^2; a five-storey silos block for storing grain, a raw materials storage warehouse (875m^2), and a two-storey administrative office block (364m^2). Minor buildings include the molasses tank shed and the boiler house.

(ii) Installations for raw materials handling

Maize and other grains

Grains are fed into the main plant from the truck reception hopper via a bucket elevator and two drag chain conveyors to the base of the bucket elevators. There is also provision for rail reception via a separate bucket elevator and drag chain conveyor.

The bucket elevators convey the grain to the cleaning section on the first floor, which comprises a size separator, and fine cyclone separator, followed by a drum magnet to run over ferrous metals. The separated waste is bagged off. The cleaned grain is then returned to the main grain elevator. In the past, when there was a large delivery of grain, or as at present when the cleaning section is not working, the incoming grain is fed directly to the bucket elevators and taken to the chain conveyor on the fifth floor, which feeds the main grain storage silos.

Grain from the main storage silos is fed back into the plant by recycling via chain conveyor and elevator. At the top of the bucket elevator, the grain can alternatively be diverted to the chain conveyor which supplies the grinder feeder silos.

To this point the capacity of the elevators and conveyors is 50 tons/hour.

Figure 9.3.2 (a) shows the process flow for maize and other grains coming into the mill.

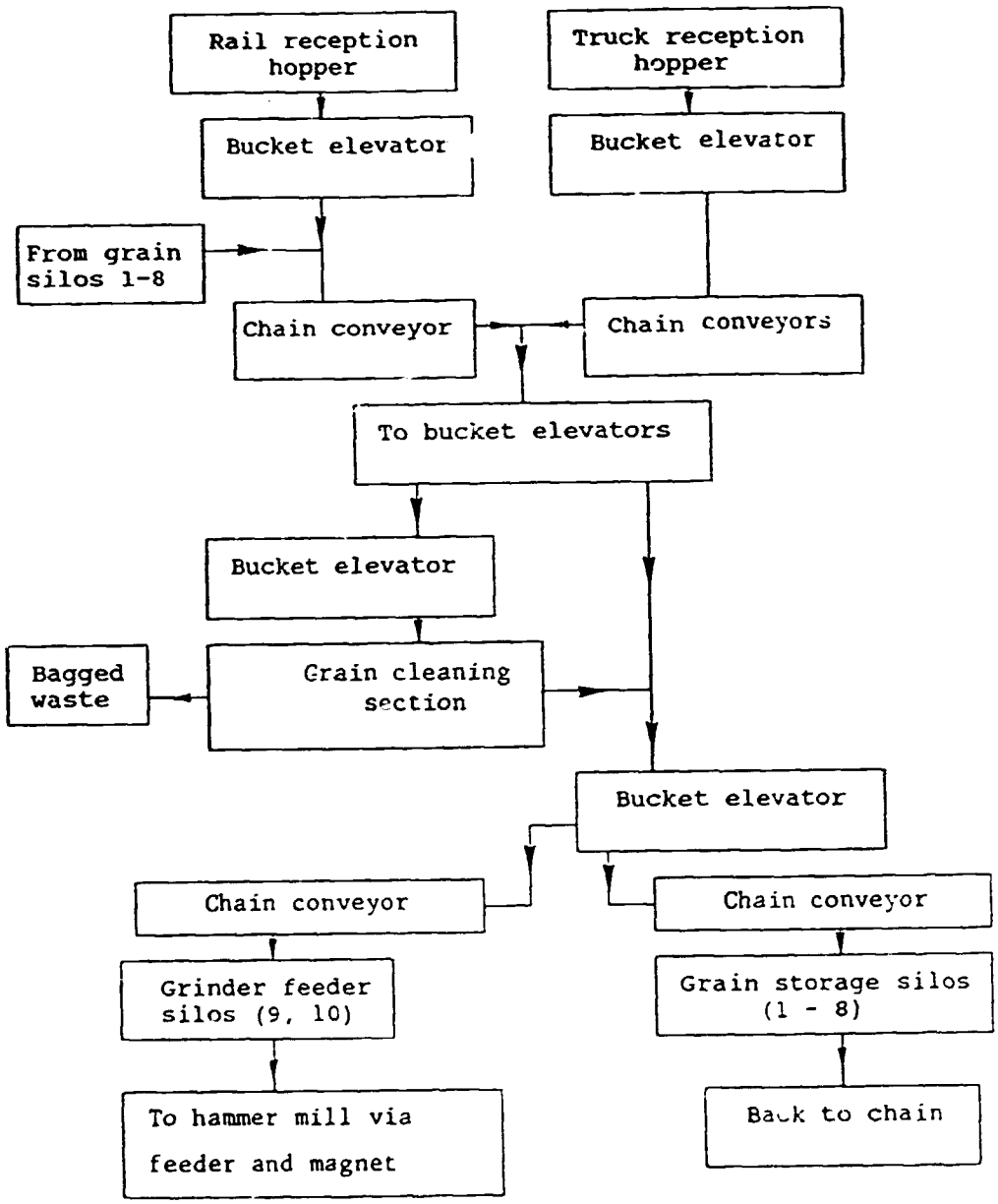
Meals, brans, oilseed cakes, and limestone

As fishmeal is in short supply, small dried freshwater fish from Lakes Tanganyika and Victoria are processed by a locally made hammer mill with 2.3 tons/hour capacity, and bagged in the mealy store.

Meals, grains, oilseed cakes and limestone are conveyed individually from the mealy stores to the main plant via a drag chain conveyor, bucket elevator (capacity 25 tons/hour), and drum magnet, where the seedcake is diverted to silos 11 and 12, and the other ingredients sent via sifting machine and screw conveyor for separate storage to bins 23, 26, 30, 31, 35, 36, 38, 40, 42 and 44 as required. Waste from the sifting machine is bagged off.

Figure 9.3.2: TAFCO: process flow diagram

(a) Maize and other grains

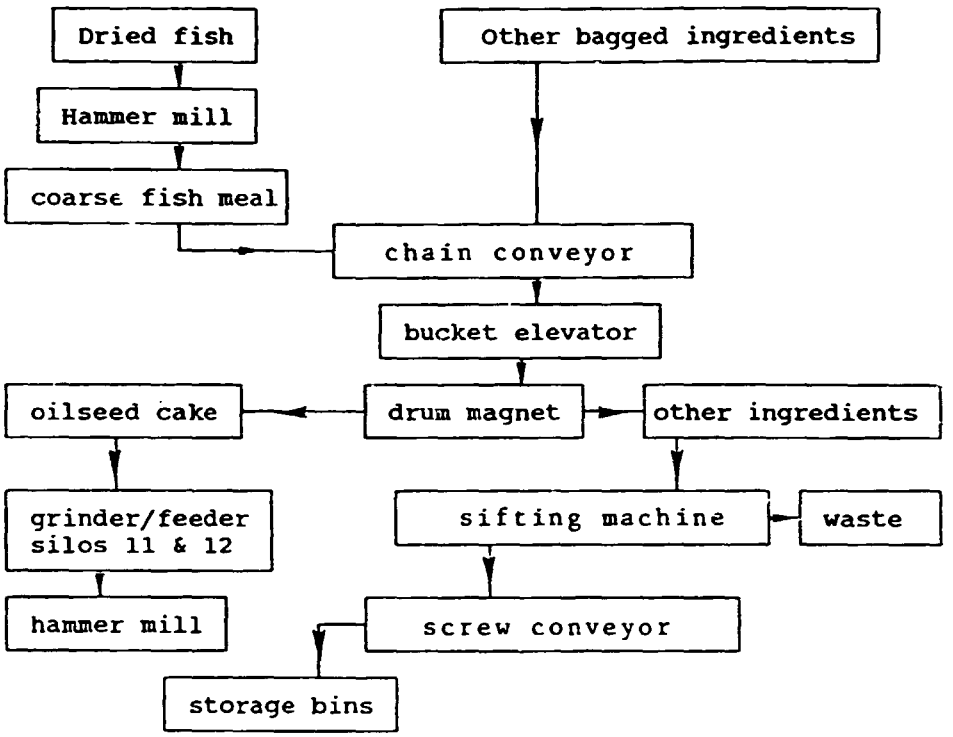


Source: Tanzania Animal Feeds Company.

Figure 9.3.2 (b) shows the process diagram for meals, oilseed cakes, brans and limestone.

Figure 9.3.2: TAFCO: process flow diagram

(b) Meals, oilseed cakes, bran and limestone



Source: Tanzania Animal Feeds Company.

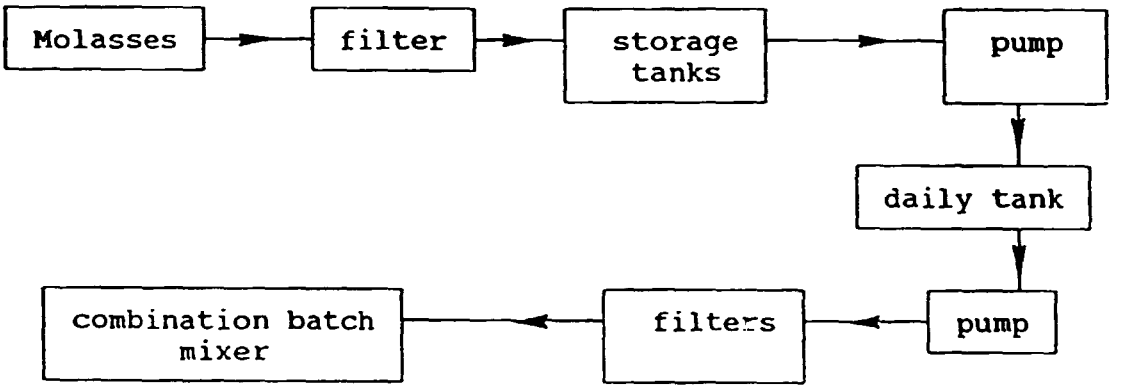
Molasses

Molasses, delivered in drums or by tanker, is filtered and pumped to the storage tank. When required the molasses is conveyed using the same pump to the daily tank. From here it is pumped via filters to the molasses injection for addition to the combination mixer.

Figure 9.3.2 (c) shows the process flow for molasses upon entering the plant.

Figure 9.3.2: TAFCO: process flow diagram

(c) Molasses



Source: Tanzania Animal Feeds Company.

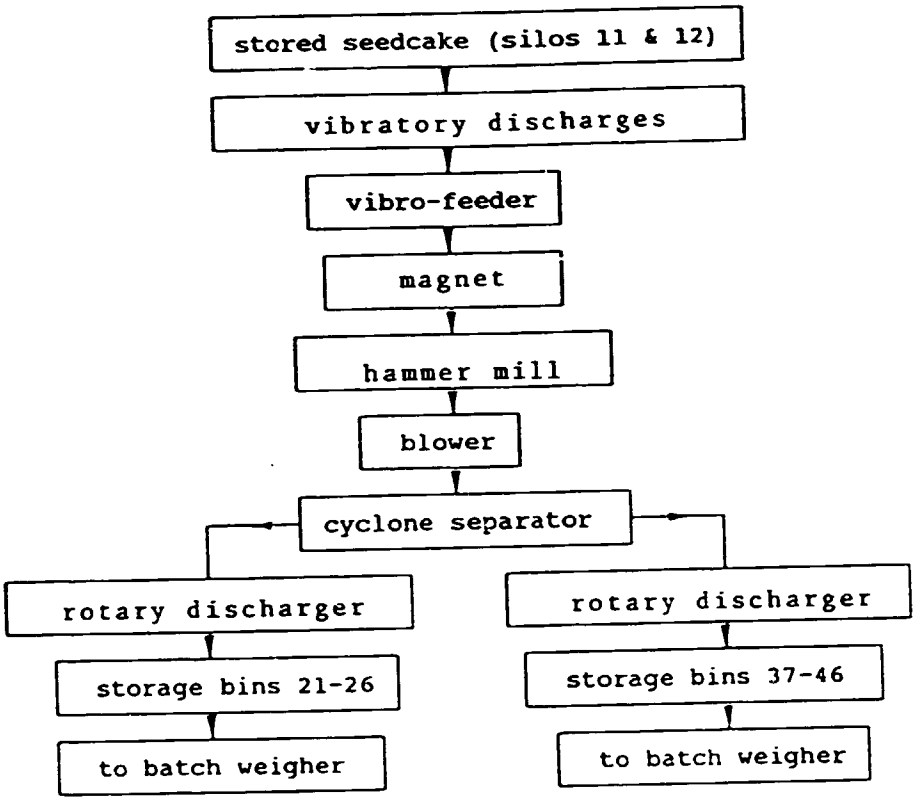
Milling

The stored seedcake is vibrated from silos 11 and 12 by means of vibratory dischargers, and the maize from bins 9 and 10 is fed individually through a vibro feeder and magnet to the new hammer mill below, which is fitted with 6 mm screen. The ground ingredients are then conveyed by blower to the cyclone separator and to either the rotary discharger to bins 21-26, or to the rotary discharger to bins 37-46 as required, ready for batch weighing with ingredients from the other bins. The bins 21-46 are fitted variously with screw-on vibratory dischargers, depending upon the ingredients to be dispensed.

Figure 9.3.2 (d) shows the process flow for milling operations.

Figure 9.3.2: TAFCO: process flow diagram

(d) Milling



Source: Tanzania Animal Feeds Company.

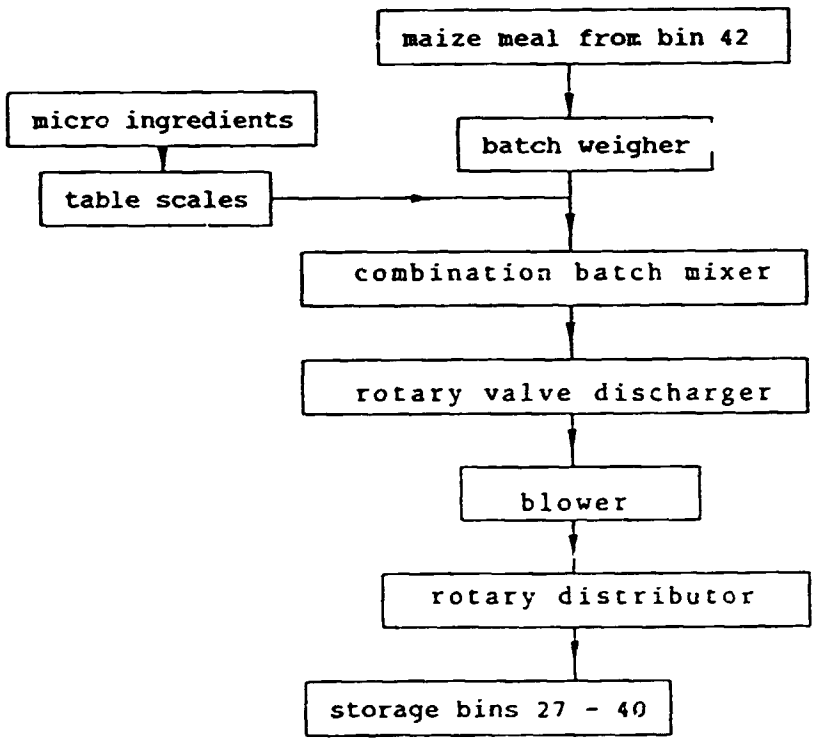
Pre-mixing

From bin 42, maize meal carrier is conveyed from vibratory discharger to the combination batch mixer, via a 100-kg batch weigher. The micro ingredients (vitamins, minerals and amino acids) are weighed on table scales and are also conveyed via a vibratory chute to the batch mixer. The mixed ingredients are conveyed via rotary valve discharger, blower, and cyclone separator to the rotary distributor to bins 27-40 (excluding 31 and 36), ready for batch weighing with required ingredients from the adjacent bins.

Figure 9.3.2 (e) shows a process diagram for the pre-mixing in the mill.

Figure 9.3.2: TAFCO: process flow diagram

(e) Pre-mixing



Source: Tanzania Animal Feeds Company.

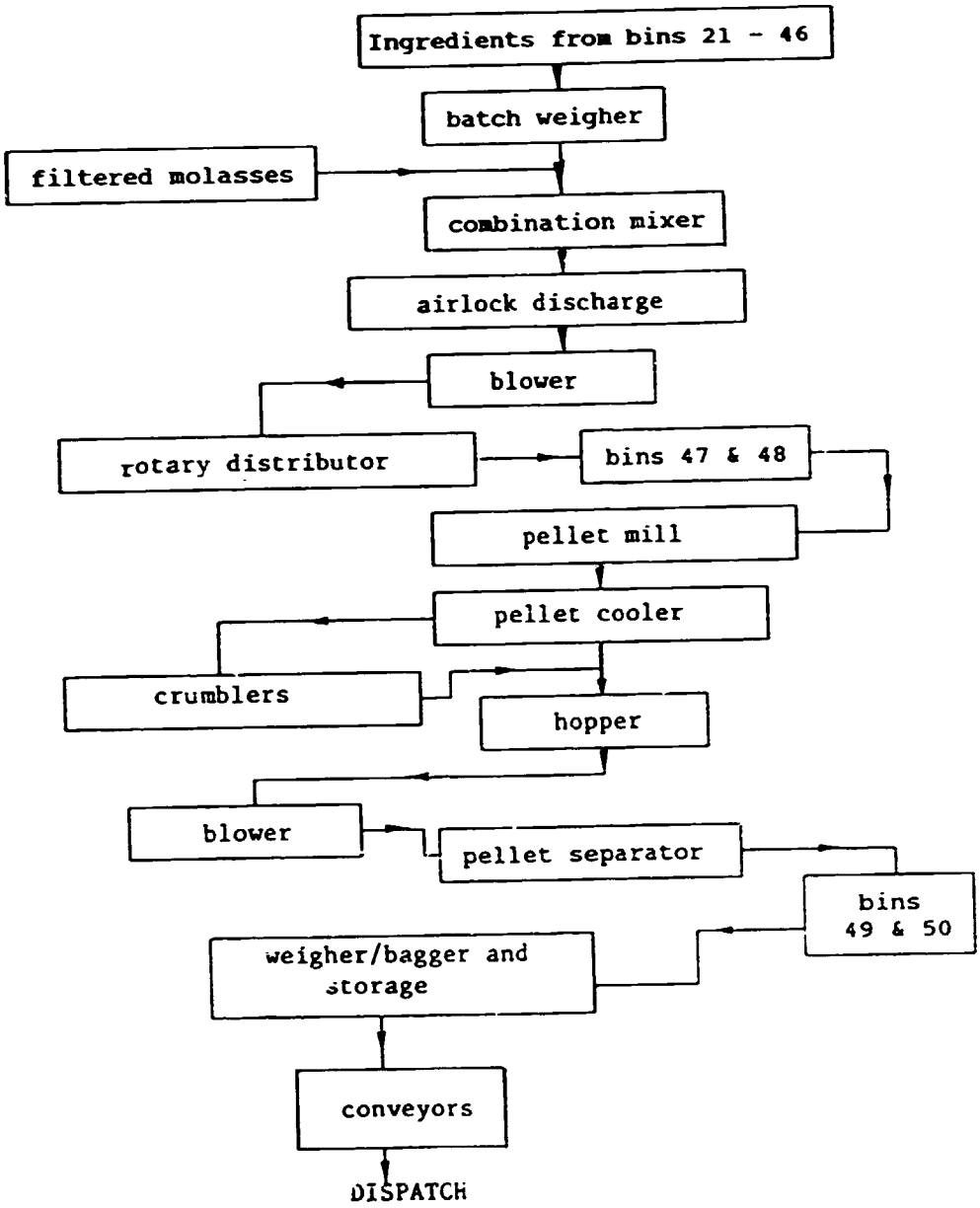
Pelletizing

Ingredients from the batch weigher situated below the bins are fed into the combination batch and molasses mixer, together with molasses metered by injection system. After mixing, the ingredients are blown via airlock and cyclone by blower to the rotary distributor and then to bins 47 and 48. From these bins, ingredients are passed through the pellet mill and pellet cooler. From the cooler the pellets are passed through crumblers or straight to the hopper and blown to the pellet separator, and to bins 49 and 50 for subsequent weighing, bagging, storage, and dispatch by road (or formerly by rail).

Figure 9.3.2 (f) below shows a process diagram for the pelletizing stage.

Figure 9.3.2: TAFCO: process flow diagram

(f) Pelletizing



Source: Tanzania Animal Feeds Company.

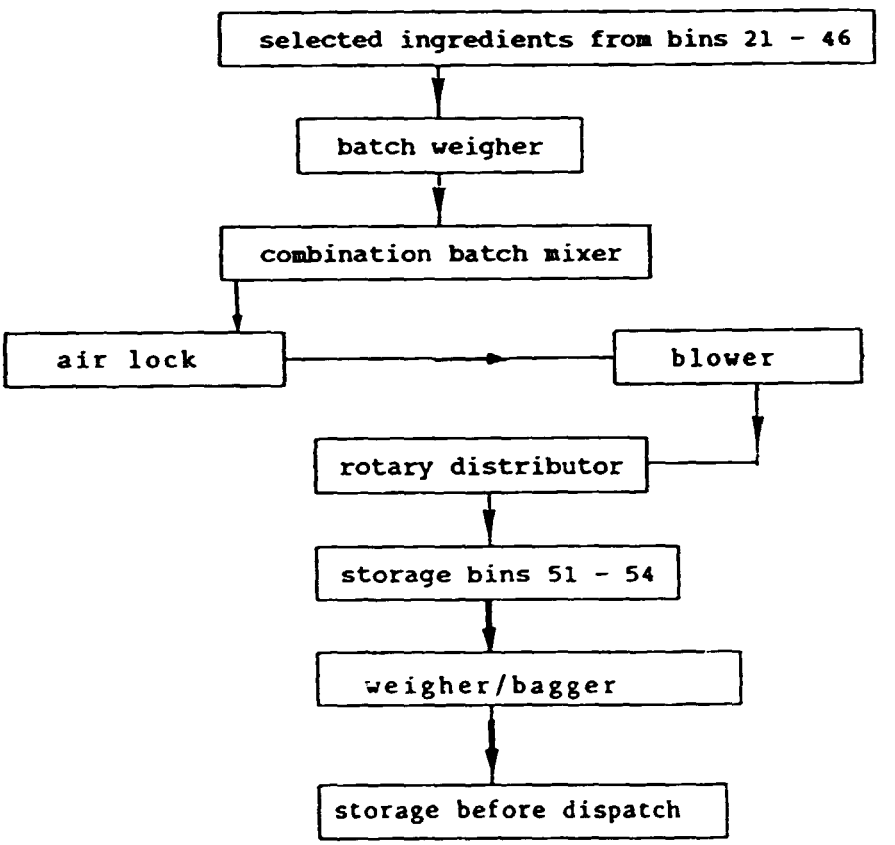
Batch weighing

According to the feed mix being prepared, selected ingredients from bins 21-46 are weighed in the batch weigher which has a macro 1000-kg and finer 100-kg setting, before being dropped to the combination batch/molasses mixer. The dry mix batches are then moved via airlock and cyclone to the rotary distributor by blower, and thence to bins 51-54. From these bins the mixes are weighed, bagged for storage, and dispatched by lorry via conveyors.

Figure 9.3.2 (g) shows the process flow for batch-weighing functions of the Dar es Salaam mill.

Figure 9.3.2: TAFCO: process flow diagram

(g) Batch weighing



Source: Tanzania Animal Feeds Company.

(iii) Other installations

Boiler house

The plant's boiler house measures 4 m x 7 m, and houses a Perkins Patomatic 5BH 25 H/L steam boiler. It has a working pressure of 100 lb. The boiler is well kept and in good working condition. There is a fuel storage tank, placed underground, with a capacity of 10,000 litres.

Compressor room

The compressor room, located on the fifth floor of the mill house, measures 6 m x 10 m. One of the two compressors, a Haug Kompressor, Type VN 110 AR, manufactured in Switzerland in 1971, is obsolete and needs rehabilitation. The second of the two compressors is also a Haug Kompressor, of type KA 112F, supplied by Stenhoj A/S of Switzerland in 1985.

Water supply

The plant has a 750,000-litre storage tank, but this is corroded and out of use. The water pumps are also out of order and need replacement.

Hygiene, health and safety

The standards of plant hygiene, occupational health and safety leave much to be desired. Workers are not provided safety devices such as masks and glasses. Sanitary facilities were poor, causing hygienic problems, and there was a lack of social facilities.

Quality control

The company has no quality-control facilities available at the plant. No quality control analysis is done for the raw materials. Feeds are not subject to any micro-toxic analysis or energy value determination. Samples of the finished products are sent to either of the following laboratories: Animal Diseases Research Institute (TALIRO), National Milling Corporation (NMC), Tanzania Bureau of Standards (TBS), and University of Dar es Salaam (UDSM). However, there is little compliance with national standards as laid down by TBS.

Maintenance

The company has no workshop of its own, and thus has no capacity to fabricate its own spare parts.

(e) Inputs

Grains, mainly maize, are obtained from NMC, regional co-operative unions, large farmers, and middlemen. Supply is not generally a problem, although there is the occasional transport shortage. Brans and wheatmeal are bought from NMC and private millers.

Fishmeal is in short supply, especially since the meal plant at Mwanza stopped working efficiently two years ago.

Coarse meal is made on site from small dried fish supplied by middlemen and private fishermen from Lakes Victoria and Tanganyika. Prices (and availability) are subject to seasonal fluctuation, ranging last year from TSh 80 per bag in June-July to TSh 160 in September-November. There were no supplies in December.

Oilseed cakes are obtained from co-operative unions, middlemen, and oil mills. This raw material is now in short supply as a result of low outputs from the oil mills and since liberalization some mills are exporting seedcake for foreign exchange retention.

Local minerals, limestone and salt are obtained from private suppliers. Vitamins, trace minerals, and amino acids are imported from Canada.

(f) Product range

TAFCO produces animal feeds to cater for the wide spectrum of livestock farming enterprises in Tanzania. Products fall into four main categories, poultry feed, dairy feed, pig feed and other feeds (normally made to order). Table 9.3.2 outlines the products produced by TAFCO and the actual or budgeted tonnage output for 1987, 1988 and 1989.

The demand for TAFCO products from the Tanzanian livestock sector vastly outstrips supply, with an estimated overall market size of some 200,000 tons. With the particularly bad performance in 1988, in terms of volume output, the budget figures for 1989 (which are double the 1988 figures) seem a little optimistic. However, should the raw material supply situation change for the better, these output levels could easily be achieved.

Poultry feeds account for 95 per cent of TAFCO's total output of feed products, which are also the highest priced goods. TAFCO also makes specialist feed products such as mice meal, rabbit meal and guinea pig meal, but these are only produced to order.

Table 9.3.2. TAFCO: output of products, 1987-1989
(tons)

Product	1987 (actual)	1988 (actual)	1989 (budgeted)
1. Broiler mash	12,962	4,683	8,686
2. Layer mash	11,387	6,735	10,694
3. Breeder mash	2,218	965	2,884
4. Grower mash	871	1,723	3,738
5. Chick and duck mash	385	130	2,720
6. Dairy meal	883	592	2,214
7. Sow and weaner meal	330	279	1,760
8. Horse meal	101	60	75
Total	29,137	15,167	32,771

Feed types 1, 2, 3, 4 and 5 are classified as poultry feeds.

Source: Tanzania Animal Feed Company.

(g) Plant performance

The overall performance of TAFCO in 1988 was greatly affected by the irregular supply of raw material inputs and the poor mechanical condition of the plant. Indeed, on the whole, the animal feed industry performed poorly, producing only 65,000 tons in 1988, while the market demand is estimated at 200,000 tons or more.

Table 9.3.2 shows that the three operating mills of TAFCO produced a total output of just over 15,000 tons in 1988, against an efficient operating capacity for all mills of 190,000 tons. Performance in terms of output was halved from 1987 to 1988.

Since the Dar es Salaam mill was the only plant visited, its problems and subsequent performance are outlined below as a representative problem experienced throughout TAFCO's operations.

Mechanical plant performance is adversely affected by the fact that whole sections were inoperable, on top of which several of the conveyors and elevators have regular breakdowns. For example, the whole of the grain cleaning and sorting section including the elevator, separator, cyclone, and drum magnet were out of action, which means that grain is only scanned by the magnet before the new hammer mill, with the result that the mill casing and beaters have suffered impact damage from non-ferrous and other objects bypassing the magnet. [Figure 9.3.2 (d)].

The drag chain conveyor for the meals and oilseeds often breaks down through blockages and snagging, and the new replacement (purchased in 1987) has not yet been fitted for lack of funds to buy local necessary parts. The bucket elevator following the chain conveyor is unreliable, and broke down during the visit of the engineers, preventing ingredients from being conveyed to the respective bins for over four hours.

The control sifting machine for grains and meals has to be bypassed, and the subsequent major screw conveyor which feeds bins 21-46 is subject to intermittent breakdown.

In the pre-mixing area [Figure 9.3.2 (e)], all of the equipment is out of action, and the pre-mix storage bins 28-40 (excluding 31 and 36) are therefore not in use.

The pelletizing section (Figure 9.3.2 (f)] is out of action, as the molasses injector system does not work, and the pellet mill itself cannot be used because the pressure reducing valve bypasses condensate to the feed and there is no control thermometer.

All of the air blowers are badly worn and do not operate efficiently, with the result that five of the six cyclone separators do not operate efficiently. Also, all of the pneumatic pipelines are badly worn and have been patched up at the bends with crude welding, and, where welding has become impossible, by wrapping hessian bags around the pipes. As a consequence, there are innumerable leaks causing dust.

None of the air jet filters is working to remove dust.

This, together with the leakages and lack of routine cleaning and general husbandry, has led to a considerable dust build-up, making the event of a serious dust explosion probable in the near future.

All of the rotary distributors for directing material to the correct bin have ceased to work by remote control, as have all the associated pneumatically operated value boxes. All of them must therefore be controlled manually.

In general, the whole of the pneumatic system for material transference and valve control needs to be replaced.

The fumigation plant has not worked for many years.

Despite all these problems, the plant manages to process an average of just under 5 tons per 8-hour shift, against an installed capacity of 10 tons. In view of the condition of the plant, it is considered possible that it may come to a complete standstill at any time.

The major current constraint, however, is the lack of availability of the correct raw materials, especially animal protein in the form of fish, meat, bone meal, and to a lesser extent, oilseed cake. Vitamins, most minerals, and amino acid supplements are not obtainable locally now or in the foreseeable future, and are imported.

The shortage of protein supplement could be overcome by growing soybeans, followed by roasting to remove any toxins. The estimated annual requirement for fishmeal, when processing at the current rate of 4.9 tons/hour on a single shift basis is 900 tons, at a protein content of 60 per cent (dry basis) on average. If this was replaced by protein from soybeans with an average protein content of 35 per cent, then approximately 1500 tons of soybeans would be required. At an estimated bean yield of 2 tons/hectare, 750 hectares of beans would therefore be needed. To operate at its 10-ton capacity for three shifts would require six times this hectareage. The oil in the soybeans would also supplement the shortage of oilseed cake (containing 4-8 per cent oil). In any event, supplements for fishmeal are required to prevent overfishing of the lakes.

The intermittent raw material supply and poor mechanical plant performance limited the output of the Pugu Road plant to 7,870 tons, working a single shift in 1988 against an installed capacity of 16,000 tons, or 48,000 tons for three shift operations for 28 days.

(ii) Profit and loss

The profit and loss accounts in Table 9.3.3 analyze the performance of all of TAFCO's mills in the years 1986-1988. Performance was poor for 1986 and 1987, with losses of TSh 109 and 37 million respectively. In 1988, with price increases allowed more regularly by the Government, a profit of TSh 14 million was realized.

While plant performance in terms of output was reduced by nearly 50 per cent between 1987 and 1988, the price increase on finished products limited the decrease in revenue to only TSh 40 million. Because of the recent flexibility in price-setting, TAFCO was able to raise product prices sufficiently. The sales revenue decreased less rapidly than physical output. Input costs also decreased faster than revenue, largely because input prices did not increase as fast as output prices.

Regardless of the present difficult financial situation of the company, recent relaxation of price controls and a slightly improved input supply at the beginning of 1989 give rise to cautious optimism for the future. Indeed, as can be seen from Table 9.3.2, estimated budget figures for 1989 reflect this optimism, with 32,771 tons output (double the 1988 figures) expected to raise TSh 708 million in revenue.

Table 9.3.3: TAFCO: profit and loss accounts, 1986-1988
(thousands of Tanzanian Shillings)

	1986	1987	1988
Sales	206,822	266,804	227,690
Cost of sales	301,788	292,211	200,607
Profit (loss)	(94,966)	(25,407)	27,083
Other income	6,002	5,491	4,163
Operating costs	20,915	17,065	16,946
Profit (loss) before tax	(109,879)	(36,981)	14,300
Tax on profits	0	0	0
Profit (loss) after tax	(109,879)	(36,981)	14,300

Source: Tanzania Animal Feeds Company.

(iii) Imports and Protection

The majority of TAFCO's inputs are available locally, although special minerals and vitamins are imported. Until 1987 TAFCO had to apply for foreign exchange allocation for these goods. In 1987 the Canadian Government started a system of commodity input support covering such inputs as TAFCO requires for production of animal feeds. However, while the problem of raising foreign exchange is eliminated, the current exchange rate of TSh 130 : US$ 1 adds substantially to the local currency payments for such inputs.

TAFCO still needs foreign exchange allocations for the purchase of imported machinery and spare parts that cannot be produced locally (quality of local spares is inferior to imports). Lack of spares is greatly affecting plant performance even under the constraints of raw material shortage. In 1987 a small allocation of foreign exchange was made to TAFCO which enabled the purchase of a new hammer mill.

(h) Cost and price structure

In a broad sense, TAFCO's current financial difficulties are due to high costs of scarce inputs and controlled output prices, causing low profit margins.

Input prices of local raw materials are not controlled by Government pricing policy, with the exception of maize, and the predominant scarcity of such inputs results in high prices. (Fishmeal being a case in point). This fluctuation in prices is also very seasonal in nature, with lower prices coinciding with the prevailing cropping cycles.

Minerals and vitamins that have to be imported from abroad are largely obtainable due to policy preference for the allocation of foreign exchange to import necessary raw material inputs to maintain plant production. In 1987, Canada began supplying Tanzania with input commodity aid for raw material inputs such as are used by TAFCO. Howeve while the problem of raising foreign exchange is eliminated, the curr xchange rate of TSh 130 : US$ 1 adds substantially to the local currency p ments for such inputs.

TAFCO does incur other costs in providing transport and subsidized medical and meal facilities for the labour force.

TAFCO's products are regarded by the Government as essential inputs into the agricultural livestock sector and are therefore subject to Government price control. However, TAFCO still uses the cost-plus approach in determining a price to recommend for price review, in an attempt to maintain some profit level above production costs. Between 1983 and 1986, no price changes were allowed on TAFCO products, causing great financial difficulties, as can be viewed from the profit and loss accounts for 1986. Fortunately, the situation has changed and price reviews occur more regularly (once every six months). Table 9.3.4 shows the ex-factory prices for TAFCO's products from the three operating mills for 1988 and 1989 (prices will vary from each plant with different regional production cost structures and other economic factors). Distribution costs add as much as 10-20 per cent to the cost of ex-factory prices to the consumer, especially for distant markets. TAFCO must account for this when calculating ex-factory prices.

Table 9.3.4: TAFCO: prices of products, 1988 - 1989
(thousands of Tanzanian Shillings per ton)

	Product	Dar es Salaam 1988	Dar es Salaam 1989	Moshi 1988	Moshi 1989	Mbeya 1988	Mbeya 1989
1.	Broiler mash	26.00	32.40	27.00	33.00	26.00	33.10
2.	Layer mash	22.30	27.60	26.00	28.60	22.40	26.20
3.	Breeder mash	25.90	32.10	27.40	33.20	26.50	30.70
4.	Grower mash	17.60	21.70	18.80	22.40	19.90	23.10
5.	Chick and duck mash	25.60	32.20	27.50	32.70	26.50	31.70
6.	Dairy meal	8.00	11.00	12.00	12.40	10.20	12.00
7.	Sow and weaner meal	15.30	18.80	15.90	19.50	18.40	21.10
8.	Horse meal	9.50	9.70	14.00	14.40	-	-

Source: Tanzania Animal Feeds Company.

TAFCO sets the market price for animal feeds that other producers follow. At present, demand for animal feed is still much higher than supply. This would suggest that there is scope for further price increases. However, if TAFCO sets its prices too high, it may well find that other producers will gain a larger market share.

A full 95 per cent of TAFCO's output volume and sales are of poultry feeds (i.e. categories 1 through 5 in the above table), which are also the higher-priced products.

(i) Markets and competitors

The size of the market for animal feeds in Tanzania is about 200,000 tons per year, hereas the total output from all the feed mills in Tanzania in 1988 was 65,000 tons per year. There are no imports of animal feeds to satisfy the 135,000-ton deficit, so many livestock farms turn to mixing their own feed to make up for the market supply shortage. They can obtain the necessary imported vitamins and minerals from Regional Development offices which stock imported raw materials that entered Tanzania under the Canadian commodity input support scheme.

There are, in addition to TAFCO, some 25 other producers of animal feedstuffs in Tanzania. Together they produced a combined total of 50,000 tons in 1988, while TAFCO produced only 15,000 tons (26 per cent). Most of the larger competitors, which are situated in the Dar es Salaam region, include Rajani Industries, Cost Foods Ltd., Inter-chick Ltd., which produce mostly for their own farms, and Azania Feeds. Because the market for feeds is so large, these companies do not act as true competitors since they operate in a sellers' market. The competitiveness they exhibit is for scarce raw material inputs, especially for protein-based meals. Indeed, were the input problem not so restrictive, TAFCO could dominate the market as it has a capacity output (if all its mills are operating at full capacity) of 190,000 tons per year. Combined, the other 25 mills could account for not more than 80,000 tons (or 40 per cent of the market).

In the past, the existence of a sellers' market for TAFCO's products made it unnecessary for any marketing or sales promotion efforts. For this reason, the company has no separate sales department, and the Finance Manager has the major share of marketing responsibility. This situation is changing, however, and there is a growing need for marketing activities.

TAFCO only sells produce "at the factory gate" on a cash basis and does not distribute any of its finished products. Its five lorries are used for collecting raw material inputs to combat the problems of supply shortage. It is not uncommon in Tanzania for companies to avoid the distribution of their products due to the lack of operational lorries and the state of the road network, which is in urgent need of rehabilitation. Road and railway transport is therefore a major constraint to the development of the market. Supplies of raw materials are erratic, especially those travelling long distances, for example fishmeal from Lakes Nyasa and Tanganyika.

TAFCO's four mills are spread over a wide area of Tanzania, with Moshi and Mwanza mills in the north, the Mbeya plant in the south-west and the Dar es Salaam plant on the coast. Added to this are the two mills at present being handed over to TAFCO from public companies, Arusha mill in the north and the more important mill at Lindi in the far south-east of Tanzania. Assuming that all become operational, TAFCO would have the basis for extensive market development over Tanzania as a whole. Transport and distribution costs for both raw material inputs and finished products could be substantially reduced for distant markets supplied from Dar es Salaam at the present time. The present sales responsibility of individual mills needs to be reviewed and amended placing greater emphasis on individual mill performance.

Until the demand of the local market is met and prices are reduced relative to world market prices, there is little prospect for exporting to the world market. However, when the plants are rehabilitated, an investigation into the export markets in neighbouring countries should be made.

(j) Constraints

The main constraints faced by TAFCO are as follows:

- old machinery, much of which needs to be replaced;
- a lack of replacement spares;
- a limited and irregular supply of some raw materials, such as animal protein and oilseed cake;
- a shortage of transport facilities for ferrying raw materials and finished goods;
- an inadequate supply of local working capital, particularly for purchasing locally available spares;
- a lack of autonomy for making major management decisions;
- shortage of managerial expertise at the intermediate level;
- an inflexibility in output price adjustments, which negatively affects the economic viability of the plant (since the Government fixes output prices, while input prices are not controlled);
- an accumulated debt problem which must be addressed in order to provide a minimal chance for economic rehabilitation.

9.3.2 Rehabilitation requirements

(a) Management and organization

Although there is in-depth experience at the senior and middle management levels, persistent problems with the plant and equipment together with the lack of investment have created some degree of demoralization. Unless steps are taken quickly to improve the performance of the plant, such well-qualified persons are not likely to remain in their posts. The recent departure of the Production and Operations Manager reflects this problem.

As to the immediate requirements, the key position that needs to be filled is that of Production and Operations Manager to relieve the pressure on the General Manager. This appointment should be made in conjunction with the recruitment of the Purchasing and Supply Officer. The recruitment of a senior sales officer should be delayed until output can be substantially improved.

A new manager should be found for the Mbeya plant and there should be some readjustment of the responsibilities, with the zonal plants being more accountable to the Finance and Administration Manager.

With regard to the overall organizational chart, there would appear to be no need for either an Internal Auditor or a Senior Planning Officer and plans to recruit these two individuals should be cancelled. The auditing function would be more appropriately handled by an outside agency and overall production planning should be carried out by the General Manager together with his Production and Operations Manager.

(b) Physical plant

Since 1971, when the plant was fully in operation, there has been no major overhaul and the whole plant needs a major rehabilitation exercise.

A small start was made in 1987 with the installation of a new hammer mill and the procurement of a new drag chain conveyor for the mealy ingredients, but this has yet to be installed.

The elevator to the grain cleaning plant is not working and the cleaning equipment separator, cyclone system and drum magnet need to be replaced or completely overhauled. The elevator for mealy products is constantly breaking down and should be replaced. The drum magnet and subsequent centrifugal sorter and the main screw conveyor to the storage bins need to be replaced.

The molasses injector should be completely overhauled.

The pre-mixing plant requires a complete overhaul, including the replacement of some of the parts.

The control systems for the rotary dischargers need to be replaced. The pneumatic blowers need a complete overhaul, and much if not all of the associated conveying tubes should be replaced. For example, none of the valve boxes for directing the flow of ingredients along the tubes are working.

The pellet mill requires a new steam pressure reducing valve and thermometer.

The fumigation plant requires a complete overhaul, or possibly replacement, as it has not worked since the early 1970s.

The electric cables of the plant are in a very poor condition, many having been gnawed by rats, and need overhauling.

Much of the central control panel is not functioning; there is evidence that some small fires have broken out, and the whole circuiting is covered with dust. It should be thoroughly cleaned and overhauled.

(c) Inputs

There is an urgent need to supplement the supply of the protein inputs currently met by grinding dried fish from Lakes Victoria and Tanganyika. Until 1986, there was adequate access to a supply of meat and bone-meal from Tanganyika Packers.

Consideration should be given to possibly substituting soybean for fishmeal as a source of protein. If the current requirement of 900 tons of fishmeal at a 60 per cent average protein content were replaced by soybean protein, with an average protein content of 35 per cent, then approximately 1,500 tons of dry soybeans would be required. At an estimated yield of 2 tons per hectare, 750 hectares of beans would be required. For the Pugu road mill to operate at full 10 ton/hour capacity for three shifts, six times this hectareage would be required. The mill would also require roasting facilities in order to remove toxins from the beans. Soybean oil could also supplement the shortage of oilseed cake containing 3-7 per cent oil. More 7- to 10-ton lorries are required for the factory's haulage of raw materials and finished products. Consideration should also be given to examining possible regional sources of supply for soybeans.

The monitoring and control of the feed-processing operations can only be obtained with a properly equipped laboratory on the premises rather than rely on NMC laboratories as at present. The minimum requirements are for determining moisture content, analysis of crude protein and ash and fat content. Other analysis would be needed for fatty acids, fibre, calcium, phosphorous, amino acids, energy content, trace elements and vitamins. The need for a well-equipped laboratory is, therefore, of paramount importance.

(d) Cost and price structure

TAFCO's profitability has been squeezed between ever-increasing input prices and Government-controlled prices for their finished products. Since the beginning of 1988, price reviews have been carried out once every six months, whereas in the period 1983-1986 no price rises were allowed on TAFCO products. However, TAFCO still feels a squeeze on profitability, as input prices can increase from week to week. Greater flexibility and more frequent price review should help TAFCO maintain a profit margin above costs.

Suppliers of inputs are not covered in the price control structure of the Government, except for maize products. A review of the possible control of input prices could act with the same effect as the recommendation for better control of output prices. A combination of both measures would have even greater effect.

Tariff policy should focus on encouraging the local fabrication of spare parts, where possible to a competitive standard to imported spares. Those spare parts that cannot be made locally and must be imported should have very low or zero tariff rates and competing imports could be discouraged with higher tariffs.

The installation of a system of microcomputers would facilitate the work of the TAFCO's accounts section and allow more accurate costing. Their system should be linked to all the mills in the company with the Dar es Salaam plant as the central focus point. Provision for training of the relevant personnel should also be made.

TAFCO is not financially strong at the present time, and future short-term performance will have a bearing on the recommendations made above. Should the level of profit made in 1988 not be maintained or increased in later years, more definite measures may be needed. Privatizing TAFCO, for example, may enhance its competitiveness in the market, even though this step would not necessarily have a significant effect on prices in the market.

(e) Marketing

The present market for animal feeds is badly under-supplied, and a sellers' market prevails. Under such circumstances, and until increased output causes greater market competitiveness, no sales/marketing requirements are considered essential.

Input supply at present is the greatest restriction to market development and increased availability of essential input ingredients such as protein supplies (fish or soybean) is vital to market success. The completion of the road rehabilitation scheme is an important component of a strategy for improving input supplies. Incentive schemes encouraging the growth of specific crops could also be reviewed among other measures for encouraging agricultural output.

Given the rehabilitation of TAFCO and of the animal feed manufacturing sector as a whole, the requirements for marketing in the light of increased market competitiveness will change. In the future, much greter attention must be given to market conditions, as they affect both inputs and final products. Under these circumstances, TAFCO would be well advised to employ some marketing/sales expertise or train members of its staff in preparation of this.

TAFCO, with its current four mills and its forthcoming acquisition of two other mills, will be able to reach most areas of the country without great difficulty. It therefore has the basis for formulating a marketing strategy covering all markets in Tanzania. Each mill should have specific zones attributed to it and be responsible for market development and sales in its specified area.

(f) Foreign exchange

TAFCO, like most other companies in the manufacturing sector of Tanzania, suffers from the lack of foreign exchange for the import of spare parts. Until foreign exchange becomes more readily available, this situation is likely to persist.

The tariff duty on imported spare parts that cannot be manufactured in Tanzania should reviewed. The tariff for non-competing imports could be set at zero, with higher tariffs placed on competing imports so as to encourage local production.

(g) Liquidity

The origin of TAFCO's present liquidity problems was the need for purchase in bulk of high-priced inputs while at the same time product prices were controlled by the Government. However, because TAFCO is considered to be engaged in the production of essential items, it could secure financial help from the Government through the National Milling Corporation to solve short-term liquidity problems. In the future, TAFCO's liquidity position will largely depend on its profitability and on its access to commercial credit lines.

9.4 Zanzibar Dairy Development Corporation (ZADACO)

9.4.1 Existing situation

(a) Plant history

The plant's buildings were erected in 1965 with financial support and supervision provided by the German Democratic Republic (GDR). Half of the equipment and machinery required by the dairy plant were installed at that time, but were later removed due to political difficulties between GDR and the Zanzibar Government.

In 1974 an agreement was reached between the Zanzibar Government and the Danish Turnkey Dairies (DTD) for the supply and installation of new processing equipment and related services. Plant installation was completed in 1977 and production of milk started with an installed capacity of 2000 litres per hour.

The products of the plant are: full-cream milk, butter and yoghurt.

(b) Organization and management

ZADACO consists of a dairy processing plant on the outskirts of Zanzibar and five dairy farms located at Bambi, Pangani, Kizimbani, Mtakata (Pemba) and Mtoni. It was established in October 1987 and is a wholly-owned parastatal reporting directly to the Ministry of Agriculture

The Board of Directors was elected in 1986 and consists of eleven members, all of whom are well-qualified and experienced. These include:

Dr. Ali Abdullah Suleiman	-	Chairman. Qualified agricultural economist. Principal Secretary at the Ministry of Transport and Communications.
Kassim M. Biwi	-	Animal Scientist. M.Sc. Animal Nutrition. Director of Livestock Development.
Mohammed Mataka	-	Farmer, retired Government official.
Omar Sheha	-	M.Sc. Fin. Econ. (London). Official of Ministry of Finance.
Masoud Khamis Seif	-	Member of House of Representatives.
Dr. Idi A. Shambwana	-	Deputy Director for Livestock Development
Ali Othman	-	M.Sc. Statistics. Head of Statistics, Ministry of Finance.
Mussa Khamis	-	M.Sc. Agric. Sciences. General Manager, Mahonda Sugar Factory, Zanzibar.

Mrs. Rabia Hamdan	-	Senior Government official, Chief Minister's Office.
Juma Khiari	-	Economist. Deputy Permanent Secretary, Ministry of Finance.
Mohammed Ali	-	Member of House of Representatives.

It is probable that this Board will be re-elected this year, although consideration is being given to converting the company to a private enterprise. The Board would then become the major shareholders. The Board meets four times a year and reports to the Minister of Agriculture. The General Manager is invited to these meetings. The Board is strong and powerful, and is seeking more autonomy from the Ministry of Agriculture.

The organization of the company is shown in Figure 9.4.1. Basically, there are six Section Leaders and an internal auditor reporting to the General Manager.

The General Manager - Mr. Sharif Ali Hamad - is 33 and has a Diploma in Farm Management and a B.Sc. and M.Sc. in Animal Sciences from the University of West Virginia in the U.S.A. After completing his Diploma, he worked as a Farm Manager and as a counterpart to the FAO. Upon completion of his M.Sc. he worked as an assistant to the General Manager for Livestock Development before being appointed General Manager of ZADACO in 1987.

The educational and professional profiles of his section leaders are as follows:

A.S. Takadir	-	Internal Auditor. Extensive experience as financial controller and joined ZADACO since retirement.
Juma Hassan Juma (age 32)	-	Accountant. Diploma in Accountancy, Moshi Cooperative College. Series of bookkeeping and accounting positions in Zanzibar and Ministry of Construction. Joined ZADACO in 1989.
Shaban S. Mbarak (age 40)	-	Section Leader, Personnel and Administration. Ex-army officer.
Mbarak K. Mwayni (age 39)	-	Section Leader, Processing. Diploma in Dairy Technology (Kenya 1976). Attended courses in Denmark and USSR and with ZADACO since 1979.
Mohammed Yussuf Haji	-	Acting Section Leader, Production. Diploma in Animal Husbandry. Joined in 1987.
Awadh Khatib Haji (age 45)	-	Section Leader, Sales Department. Diploma in Dairy Sciences.

The qualifications of the dairy farm managers is as follows:

S. Ufozo	- Manager, Bambi farm. B.Sc. Dairy Sc. (New Zealand)
Kamis Hamad	- Manager, Pangani farm. B.Sc. Dairy Sc. (New Zealand)
Salem Abdullah	- Manager, Kizimbani farm. Diploma in Animal Husbandry.
Omar Saleh	- Manager, Mtakata farm. Diploma in Animal Husbandry.

The fifth dairy farm, at Mtoni, is currently supervised by the Acting Production Manager.

Total employment in the complex is as follows:

	Permanent	Daily
Dairy plant	69	16
Bambi farm	16	57
Kizimbani farm	14	43
Mtoni farm	4	28
Pangani farm	1	12
Mtakata farm	13	18
	117	174

The Manager generally holds monthly meetings with his Section Leaders, although they are currently meeting every fortnight to draft the budget for submission to the Board of Directors. The workers are represented at these meetings by three representatives.

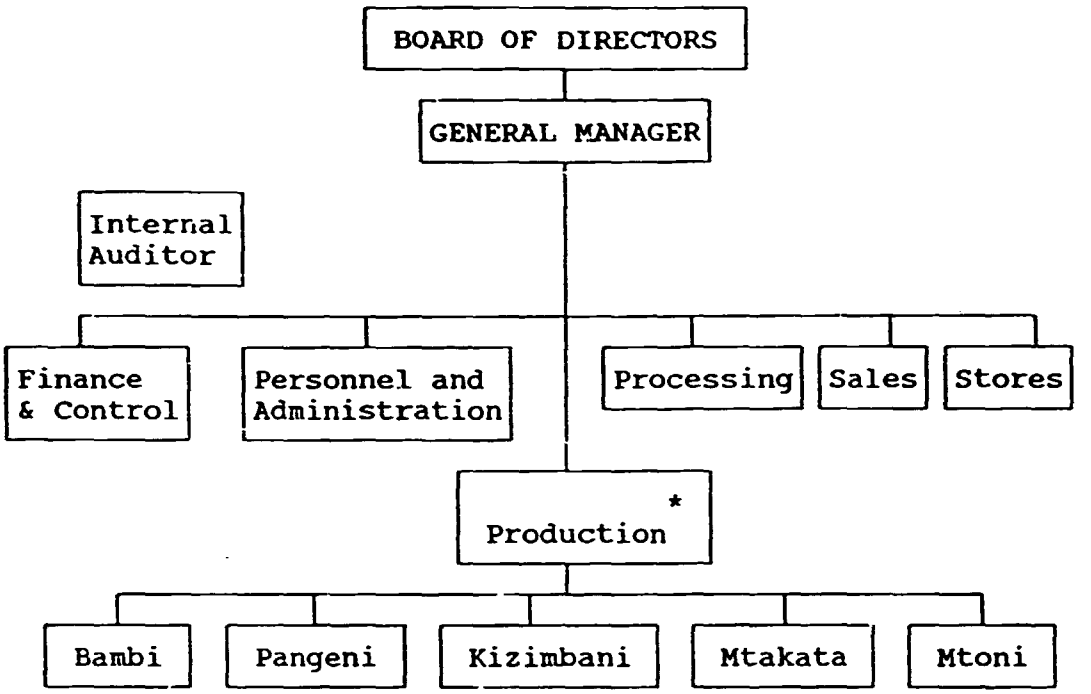
At present, the only incentive that the company can offer is payment for overtime, although the Board of Directors in conjunction with the General Manager have drawn up an incentive scheme should the company go private.

Weaknesses highlighted in the overall organization and management structure include:

- Lack of experience in the Accounting Department and in particular in the Production Department, where the acting section head is young and overloaded with work;
- Lack of staff in the Personnel and Administration Department;
- High labour turnover, particularly on the dairy farms;
- Difficulties in monitoring stock control;
- Poor financial management.

Another apparent weakness in the management structure is that the Board of Directors seems somewhat "top-heavy" for a company of this size. The senior positions are presented in Figure 9.4.1.

Figure 9.4.1: ZADACO: organizational structure



* Dairy farms.

Source: Zanzibar Dairy Development Corporation.

(c) Financial structure

The dairy plant is owned by the Zanzibar Dairy Development Corporation and is one hundred per cent owned by the Zanzibar Government. The Corporation also owns five dairy farms, which do not keep their own accounts.

The company has not been able to prepare balance sheets for many years. Consequently, no profit and loss accounts has been prepared. The plant has estimates of current costs and revenues. However, since depreciation has not been included in these estimates, the economic difficulties of the plant cannot be fully assessed.

The financial management of the company has not been well conducted, although the mission was informed that the present management is making concerted efforts to overcome this unsatisfactory situation. A new, more qualified accountant has been employed and is supported by an external accountant contracted for the purpose of sorting out the accounting problems, not least to make an evaluation of the fixed assets. Depreciation rates will then also be established.

As can be seen from Table 9.4.1, the company is operating at a loss; for the last quarter in 1988 (October-December) the loss was about TSh 1 million. If balance sheets were available, it is probable that the company would technically be bankrupt. Assuming a value of the plant at US$ 1 million and an expected lifetime of 15 years, depreciation for the last quarter in 1988 would be in the order of TSh 2 million.

The management carries out a quarterly control, on the basis of which an estimate was made. Total distribution of reconstituted milk amounted to 656,025 litres. At an average price of TSh 15.50, revenues from combined milk would be TSh 10.2 million. Total costs, from the quarterly control figures reported by the General Manager, amounted to TSh 5.6 million. On the basis of the quarterly control figures, the company would operate at a profit.

During the very short stay of the mission at the dairy plant, it was not possible to reconcile these contradictory pieces of information. However, considering the analysis of the cost to recombine milk (See section on "cost and price structure"), the table below probably reflects the company's economic situation.

Table 9.4.1: ZADACO: recurrent costs and revenues, Oct. - Dec. 1988
(thousands of Tanzanian Shillings)

Revenues	
Reconstituted milk	4,959
Fresh milk	19
Butter	714
Yoghurt	332
Total revenues	6,024
Recurrent costs	
Purchases	4,498
Containers and wrappings	819
Factory overheads	235
Administrative expenses	1,301
Sales and distribution	252
Total costs	7,105
Loss	1,081

Source: Zanzibar Dairy Corporation.

(d) Buildings, installation and the production process

(i) Buildings and installations

The plant is located at Mahurubi, some 5 km north of Zanzibar town, adjacent to Bububu road on a plot covering a total of about 1.2 hectares.

The factory consists of three main buildings:

	m^2
Processing plant building	1,200
Offices	100
Storage godown building	480
Standby generator building	15

In addition, there are sheds for scrap storage and for the gatekeeper.

The process plant building

The process plant building was constructed in 1965 and later renovated in 1975/76. It comprises the process lines room ($480m^2$), laboratory room ($50m^2$), compressor and boiler room ($150m^2$), milk crates storage room ($25m^2$) and cold store room ($100m^2$).

Considering the age of the plant and constraints in obtaining maintenance inputs, the buildings have been well kept. The processing room is covered by proper dairy floor ceramic tiles as well as yellow wall tiles to a height of 3 metres. Some of the wall tiles are broken and need replacement and the rest need cleaning. The roof construction consists of iron rafters supporting asbestos sheets. It has high windows which allow for sufficient ventilation. The windows have no shutters or mosquito netting to keep insects and birds out. The milk receiving and product dispatch platforms which are at right angles to the process plant building have slightly eroded over the years and need repairs.

(ii) Raw materials storage

The fresh milk is received in 20-litre and 40-litre cans from collection lorries at the receiving platform, after which it is stored in the cold room. The storage room has capacity for about 10,000 litres of milk.

Other inputs, such as imported powdered milk, are stored in the godown, a few metres from the processing plant.

(iii) Processing equipment

The dairy has equipment to process fresh milk into yoghurt and butter, and reconstituted skimmed milk powder (SMP) and butteroil into whole milk. All of this equipment was supplied and installed by Danish Turnkey Limited, in food-grade stainless steel finish.

Fresh milk processing

Fresh milk collected in 20- or 40-litre cans from the plant's own two farms and from 8-10 small farmers is weighed, filtered, cooled, and pumped to a 5,000-litre storage tank at 40°C. The milk cans are then treated on a washer/sterilizer ready for reuse.

From the storage tank, the milk is pumped via a balance tank and parallel plate pre-heater (40°C to a centrifugal separator. Here, the milk is separated into skimmed milk for yoghurt manufacture, the surplus being used in the reconstituted milk process to replace some of the SMP and cream (40 per cent fat) for making butter.

The cream is pumped to a batch pasteurizer where it is held for 5 minutes at 85°C, before being cooled in the same water-jacketted vessel to 12°C. The cooled cream is run off into cans, stored overnight in the cool room (4°C), and the following day processed with 2 per cent salt added into butter in 120 litre butter churn (25 minutes). The cream yields 50 per cent butter which is cooled and stored at 4°C, ready for hand forming and sealing in 250 gm packs, the maximum output being 350 packs per shift, currently twice a week. The 50 per cent buttermilk is used to replace some of the SMP in the reconstituted milk process.

To manufacture yoghurt, the fresh skimmed milk is processed in the batch pasteurizer (30 minutes at 80°C), cooled in situ to 40°C, pumped to a balance tank and then filled into 40-litre cans. Yoghurt starter culture is added, and after 2 hours at room temperature the yoghurt formed (and checked for acidity by Quality Control) is stored overnight in the cool store. On the following day, the churns are stirred by a hand agitator, and the yoghurt (350 litres/day maximum) is filled by hand from a plastic jug into plastic cups (200 ml.), covered with aluminium foil (not heat-sealed), and replaced in the cool store, for a maximum of three days, ready for dispatch.

The reconstituted milk is made by adding tins of butteroil (2.4 per cent), previously melted in a hot water bath, to SMP from bags (10 per cent) and mains water (87.6 per cent) in a large ingredients funnel. Some SMP and water may be replaced by surplus fresh skimmed milk and/or buttermilk. In all cases, the final constitution of the milk is 2.4 per cent butterfat, 10 per cent solids, non-fat, and 87.6 per cent water. The mixture is pumped from the ingredients tank into one of two 5,000-litre mixing holding tanks, fitted with a mechanical stirrer, aided by recirculation of the contents by pump, and held at 35°C for a maximum of four hours. The reconstituted milk is pumped via the balance tank through the pre-heat section of the parallel plate heat exchanger (63°C) to the orifice homogenizer, and then to the pasteurizing section (72°C for 15 seconds) and cooling section of the same heat exchanger (40°C), at the rate of 2,000 litres/hour. The cooled milk is passed to the storage tank (5000 litres) and cooled to 4°C to be held overnight. If the cool room is working well (4°C) the milk is poured into 20/40-litre cans for overnight storage, otherwise the cans are filled from the tank immediately before dispatch.

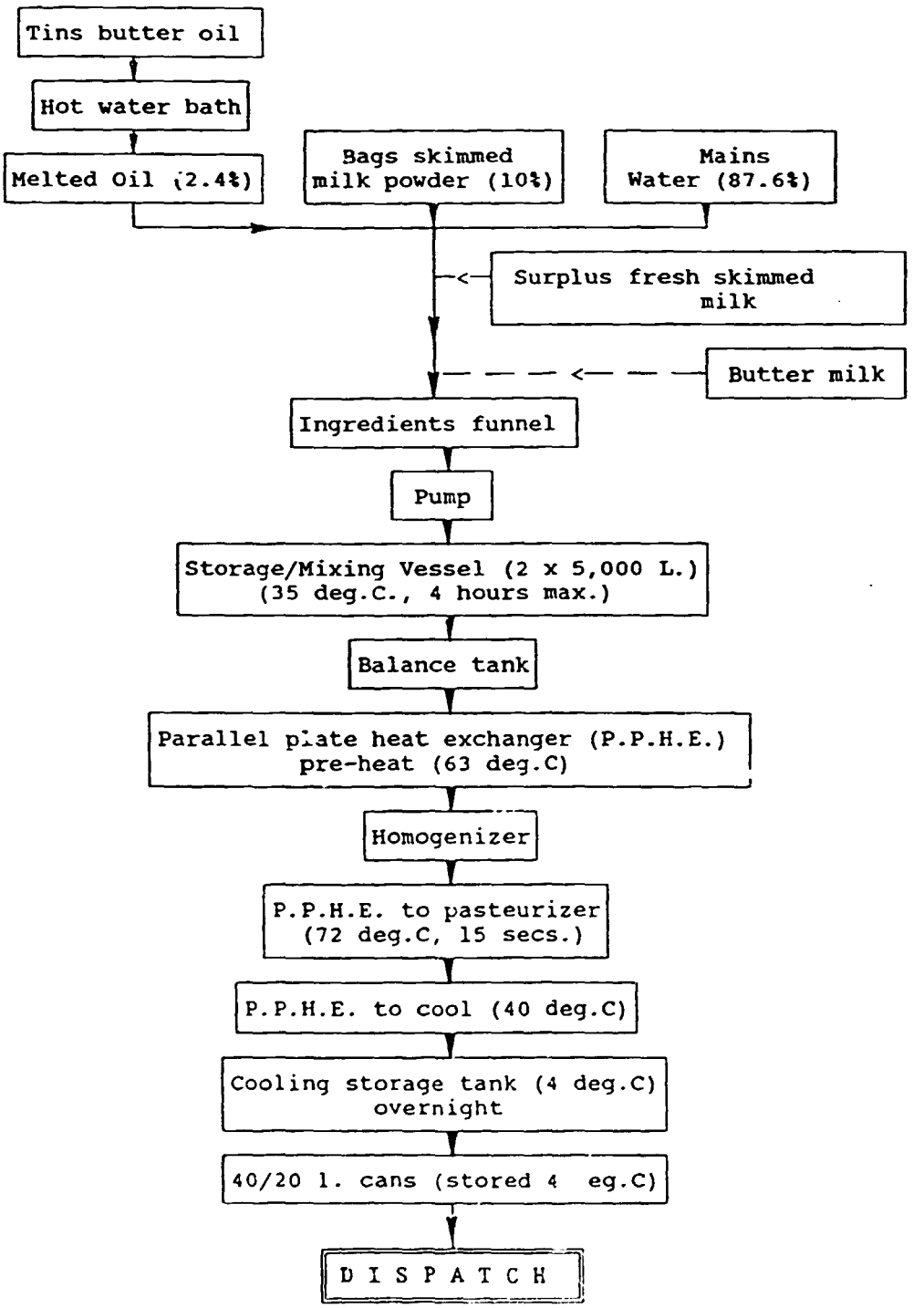
Figures 9.4.2 (a) and 9.4.2 (b) show the process flow diagrams for reconstituted milk processing and for raw milk processing to butter and yoghurt.

(iv) Laboratory room

The plant has a properly designed laboratory attached to the processing room. The laboratory measures 6m x 8 m, and holds a variety of laboratory equipment and tools. It has no air-conditioning facilities and no fans, and the inside is exposed through open windows. The furniture, including benches, cupboards, sinks, balance table, water-pipes and fittings, are in bad shape and require rehabilitation. Equipment such as a microscope, pressure-cooker, beam balance, centrifuge, ph-metre, water test kit, phosphate, sediment- and density-testing equipment are either absent or non-operational. Sterilizing incubators and cabinets and autoclaving equipment are old and spent.

Figure 9.4.2: ZADACO: process flow diagram

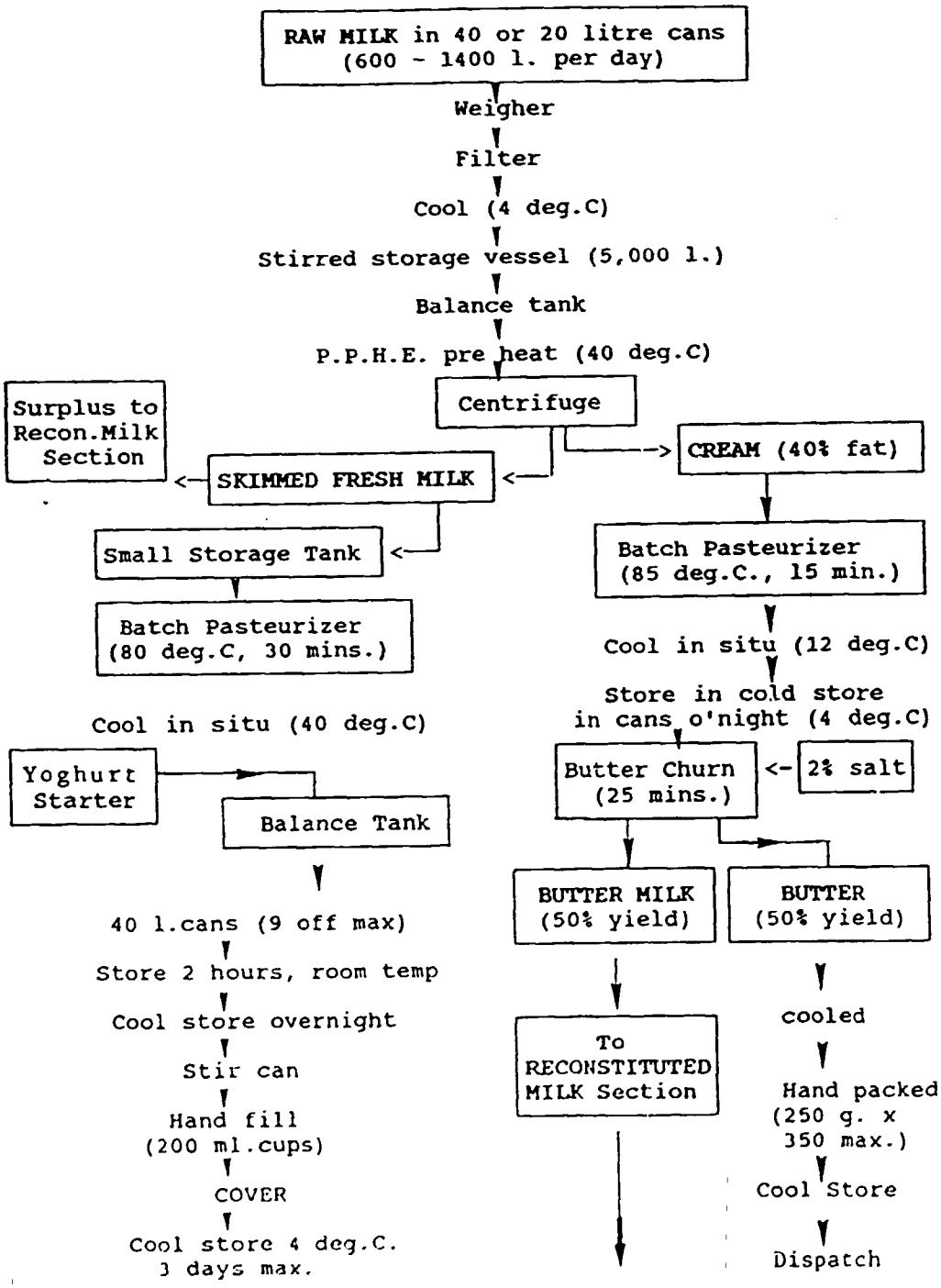
(a) Reconstituted milk processing



Source: Zanzibar Dairy Development Corporation.

Figure 9.4.3: ZADACO: process flow diagram

(b) Raw milk processing to butter and yoghurt



Source: Zanzibar Dairy Development Corporation.

(v) Compressor and boiler room

Compressors and boilers are housed in one room measuring 10m x 15 m. There are two compressors and two boilers.

The air compressors' specifications are as follows:

Machine No.	I	II
Type	KA IIA	W 855 1
Model	1975	Grasso
Manufacturer	Stenhoj	-
Capacity	490 l/m	-
Output	10 kg/cm^2	16 atmospheres
Oil tank capacity	300 litres	500 litres
Condition	Motor has been removed, and thus out of operation	Some air-leaks, but in operation

Additionally, there are two ammonia compressors, Type SMC 665, supplied by Sambroe-Denmark, which are in very poor condition.

The two steam boilers for the process plant have the following specifications:

	Boiler No.1	Boiler No.2
Machine No.	1001	1001A
Type	Toma x 50	Toma x 50
Model	1975	1983
Capacity	500 kg/h/12 m^3	500 kg/hr/12 m^3
Output	10 ato	10 ato
Manufacturer	Toma-Denmark	Toma-Denmark
Burner specifications	0.76 KW 400 Volts Weishaupt model L32/A (BC)	0.76 KW 400 Volts Weishaupt model L32/A (BC)
Condition	Operational, but on standby	Operational

The boilers utilize diesel oil as fuel, stored in two storage tanks with a total capacity of 10,500 litres. The boilers are well maintained and are in very good working condition.

Electric supply

Electricity supplied through the national grid comes from mainland Tanzania, some 600 km from the plant. The supply is relatively regular, but has occasional voltage fluctuations, which has caused a motor to burn out on two occasions.

The company has its own diesel electric generator with a rated output of 200 KVA/278 amps. It is a Stanford model, type C434C, manufactured in India in 1975 under British licence. It is run with a motor manufactured by Cummings-England, model NT855 PG 355. The generator's alternator burned out in 1984 and its switchboard was left to rust.

There is also a transformer, Vektor OY11 model, manufactured in India in compliance with BS 171.1970 which has been out of order also since 1984. Its distributor unit was burned out.

The electricity control system experiences regular short-circuiting due to old exposed wires. The wire insulation has been eaten by rats, forcing the plant engineer to pull out the cables from its sealed railings and has exposed the cables.

Water supply

The plant receives its water supply from the town main pipe. It is stored in a 400,000-litre concrete tank built underground and installed with pumping and pressurizing facilities. No serious water shortage has been experienced.

Condenser unit

The condenser unit was supplied without water-treatment facilities. Consequently, it has become badly clogged by scales and its efficiency has deteriorated greatly.

Workshop

A room measuring 6 m x 12 m is provided for workshop activities. However, lack of necessary tools and equipment has rendered it ineffective. Instead, it is utilized as a junk store.

Vehicles

The company has the following in its fleet of vehicles:

Vehicle type	No. of vehicles	Year of manufacture	General condition
Isuzu SBR (5-tonner)	1	1983	Operational, but in a poor state of maintenance for lack of spare parts.
Landmaster (12-ton lorry)	1	1983	Completely grounded, for lack of spares
Landrover	3	1983	Poor condition, for lack of maintenance
Volkswagen transporter (1 ton)	1	1980	Poor condition, for lack of maintenance
Peugeot	1	1976	Grounded and cannibalized

The poor condition of the vehicles is mainly due to lack of regular and timely maintenance and servicing. However, at times when spare parts are available in shops, the company has had no money to buy them.

General hygiene

The quality control laboratory has no qualified technicians or chemists, apart from the one food technologist and two laboratory assistants. The quality of fresh milk supply from the farmers is not controlled, although bacteriological tests are carried out on the end-product.

The existing wash-basins are aged and dirty due to the lack of a proper floor and sides and cleaning procedures. The shop floors and equipment are cleaned using detergents and sterilizing agents on a daily basis. The employees, apart from the laboratory assistants, are not provided with overcoats, caps, gloves or rubber boots. Many of the water taps are leaking and a medium degree of hygienic practice is maintained.

The plant's gutters are not regularly cleaned, although there have been no blockages. The surroundings of the plant are filled with waste materials, including loose paper, waste metal, dismantled equipment and grass bushes.

(e) Inputs

(i) Raw materials

The major raw materials for making reconstituted milk, skimmed milk powder and butteroil, are provided by the World Food Programme (WFP).

Fresh milk is supplied from five state farms and up to ten small private dairy farmers. The daily input, which amounts to 600 - 1,400 litres, is declining, reportedly due to poor farm management, and to competition from milk peddlers who offer the farmers more than the TSh 14.4/litre that is paid by the dairy.

Small amounts of sugar for yoghurt are purchased from SUDECO, and salt for butter manufacture is purchased locally.

The water for the reconstituted milk is taken directly from the mains.

(ii) Packaging materials

Reel-fed two-ply polyethylene film from France is used for the half-litre packs on a form/fill/seal machine.

Yoghurt is packed in 200-ml white plastic cups which are imported from Switzerland. When production increases, ZADACO will be able to bulk purchase plastic cups at lower unit costs. Packaging material, especially the two-ply film, has been in short supply due to lack of foreign exchange.

(f) Product range

The main product of the dairy plant is reconstituted milk, sold in plastic sachets. It is obtained by mixing dry skimmed milk powder and butteroil, both of which products must be imported. The World Food Programme has been supplying the plant with these goods, which are paid for in Tanzanian Shillings.

The dairy is also making butter from the fresh milk obtained from the state owned dairy farms and from the milk collection scheme of small farmers. This could become a very profitable product line if the butter price was decontrolled by the Government.

Because of increasing losses, explained by a low fixed price of reconstituted milk, and because of declining deliveries of fresh milk, the profitable production of butter has decreased, and the company has started to produce a new profitable line of yoghurt on an experimental basis since November 1988. The possibilities to expand this production line are constrained by the lack of proper packing of yoghurt.

The reported prices were as follows:

1 litre reconstituted milk (ex-factory)	TSh 14.50
1 litre reconstituted milk (retail price)	TSh 16.00
1 kg of butter	TSh 340.00
1 litre of yoghurt	TSh 75.00

(g) Plant performance

The dairy's main product is pasteurized milk made from reconstituting skimmed milk powder and butteroil supplied by the World Food Programme, in lieu of sufficient quantities of fresh milk for processing.

The small amounts of fresh milk amounting to 500 - 1,400 litres per day, and declining, is used to make butter and yoghurt. This small volume of milk yields about 60 litres of cream (40 per cent fat) per day, and limits the production of butter to two days per week, when up to 120 litres of cream are processed each day to yield approximately 240 kg butter. About 350 litres of yoghurt can be made from the skimmed fresh milk available from the separation of the incoming fresh milk. The installed capacity for pasteurized milk production is 2,000 litres/hour, or 10,000 litres/day, working a five-hour production shift. Currently only 3,500 litres of milk is being produced, representing a 35 per cent utilization rate. The reasons have been reported as being due to lack of sufficient cooling capacity from the badly scaled refrigerant of the condenser cooler (a problem which could be overcome by working a double shift), lack of packaging materials, breakdown of one of the machines to fill half-litre plastic pouches, lack of a market for milk in 20-litre cans (the alternative to pouches), and insufficient transport.

The decline in the availability of fresh milk, which is currently the limiting factor for the production of butter and, to a lesser extent, yoghurt, has been attributed to poor management of the dairy's own farms, and the reluctance of the local farmers to sell to the dairy at TSh 14.4 per litre, when milk peddlers can offer more.

The production of yoghurt, started recently on an experimental basis, has been limited by lack of plastic cups and the absence of lid-sealing equipment.

(h) Cost and price structure

The plant was originally designed to reconstitute milk by mixing dry skimmed milk powder with butteroil, pasteurizing the product and filling into plastic sachets. In recent years the production of reconstituted milk has been as follows: (Table 9.4.2).

Table 9.4.2: ZADACO: production of reconstituted milk, 1983-1988
(thousands of litres)

1983	2,265
1984	2,253
1985	2,255
1986	1,682
1987	1,850
1988	1,498

Source: Zanzibar Dairy Corporation.

The plant is also producing small quantities of butter, obtained from the fresh milk delivered from the five state farms and up to ten small-scale farmers. The production on the state farms has declined over the years; they formerly delivered about 2,000 litres per day, but this has dropped to about

500 litres per day. The smale-scale farmers, generally speaking, do not wish to deliver their fresh raw milk to the dairy plant, because the price they can obtain by selling the milk themselves in Zanzibar town or to milk peddlers is significantly higher than that offered by the dairy plant. Since November 1988, the dairy has started to produce yoghurt on an experimental basis.

As can be seen from the above table, output shows a declining trend. This can be explained by several factors, the main one being the continuing deterioration of the capital stock due to lack of investment. For example, one out of two packing machines is out of order and only one of two lorries is available even part of the time.

The retail sales price (i.e. price to the consumer) is fixed by the Government Price Commission. The Board of Directors of the dairy submits its cost estimates and proposes a retail sales price each year to the Commission. The Commission then decides on the price to be used by the dairy. The Commission's main policy seems to have been to keep consumer prices low, which has resulted in growing losses for the dairy.

The dairy is purchasing some quantities of fresh milk, mainly from five state dairy farms. The producer prices have been set at TSh 14.40. This price in turn is used by the World Food Programme to establish to prices for dry skimmed milk and butteroil. In February, the raw material cost to the dairy of producing one litre of reconstituted milk was as follows:

Dry skimmed milk powder	TSh 7.58
Butteroil	TSh 4.55
Total	TSh 12.13

As can be seen, the raw material cost for using reconstituted milk is slightly lower than that for using fresh cow milk. In this way the policy for livestock and dairy development will not be jeopardized. Assuming that the plastic sachet costs US$ 0.04 per half-litre bag, the cost would be about TSh 10 per litre. Adding these costs, (butteroil, dry SMP and packing material), the total cost would be in the order of TSh 22 per litre. In addition, the processing cost, marketing costs would have to be added. However, since the Government has set the final price for reconstituted milk at TSh 14.50 (ex-factory), the plant cannot but operate at a loss. This policy is possible in the short run, but eventually the factory will be run down, since there will be no new investment.

The price for yoghurt is decided by the Board of Directors of the dairy. This price is set at TSh 75 per litre and promises to be a profitable production line.

Given the present prices, the profit margin per litre of yoghurt is as follows:

Factory price	TSh 75.0
Raw material cost	TSh 14.1
Profit margin/litre	TSh 60.9

Source: Appendix to Chapter 9.

The price of butter is controlled by the Government, and is presently set at TSh 340/kg. The management hopes that in the future, the Board of Directors of the dairy will be delegated the power to set the price.

At the present prices, the profit margin per kg of butter is as follows:

Factory price	TSh 340
Raw material cost	TSh 126
Profit margin/kg	TSh 214

Source: Appendix to Chapter 9.

The production of both yoghurt and butter is profitable. The reconstituted milk line is operating at a loss. The production of yoghurt is limited by the availability of fresh raw milk but more importantly by the lack of packaging material and equipment to fill and seal yoghurt caps. The production of butter cannot be expanded due to the lack of fresh raw milk. The supply to the factory from the small farmers will remain insignificant, unless the price paid by the dairy plant is commensurate with that which they can obtain by selling to Zanzibar town. The price in Zanzibar town is presently about TSh 25 per litre, while the plant is paying TSh 14.40.

(i) Markets and competitors

There is no other dairy plant in Zanzibar. The main market is Zanzibar town, where the plant sells about two thirds of its production through twelve selling points (kiosks). With a yearly production of about 2 million litres, the company has no problems in selling 5,500 litres per day. Present output is only about 3,500 litres per day, of which one third is purchased by various institutions such as hospitals and the military.

In 1978, it was estimated that about 1,100 litres of non-pasteurized fresh cow milk was marketed in Zanzibar town. It can be estimated that the livestock development programme has added at least 1,200 litres of marketed milk as a result of its activities (2,000 inseminations per year). It is assumed that the incremental yield would be 2.5 litres per cow. Assuming that half of the cows calve each year and that the lactation period is 150 days, this would give an average net increase of 460 litres per day. Assuming that half of that amount is marketed, the net increase per year would be in the order of 230 litres per day. Assuming that the cumulative effects are for a period of five years, then the net increase of marketed milk would be about 1,100 litres per day.

Total consumption would then be in the order of 3,500 litres of reconstituted milk, plus 1,100 litres of the previously marketed raw fresh milk, and another 1,100 litres from the dairy farm development programme, or 5,700 litres per day. Fresh unpasteurized milk sells for about TSh 25 per litre which should be compared with TSh 16 for the reconstituted milk. At 16 TSh, demand seems to be significantly greater than supply.

Assuming a population of 110,000 in Zanzibar town, the daily per capita consumption would be in the order of half a decilitre per day. This is a low figure and there should be scope for production increases. However, the dairy plant management has noted that demand for reconstituted milk drops initially after price increases.

It should be noted that the plant was designed for a throughput of 2,000 litres per hour. On a yearly basis (operating 14 hours per day for 340 days per year means 4,760 hours per year) this means 9.5 million litres. It seems doubtful that this level of production can be marketed within the foreseeable future.

Market prospects for increasing sales of quality butter and yoghurt should be promising. Zanzibar has important prospects for increasing tourism. A growing number of tourists should provide an interesting market for high-quality dairy products.

The dairy plant is not making pasteurized milk from raw fresh milk. In most countries, the consumers would be willing to pay a significant premium to obtain guaranteed unadulterated pasteurized full cream milk. Present price policies do not permit the dairy to introduce this product line. It would also necessitate a more active sales promotion. At present no marketing activities are carried out.

The ex-factory price for reconstituted milk is TSh 14.50 and the retail price is TSh 16.00. This small difference makes it uneconomical for the dairy to market the produce. (The cost to the dairy of transporting the reconstituted milk to the kiosks and operating these kiosks is greater than the TSh 1.50 difference between the ex-factory and retail prices.) Because of this, the dairy wishes to close down the twelve kiosks. However, the margin is not sufficient to attract private sellers of milk. For this reason, if the kiosks are closed down as planned, the consumers will not have direct access to reconstituted milk. The profit margin for selling the reconstituted milk is clearly insufficient.

The dairy is at present relying on the five state farms to supply the fresh raw milk. In February 1989, the number of small farmers supplying milk decreased from eight to five. At present the livestock development programme includes 65 farmers and there are an additional 100 registered applicants. Apart from the need to provide an attractive price to these farmers, there will be a growing need to organize a well functioning milk collection system. Farmers should be paid according to quality of milk delivered. Very little has been done in this respect, mainly because of lack of transport. It should also be noted that unless designed carefully, a milk collection scheme could become very costly to the dairy.

(j) Constraints

The dairy plant is facing a series of constraints. Some of these affect the plant performance in the short run, while others will mainly come into effect in a longer-term perspective. If the short-run constraints are not addressed in a forceful way, the plant may have to cease operations within a relatively short time period. Among these short-term constraints are:

- Lack of management and business expertise (the present senior staff members are mainly dairy or livestock technologists);
- Poor financial management;
- Lack of a production section leader;
- A top-heavy board of directors;
- Lack of replacement investments;
- Lack of liquidity;
- Fluctuating power supply;
- Intermittent supply of packaging material for milk and yoghurt;
- Low price and inadequate market margins for reconstituted milk.

In addition to these short-term constraints, there are a number of other important constraints which must be tackled in order for the plant to become a viable enterprise in the long run. The major constraints are:

- Lack of supply of fresh raw milk;
- Absence of a consistent price policy to promote the long-run development of the dairy industry;
- Absence of an aggressive marketing and marketing policy of final products;
- Absence of a policy for future milk collections.

9.4.2 Rehabilitation requirements

(a) Management and organization

The financial management of the company needs to be significantly improved. The General Manager has taken steps to rectify deficiencies by appointing his own internal auditor and by recruiting a UK-qualified accountant on a part-time basis. He is in the process of revaluing the assets and establishing a commercial accounting system starting January 1989.

A new Section Leader for the Production Department needs to be found as soon as possible. The acting Section leader is too young and insufficiently qualified to be supervising five farms with over 200 staff.

The Personnel and Administration Department needs reinforcing, particularly with someone specialized in staff development and training. One of the first tasks to be undertaken would be to review manning levels, since there appears to be significant over-employment.

(b) Physical plant

Most of the equipment dates from 1975. Apart from the ammonia compressors and the condenser, all are in reasonably satisfactory working condition to meet the foreseeable local requirements. There seems to be a sufficient stock of spare parts. Despite this, the following recommendations can be made:

- Remove the defunct condenser unit and the ammonia compressors and replace the same with new units;
- Obtain spare parts for the electrical diesel generator which is grounded or replace with a new one if repair is not feasible;
- Remove the defunct transformer unit and replace with a new one;
- Obtain spare parts for the air compressors including the cannibalized motors;
- Remove and replace all electrical cables and rehabilitate the electricity control system;
- Revive the workshop activities by installing all required necessary tools and equipment;
- Rehabilitate the quality control laboratory to acceptable international standard;
- Obtain spare parts for functioning vehicles and replace those which cannot be reconditioned;
- Replace all broken tiles on the floor and walls in the process plant and laboratory rooms;
- Improve the standards of personal hygiene, particularly in the toilet areas, and provide protective clothing for use in the plant;
- Establish an adequate inventory of running and replacement spares, considering the long time lag of ordering and delivery of spare parts from abroad;
- Establish a preventive maintenance schedule for all machinery and equipment;
- Train relevant staff in proper practices and techniques in maintenance, plant operation, and quality control.

In the longer term, all aspects of quality control, including small farmers' milk deliveries, cattle rearing and retail kiosk sales, must be implemented.

Table 9.4.3 provides an indication of the equipment, machinery and buildings that require rehabilitation, together with the respective costs. On the basis of some ZADACO estimates, the total cost of rehabilitating the plant and equipment is TSh 25,000,000 as of 1 March 1989.

Mission estimates do not include either the development and installation of a scheduled plant maintenance programme or a detailed planning study of the proposed rehabilitation programme.

Table 9.4.3: ZADACO: capital requirements for rehabilitation

	Estimated Cost		
	Foreign (US$)	Local (TSh thousands)	
Production Machinery			
Recondition one and replace second milk form/fill/seal machine	30,000	3,900	
Replace refrigeration compressors and condenser	14,000	1,820	
New transformer	4,000	520	
Rehabilitate electrical system	60,00	7,800	
General spare parts	4,000	520	
Laboratory furniture/equipment	10,000	13,000	
Total	122,000	15,860	
Buildings			
Replace broken tiles, etc. in washing/toilet facilities		6,110	
Vehicles			
(1) 3-ton truck	-	3,000	
Total local cost (TSh)		24,970	
Local cost equivalent (US$)			314,075
Total foreign cost (US$)			122,000
Total local and foreign cost (US$)			436,075

Source: Zanzibar Dairy Development Corporation.

(c) Inputs

With the decline in the supply of fresh raw milk to the factory, WFP inputs of skimmed milk powder and butteroil will be required beyond the current agreement which is to run for another three years.

In order to enable more profitable butter and yoghurt to be made, it is essential that the decline in fresh milk supplies is reversed. The ultimate aim should be for the farmers to produce sufficient milk to enable the dairy to sell pasteurized fresh milk, and so end the dependence on aid supplies.

Other inputs required to enable the dairy to operate more effectively are foreign exchange to purchase the necessary packaging materials, spare parts, and vehicles for collecting fresh milk, and dispatching finished products to the market.

(d) Cost and price structure

It is necessary to give priority to developing profit and loss accounts as well as balance sheets. Cost estimates have to be made on the different product lines as well as their profitability. It will then be possible to estimate the real cost of producing and marketing reconstituted milk. There are basically three options to choose from. The first one would be to raise significantly the price the final consumer has to pay for the reconstituted milk. The second option is that the Government provides a subsidy on each litre of milk sold to the consumers. The third option would be to close down the reconstituted milk production line and to concentrate production in the profitable lines, yoghurt and butter. The latter option would also greatly reduce the need for distributing the final goods to the consumers, as only small quantities would be produced. In the opinion of the mission, the price of reconstituted milk should be raised to cover costs.

The Government of Zanzibar might have a vested interest in controlling the price of reconstituted milk, the reason being that it is assumed that the poorer strata are the main beneficiaries of a low price for reconstituted milk. If the dairy plant is to become a viable enterprise, the price of reconstituted milk (including any direct subsidy) must meet the costs of production. Since prices are never constant, there is a need to establish a mechanism to assure that prices are revised at regular intervals.

The most probable case is that input prices will continue to increase. This means that the price adjustments must be sufficiently high to cover costs until the next price revision. For the long-term development of the dairy industry, it would seem necessary to establish a formula by which prices are adjusted at regular intervals. The objective would be to assure that long-term growth, according to national development objectives, is accomplished. In this scenario, short-run objectives are not necessarily consistent with long-run objectives.

There would be few reasons for the Government to control the prices for other dairy products. Controlling the price of reconstituted milk would be sufficient for it to have a decisive influence on the markets for all dairy products.

(e) Marketing

For reconstituted milk the dairy plant has two options. The first one would be to market the milk by itself. This would require an important input of management and business skills, which are in critically short supply. For this reason, the dairy management might consider the possibility of establishing contacts with retail outlets owned by the private and public sectors. The responsibility of the plant would then be limited to distributing the reconstituted milk to these outlets. For this reason, the marketing margin has to be increased significantly, otherwise it would not be profitable to sell the reconstituted milk. The plant might study the need for retailers to acquire refrigeration units, and, if necessary, assist them in purchasing them.

The dairy plant might introduce on an experimental basis pasteurized full cream milk, charging a significantly higher price for this product. If feasible, the packaging could be made more attractive. An advertising campaign should accompany the introduction of this new product. The hotels and restaurants should have a strong interest in purchasing this high quality product, particularly if tourism increases. Given the poor quality of milk on the mainland, the possibilities of exporting high quality milk to restaurants and hotels there as well could be investigated.

In Africa as elsewhere, the yoghurt market has expanded rapidly. The yoghurt should be packed in an attractive form and should be launched with an advertising campaign. The distribution network could be similar to that of reconstituted milk. The market prospects on the mainland might be even more promising. Selection of a good trade name should be given some thought.

In the short run, the possibilities for expanding the production of butter will be very limited. In the future, an attractive price for fresh raw milk and an efficient milk collection system, should ensure increasing deliveries of milk to the dairy plant.

Since it has been suggested that the dairy plant should produce reconstituted milk at cost, it is also suggested that the yoghurt and milk products should be priced according to what the markets are willing to pay. The dairy plant should be aware of the fact that excessively high prices will invite competitors to enter the market, since both products are easy to make and the investment costs are minimal for small scale production of butter and yoghurt. For this reason it is important that the brand name is associated with quality and that quality standards are always met.

(f) Foreign exchange availability

At present, foreign exchange allocations are in the order of 30 per cent of what the management estimates to be needed. Foreign exchange is scarce and will remain scarce. The management's options depend on the amount of foreign exchange made available to the company. If the levels continue to be low, the management has to adjust its production and attempt to maximize profits, or minimize losses, for a given amount of foreign exchange made available to the company. Both the yoghurt and butter lines are probably profitable. By minimizing wear and tear of the machinery and equipment, the expected

lifetime of the machinery can be prolonged. This can be accomplished by significantly reducing the output of reconstituted milk.

Moreover, the company could stop delvering goods to selling points and only sell at the factory gate. It is probable that customers would collect both butter and yoghurt and the small quantities of reconstituted milk it would be profitable to sell (using the skimmed milk and buttermilk from the production of butter).

(g) Liquidity

There is a need for financial rehabilitation. This would among other things include adjusting dairy prices. In addition, the company would need a fresh inflow of capital to meet its operating needs. The company would also need to secure an overdraft facility with a bank. Unless the dairy is in a strong liquidity position, there remains always the possiblity of delaying payments for deliveries of fresh raw milk. If this occurs, the farmers will rapidly lose confidence in the dairy and will sell their milk through other channels.

APPENDIX TO CHAPTER 9

Assumptions used for the dairy plant - Zanzibar

Assume that 500 litres of raw fresh milk is purchased and used in the production of butter. The milk has a fat content of 4.5 per cent. The cream has 40 per cent fat and 60 per cent water. Then there would be 56 kg of cream. From these 56 kg of cream there will be about 28 kg of butter (80 per cent fat and 20 per cent water).

In addition this batch of 500 litres will yield 28 litres of butter milk which can be used to produce reconstituted milk. The skimmed milk amount to 444 litres. Of these, 350 litres will be used in the yoghurt line and 94 litres for the reconstituted milk.

The solids used in the yoghurt and reconstituted milk lines are as follows:

35.0 kg for yoghurt coming from skimmed milk powder

9.4 kg for reconstituted milk from skimmed milk powder

2.8 kg for reconstituted milk from butter production

47.2 kg of solids

The cost of per kg is TSh 77.79, or TSh 3,672 for the 47.2 kg.

The following table summarizes the profit margin for the butter line:

Revenues 28 kg of butter x TSh 340/kg	TSh 9,520
Raw material (500 litres x TSh 14.40/kg)	TSh 7,200
Solids for other uses	TSh 3,672
Net raw material costs	TSh 3,528

The profit margin per kg of butter would then be:

Factory price per kg of butter	TSh 340
Raw material costs	TSh 126
Profit margin	TSh 214

The profit margin for yoghurt can be estimated in a similar way. To produce one litre of yoghurt the following ingredients are needed:

Raw material	Input amount	Unit price	Value
DSMP equivalent	140g	0.08	11.1
Sugar	60g	0.05	3.0
Total			14.1
Factory price per kg of yoghurt			75.0
(minus) Raw material cost			14.1
Profit margin			60.9

CHAPTER 10

GENERAL OBSERVATIONS AND RECOMMENDATIONS

10.1 Policy observations

This chapter outlines the general observations and recommendations obtained from the approach which was followed by the UNIDO mission, as described briefly in Chapter 1.

(a) There is as yet no coherent strategy for industrial rehabilitation. Priorities therefore need to be established and translated into specific action programmes.

(b) There are many donors presently active in Tanzania, and the amount of aid provided in recent years has increased significantly. However, the lack of a coherent industrial rehabilitation strategy has led to unco-ordinated donor assistance activities.

(c) As the implementation of the Economic Recovery Programme proceeds, the main attention of Tanzanian authorities should be directed increasingly towards re-establishing macro-economic equilibria within a relatively short-term policy perspective. Since the existing distortions are still of considerable magnitude, the short-term adjustment processes could present serious problems for the authorities, and, if not carefully monitored, could interfere with long-run growth and development objectives. For example, a general liberalization and privatization may have certain negative effects on the distribution of income and wealth in Tanzania.

(d) It would not seem to be in Tanzania's long-term interest to retain public ownership of all parastatals. The underlying assumption is that scarce public resources should be channelled to public enterprises which offer potential for maximizing growth or for satisfying indispensable basic needs such as public health or water supplies. Parastatals should therefore be ranked according to their contribution towards overall development objectives, with resources channelled according to established priorities. Attempting to maintain all enterprises, and spreading scarce resources thinly among them, might result in the eventual closing down of viable enterprises.

(e) There is also the question of foreign versus domestic investment. The government is presently discussing the Investment Code, most likely with a view toward stimulating foreign investment. It can be foreseen that this will include different forms of foreign investment, such as joint ventures between parastatals and foreign companies and direct foreign investment. However, the role of Tanzanian investors in the country's development is an important issue, and there is a need to establish a policy in this respect. In general, it can be assumed that the Tanzanian investor will be in a weaker position than the foreign investor, mainly because of limited access to foreign credit and technology. Special measures are thus needed to encourage Tanzanian private capital to play a more significant role in the future development of the country.

(f) The lack of competitiveness in Tanzanian industry, and the continuation of various monopolistic situations, give cause for concern. Under these circumstances, production disturbances, where linkage effects are important, are rapidly translated to other enterprises. Moreover, the lack of competition also enables the monopolist to curtail output and in this way to raise the selling price above a normal market price. In view of the fact that there are prospects for increasing Tanzanian exports of manufactured goods, such opportunities will be severely curtailed if raw material and intermediary inputs have been inflated by monopolistic practices or non-competitive markets.

(g) The Government should continue to review its tax, import duties and tariff policies. Under present circumstances, if a potential exporter uses a significant input from other Tanzanian enterprises, the sales tax acts as a deterrent to increasing exports. Moreover, if the input used also contains an imported component, the input price then also increases. If the enterprise purchases an input that is imported by another enterprise, then this input is subject to the combined effects of import duties and sales taxes.

(h) The export retention scheme, while justified as a temporary measure, has produced some negative effects. The mission has noted that producers have a strong incentive to export goods to obtain needed foreign exchange. In some cases, these exported goods are also demanded by domestic producers who cannot obtain adequate supply to maintain production levels. As the retention scheme is a temporary measure, the negative side effects mentioned above will disappear with the liberalization of markets.

(i) Another area for concern, which the Government has attempted to address, is the issue of wage policy. The liberalization of producer prices has raised raw material input prices, which are ultimately being passed on to the consumer. Given fairly static real wages, there is a danger that the demand for consumer goods will be constrained by depressed purchasing power. In the current stringent economic climate, it would not be appropriate to recommend significant wage increases. However, it is to be hoped that some proportion of the anticipated productivity increases in the industrial sector will be passed on in the form of wage increases.

10.2 Prospects for international and regional co-operation

(a) At present a great number of donors co-operate with Tanzania. A substantial part of the aid flowing into the country is in the form of resources which Tanzania can dispose of with relatively few constraints. A significant part, however, is subject to various constraints imposed by donors. Behind these conditions are to be found various motives which may or may not be in the long-term interest of the development of Tanzania.

(b) As the precarious economic situation improves in the country, the bargaining situation of Tanzania vis-a-vis donors will also be strengthened. In these changing circumstances, it is recommended

that Tanzania clearly define its own development policies and successively reassert its role in development co-operation. Obtaining a larger share of aid in untied form would be but one part of this strategy.

10.2.1 Regional co-operation

(a) The guiding principle in designing project ideas in the regional and subregional context is better utilization of complementarity in the region, as well as sharing of facilities in the region, wherever this may be feasible.

(b) The region has several consulting and engineering design organizations (CEDO) which specialize in various fields and have gained different experiences in the area of rehabilitation. Projects could be designed with a view to making better use of their varied experiences, especially in the following areas:

- Information exchange as to the capabilities of each CEDO;

- Sharing of experiences which have been gained, as through workshops or seminars on specific problems related to rehabilitation;

- Identification of areas of possible joint ventures, or undertaking of joint development/consulting activities.

(c) There must be concerted efforts to encourage substitution of imported inputs by local inputs from the region. This may involve:

- Identification of possibilities for sourcing complementary inputs from within the region (e.g. whether textile chemicals from Zimbabwe could be used in Tanzanian textiles, or whether sisal from Tanzania could be used in bag manufacturing in Angola or Mozambique);

- Exchange of experiences on progress made by the more successful countries in making use of local inputs as substitutes for imported inputs.

(d) Marketing and trade contacts should be further developed, as through the following:

- Identification of joint activities in the field of marketing of products (e.g. canned fruit, packaging materials) within the region;

- Linking users and producers of various goods and services (e.g. simple machinery, spare parts, engineering and maintenance services), and identifying vertical linkages among them;

- Using the regional market as a way of making better use of existing production capacities (e.g. supplies of paper materials from SPM could be used in paper packaging activities in Zambia, Zimbabwe and Mozambique).

(e) Training facilities and opportunities should be given particular attention within the regional context. Specific suggestions:

- An inventory of training institutions in the SADCC region has been completed. What remains to be done now is to devise ways for utilization of common training facilities.

- One area which has received little attention is on-the-job training, for example, by way of deputation of technicians and technical experts between firms in the region.

- Special attention should be paid to acquisition of skills in various fields of rehabilitation in specific industries. Facilitation of exchanges through workshops or study tours would be useful.

(f) Supportive services, particularly in the area of standardization and quality control, would enhance regional trade and joint activities in the area of production, maintenance, engineering services and consultancy. In this area national standards bodies are being established in the SADCC countries where they did not exist and existing institutions are being strengthened, with resources being mobilized specifically for this purpose.

(g) The compilation of a list of goods and services currently being exchanged in the SADCC region and the relevant technical regulations governing them is being prepared. The results of the study should facilitate harmonization of standards and certification systems. A start could be made, soon after the results of the above study are out, by holding regional enterprise or product-oriented workshops on standards, quality control and packaging for export with special reference to rehabilitation requirements in selected branches.

10.3 Management, organization and marketing

General observations

(a) Many of the plants have a large number of vacancies both in key management positions and at the intermediate level. This is particularly so with respect to the production and accounting functions. If these plants are to cope effectively with the anticipated increase in production, these vacancies should be filled as soon as possible, so that staff can acquire the necessary experience and improve the overall efficiency of the industrial enterprises.

(b) While management appears to be technically qualified, there is an absence of real managerial skills. Since most companies are parastatals, they have been cushioned from the harsh realities of

commercial life by protectionism, subsidies and lack of competition. As a result, managers have lacked accountability and plant management has been extremely inefficient. No effective cost accounting is undertaken, and losses are automatically written off.

(c) At a more general level, the plants have little autonomy, as they are subsumed under large parastatals which have proven to be inefficient, cumbersome and a drain on resources. Individual plants, therefore, reflect the overall inertia in the system.

(d) There is a lack of basic planning skills. Plants are established without the benefit of full feasibility studies, leading to unforeseen consequences, such as severe raw material shortages.

(e) None of the companies visited had an effective sales organization, largely because they operate in a sellers' market. Furthermore, many companies do not undertake to distribute their finished products, because of the shortage of vehicles and the currently debilitated condition of the road network in Tanzania. Thus, products are generally sold "at the factory gate" and normally on a cash basis, to improve company liquidity.

(f) Due to the transportation problem, major markets for most companies remain in the town or city in which the plant operates. Few companies have intensive well-developed markets.

(g) In general, markets for finished products in Tanzania are extremely price-sensitive because of the predominantly low level of disposable income among the population. This has the effect of indirectly controlling product pricing and hence the profitability of many companies involved in the manufacturing sector.

(h) Tanzania has well-developed markets for many unmanufactured, packaged and processed agricultural products. Prominent examples of this are cotton, timber products, tea, coffee, seeds, animal skins, tobacco, cloves, cashewnuts, and sisal fibre. There are, however, other markets for processed fruit products and fresh produce that remain untried, due mainly to the inferior packaging facilities prevalent in Tanzania.

Recommendations

(a) Management and intermediate positions need to be filled as soon as possible, preferably with experienced staff.

(b) Management training should be provided at the senior level. This should involve short intensive courses, preferably with a practical orientation and a strong emphasis on financial management.

(c) Serious consideration should be given to the overall organization of the manufacturing sector. While the Economic Recovery Programme will create a more dynamic environment, many of the benefits could be wasted through continued support of largely inefficient parastatals.

(d) On the marketing side, improvements in the road network and the emergence of the private sector will generate greater competition. Companies will therefore need to adjust their product prices and quality and packaging to survive. Emphasis should also be given to developing an appropriate export market mix.

10.4 Physical plant

General observations

(a) Average capacity utilization was found to be below 40 per cent on installed capacity. Due to the poor state of maintenance of the machinery and equipment, even the achievable capacity was not reached. This occurred in spite of the widespread practice of cannibalizing some pieces of equipment in order to keep others in operation. This was particularly significant in the case of Tangold Products Company and Tanzania Animal Feed Company.

(b) Most of the equipment and machinery was either too old and obsolete, or out of use due to lack of proper maintenance. In several cases, the design capacities stipulated by the equipment suppliers have not been achieved since the date of commissioning. Common observations include reduced capacity of particular equipment or of an entire production line, as well as technical and operational problems. There has been no case of deliberate exclusion of any equipment essential for more efficient operation. The limited supply and poor quality of inputs resulted in the plants operating well below full capacity. Except for Twiga Paper Products, which is a special case, there is a sellers' market. The problem is largely due to supply constraints, rather than to a lack of market for the final product.

(c) There is a general absence of in-house laboratory facilities, and also a lack of equipment and qualified quality-control personnel. This has resulted in poor quality-control procedures.

(d) Plant hygiene is poor, and insufficient attention is given to industrial health and safety and to waste treatment and disposal. Even where some safety equipment is available, no safety regulations are in force. There is a low standard of building maintenance practice; walls, floors and roofs were often very dirty and dusty.

(e) Preventive maintenance is neglected, due to the shortage of spare parts. However, even where spare parts are not required, scheduled maintenance is still lacking.

(f) Plant performance could not be assessed accurately due to poor record-keeping. The necessary information on purchases and sales and production was not available.

Recommendations

(a) Constraints on the production process should be removed by the replacement of obsolete parts or units.

(b) Quality-control programmes should be adhered to through the routine monitoring and controlling of raw materials, intermediate products and final products. The use of specialist laboratories should be encouraged, since a number of them offer pertinent and useful analytical services.

(c) Safety and health regulations for workers should be adhered to. The management should ensure that safety equipment is provided to all workers and that the workers use the equipment as required. The grass bushes surrounding the plants should be cleared in order to eliminate breeding places for mosquitoes and snakes, etc. Toilets and showers should be made clean and usable. General cleanliness would be enhanced by regular cleaning of buildings walls, windows and doors, floors and roofs. All parts of the buildings should be painted on a regular basis.

(d) Foreign exchange should be made available to enable a stock of essential spare parts to be built up and to purchase other emergency spares. All plants suffered greatly from the lack of spares and associated maintenance.

10.5 Inputs

General observations

(a) All of the plants visited suffered from the shortage of locally produced or imported inputs because of severe transport difficulties, limited local production, seasonal considerations and lack of foreign exchange.

(b) Every plant required at least one, and in one instance five, extra new vehicles for ferrying raw materials and finished goods. The supply of new vehicles, however, is only a short-term solution, because of the very poor condition and lack of maintenance of stretches of many of the major roads and all of the feeder roads.

(c) There are input supply problems in each of the enterprises studied:

- Tangold: The problem of the shortage and poor quality of the locally produced cans will be overcome when the planned rehabilitation of the can-making plant has been achieved. The availability and quality of sugar will improve when the processing plants are overhauled.

- ZADACO: The shortage of raw milk supplies to the dairies will not be resolved quickly, but, with appropriate incentives, there is scope for a significant increase in the supply of raw milk to the ZADACO dairy plant.

- TAFCO: The supply of animal proteins for animal feeds will continue to be critically short, especially until the meat processing plant in Dar es Salaam and the fishmeal factory in Mwanza are fully operational. Alternative soybean protein is desirable.

- Twiga: The high cost of locally produced paper could be offset by allowing cheaper imported paper to be used, especially for cardboard cartons made for exported commodities such as fresh fruits and canned goods. Label quality would be improved if machine-glazed paper could be manufactured, and if four-colour separation facilities could be made available in Tanzania.

(d) There are no cool storage facilities at any of the fruit processing plants, or any suitable alternative facilities in other locations.

Recommendations

(a) In order to reduce vehicle maintenance and depreciation costs, and to improve delivery times and charges, a major road rehabilitation and maintenance programme is needed. This must be accompanied by an overhaul of the rail network, including communications, so as to enable it to play a larger role in transporting heavy or bulky goods.

(b) The cultivation and processing of soybeans to produce protein and oil supplements for the animal feeds should be implemented. This will also relieve future pressure on fish stocks in the lakes.

(c) Cool storage facilities should be planned for the food processing plants and other suitable locations, such as the major fruit producing and collecting points.

(d) There should also be a liberalization of foreign exchange availability and distribution.

10.6 Cost and pricing system

General observations

(a) Prices for products on the Tanzanian markets are either directly controlled under Government policy or are indirectly controlled by extremely price-sensitive markets. Parastatal organizations are subject to output price control by the Government, with irregular price reviews. This often causes a lag between increasing input prices and output price adjustments, which affects the profitability of the parastatals. Private companies not under price control also suffer high input prices and have to control output prices in a price-sensitive market, because of the general low level of disposable income of the Tanzanian consumer.

(b) High input prices and controlled output prices have affected the financial structure and liquidity of many companies in the manufacturing sector. This is further aggravated by the large amounts of raw material input stocks generally held by these companies. Bulk purchase of scarce and ever more highly priced goods makes economic sense even though access to short-term overdraft facilities may have to be mobilized because of the liquidity problems such companies encounter.

(c) Many companies in the manufacturing sector are dependent on imported raw materials, spare parts and machinery. Preference in foreign exchange allocation has been given to raw material imports so as to keep the flow of products from stagnating. Raw materials, spare parts and machinery imports bear variable tariff rates and only add to the production costs of companies concerned. However, these short-term costs will be offset in the longer term by increased production and profitability.

(d) Sales tax is considered by many companies, especially in the private sector, as a constraint on sales and company profitability. It canbe as high as 50 per cent of product revenue, a cost which is subsequently passed on to the consumer. In companies providing essential inputs or food items, and normally operating under Government-controlled prices, sales tax is very low or non-existent to keep output prices down and not squeeze company profitability.

(e) The devaluation of the Tanzanian shilling, from TSh 16 : US$ 1 at the beginning of 1986 to TSh 130 : US$ 1 in March 1989, has meant that those companies which had weak financial structures find it difficult to meet cash cover requirements for purchasing imported inputs. Credit allocation has not been able to remedy this problem so far, partly because of the credit ceilings under the IMF agreement and the relatively large share of credit allocated to co-operatives and marketing boards.

(f) The overriding constraint faced by most companies, especially those not involved in the export retention scheme, is the shortage of foreign exchange. This has been most acute with respect to the importation of spare parts and machinery and has affected capacity utilization. Furthermore, the present system of foreign exchange allocation is extremely inefficient and slow. The OGL system introduced in 1988 was designed as a non-administrative and quick system for foreign exchange allocation. Even under this system, however, the period from application to the issue of the import licence can be two to three months.

Recommendations

(a) The prevailing price control system should be reviewed, and greater flexibility introduced. Some synchronization between price output determination and changes in the prices of related inputs is needed.

(b) Some attention should be paid to the effects that high input prices have on many companies in the manufacturing sector. Some measure of input price control for specific industries could act to enhance company profitability and maintain the prices of products.

(c) Raw material input shortages, while causing high prices, also limit the level of capacity utilization in manufacturing industries. Policies geared towards increasing domestic production of important raw materials (e.g. soybeans for animal feed) should be vigorously pursued.

(d) The effects of exchange rate adjustments on local price levels should be carefully monitored. Not only are the present liquidity problems of companies likely to increase, but also the increasing cost of foreign exchange may be passed on to the consumer through product price increases.

(e) The system for foreign exchange allocation even under the "automatic" OGL scheme is still too slow. Attempts should be made to speed up procedures.

(f) Wherever necessary, the local production of spare parts should be encouraged. In this context, a selective tariff rate should be formulated, with high rates levied on competing imports and low to zero rates established for non-competing imports.

CHAPTER 11
SUMMARY OF PLANT LEVEL FINDINGS AND RECOMMENDATIONS

11.1 Tangold Products Company Ltd.

11.1.1 Management and organization

(a) Findings

While senior managers have experience in the running of the plant, the existing structure is relatively new and in a state of flux due to enforced positional changes. Furthermore, there is an acute shortage of intermediate staff.

TAFCO's financial management is generally poor.

(b) Recommendations for the short term

1. Confirm the acting managers in their positions and recruit intermediate staff to support them. These should include an individual responsible for sales.

2. A paramount recommendation would be the rapid improvement of the financial management of the company by upgrading the accounting staff and installing a microcomputer linked by a terminal to the Korogwe factory.

11.1.2 Marketing

(a) Findings

Little marketing has been done until now, since Tangold and its competitors could not supply enough products to satisfy the local markets. This situation, however, has changed, and concerted marketing efforts will be needed in the future.

Tangold sells its products at the "factory gate" and offers no credit sales, dealing in cash only.

The company has only one lorry operational for both factories and uses it for collecting raw material inputs and therefore does not distribute any of its finished products.

No substantial sales promotion is carried out by the company and none is planned for the future. Since the market for Tangold's products is very price-sensitive, with a wide range of substitute goods available, sales promotion activities are needed.

(b) Recommendations for the short term

1. Identify ways and means to sell the existing product line in an increasingly competitive market, such as through wholesalers, hotels, restaurants and retail sales chains.

2. Rather than produce a wide variety of fruit products, some of which are uneconomical to produce for various reasons, Tangold should endeavour to carry out market/product research so as to streamline its product output mix and make it competitive in less products rather than having too many inferior products.

3. The organization of a small sales/marketing department would be advisable with the advent of increased production output and greater competitiveness in the marketplace.

(c) Recommendations for the medium and long term

1. Rehabilitation of the transport system in Tanzania (under operation) will open distant markets to manufacturing industries in Dar es Salaam and solve some raw material supply problems. Tangold should in this case establish a network of external agents to sell finished products and to purchase raw material inputs.

2. The quality of products from Tangold has raised some export interest. Detailed export studies of the targeted export markets should be carried out to coincide with the improvements in the Tanzanian packaging industry.

(d) Medium- and long-term recommendations in terms of project concepts

1. Execute a local product/market survey.

2. Carry out a detailed export market survey.

3. Establish a small sales department and a network of external agents.

11.1.3 Inputs

(a) Findings

The lack of a regular scheduled supply of raw materials is one of the major problems faced by Tangold.

Another constraint is the shortage of a regular supply of cans and lids of reliable quality.

The unreliable quality and irregular supply of sugar is also a cause for concern.

(b) Recommendations for the short term

1. Extra vehicles should be purchased or transport lease arrangements made so as to overcome the problem of irregular fruit supplies. An investigation should be carried out to establish the most economic way of overcoming the problem.

2. The processing of single-refined sugar syrup by passing it through a bed of activated charcoal should be investigated.

3. There should be an assessment as to which products can be produced economically. For example, it is unlikely that bringing tomatoes 500 kilometres from Iringa is economical, especially since one of the main competitors has a factory on the outskirts of Iringa itself.

(c) Recommendations for the medium and long term

1. Establish nucleus estates or make contract farmer arrangements within a reasonable radius of the plant to produce up to 50 per cent of the required inputs, especially those which are difficult or expensive to obtain on the open market. An evaluation of these options should be made so as to determine the most economic way of improving the supply of inputs.

2. Carry out a detailed feasibility study to establish which technologies, processes and products are most suitable for the production of export commodities to Europe and the Middle East.

11.1.4 Cost and price structure

(a) Findings

Tangold suffers from continuously increasing costs of inputs in a very price-sensitive market. Furthermore, there is a wide array of substitute goods that affect the pricing policy.

There is a high import dependence for spare parts and chemicals used in processing techniques.

Tangold has a very large sales tax rate (currently 50 per cent) placed on its finished products.

(b) Recommendations for the short and medium term

1. The possible reduction of the Government sales tax, allowing greater retention of profits to stimulate further growth.

2. The tariff structure on imports of spare parts in particular could be revised, decreasing the tariff rate on imports that cannot be produced locally and reducing the cost to the consumer.

3. Review whether the price of essential inputs such as cans could be brought under some measure of control.

11.1.5 Physical plants

(a) Findings

The hygienic condition of the main building, laboratory, offices, toilets and surroundings is very poor.

The national quality control code is not implemented.

Some of the process equipment is either not available or operates below specifications due to lack of spare parts. There are no cool storage facilities for incoming fruits. There is a future need for more appropriate technologies to be introduced to meet the requirements of an international factory audit.

(b) Recommendations for the short term

1. Develop and implement a hygiene programme to include both hardware (e.g. toilets, wash-basins, showers, protective equipment) and software (e.g. training of laboratory operators and maintenance personnel). Furthermore, walls should be repainted, terrazzo floors maintained and wall tiles repaired.

2. Obtain financial resources for the immediate procurement of spares and replacement machinery and equipment, including transport facilities.

3. Obtain the necessary laboratory equipment and facilities for routine quality analysis of raw materials and finished products.

(c) Recommendations for the medium and long term

1. Develop and implement a preventive maintenance programme to include both the establishment of a well-equipped workshop and the development of a practical maintenance schedule.

2. Build a double-chamber cool store, with a minimum capacity of five tons for fresh fruit storage.

3. Bring the plant up to international standards, in order to enable Tangold to penetrate the export market. This will require the introduction of modern technologies and the improvement of the quality of products.

(d) Project concepts

1. Financing and procurement of spare parts and equipment for rehabilitating all plant machinery and equipment.

2. Procuring equipment and supplies for an appropriate quality control laboratory.

3. Procuring equipment and supplies for an appropriate maintenance workshop.

4. Training of laboratory and workshop technicians.

5 Carrying t a hygiene and sanitation survey and implementing a satisfac y code of practice.

11.2 Twiga Paper Products Ltd.

11.2.1 Management and organization

(a) Findings

The present management of the company is sound, and is characterized by an appropriate blend of youth and and experience.

The company is well-run financially and has good management-staff relations.

(b) Recommendations for the short term

1. A new General Manager should be appointed in the near future, preferably from within the existing organixational structure.

11.2.2 Marketing

(a) Findings

Little marketing is done at present, with the exception of some local advertising. however, the sales promotion budget for 1989 has been increased.

The market for cardboard boxes is dominated by Kibo Paper, which sets price levels. The market for paper bags is less competitive, with Twiga being influential in price setting.

There is room for significant expansion in output, as demand for paper bag products far exceeds supply.

(b) Recommendations for the short term

1. Management of the company needs to formulate a sales-promotion programme.

(c) Recommendations for the medium and long term

1. Rehabilitation should make Twiga increasingly competitive, especially in the market for cardboard boxes. Ideally some sales/marketing expertise should be employed by the company even if only on a part-time basis. The company should concentrate on the Dar es Salaam market.

2. External agents should be appointed to promote sales of Twiga outside the Dar es Salaam region. Success of this would depend on the rehabilitation of the transport sector of Tanzania.

(d) Short- and medium-term recommendations in terms of project concepts

1. Employ some sales/marketing expertise upon rehabilitation of the plant.

2. Appoint external agents.

11.2.3 Inputs

(a) Findings

The major input for Twiga is paper for conversion to bags and corrugated cartons. Most of this is purchased from SPM at prices which are 60 per cent above those for imported paper, and 25-30 per cent above produce from Kibo Paper Ltd., to which Twiga does not have access.

Local inks are of variable quality, and the lack of any foreign exchange for the last five years has prevented the importation of these and other essential items such as rubbers for flexographic printing. As a result, printing on cartons and paper bags is very poor.

The yellow paper from Southern Paper Mills is of poor quality and unglazed, making the tea-bags produced by Twiga unsuitable for export.

(b) Recommendations

1. Twiga should be allowed to purchase kraft liner and test liner from Kibo paper to enable them to manufacture corrugated board for local use.

2. As a general principle, some consideration needs to be given to the realignment of the domestic prices charged to Southern Paper Mills.

3. Foreign exchange should be made available for essential spares and printing materials. Greater efforts should be made to use alternative facilities for foreign exchange, such as the OGL facility.

11.2.4. Cost and price structure

(a) Findings

The paper inputs to Twiga are extremely costly. Price-sensitive markets exist, with no fixed price policy for Twiga cardboard products.

There is also a 25 per cent sales tax on products sold to consumers.

Some credit sales are given to selected customers (depending on size of order for goods).

There is a high dependency on the import of spare parts and some raw materials such as chemical adhesives and printing inks with no allocation of foreign exchange.

(b) Recommendations for the short and medium term

1. Some control of input prices is needed, especially on paper.

2. The recycling mill owned by the parastatal organization Kibo Paper Industries should be made a source of input supply to all companies in the paper product market. This would allow price competitiveness and stimulate competition in the market for cardboard boxes.

3. The tariff structure on imports of spare parts in particular could be revised. Tariffs on imports that cannot be produced locally should be decreased, thereby reducing the cost to the consumer. Locally manufactured spares could be protected by higher tariff rates on competing imports.

(c) Short- and medium-term recommendations in terms of project concepts

1. Control input prices.

2. Open Kibo paper mill as a source of raw material for all companies.

3. Modify the existing tariff structure for imports of spare parts.

11.2.5 Physical plant

(a) Findings

The corrugater does not have the capacity to make a double layer fluted board and is limited to B flute size, as there are no change fluting rollers for A, C, D or E sizes.

The company does not have a die-cutting machine. This aspect prevents the company from meeting the demand for specially shaped boxes required for exports.

Some inputs such as the paper from SPM have imperfections, weak points and paper particles which block the bag-forming compressor for the finished yellow tea paper. This reduces the plant's output, due to continous stoppages in making machinery adjustments.

There are no quality control facilities.

The company does not have a workshop, and parts (i.e. belts repair, knives sharpening gears) are made or modified by outside workshops.

Some machines (i.e. the old paper bag making machines, the staple machines, and the boiler) are up to 20 years old . The performance of these machines has deteriorated to very low levels of efficiency.

Even the relatively new machinery and equipment are in great need of spare parts.

General cleanliness does not seem to be a concern of management. Walls need repainting, roofs need dusting off, and floors and surroundings need general cleaning.

(b) Recommendations for the short term

1. Twiga should ensure good housekeeping, including repainting of the entire plant and routine general cleanliness.

2. Twiga should negotiate with the Central Bank for the timely and adequate allocation of foreign exchange neededfor the procurement of spares and of a die-cutting machine, and the replacement of machinery and equipment. It should also make greater use of alternative facilities for foreign exchange, such as the OGL facility.

3. A quality-control laboratory with the necessary equipment and facilities for routine quality analysis of in-process materials and finished products, should be established.

(c) Recommendations for the medium and long term

1. The bag-making equipment, which is 20 years old, has exceeded its technically optimal life and should be replaced.

2. The Tanzanian Bureau of Standards should be approached and made to enforce the specification requirements for paper supplied by Southern Paper Mills.

3. A preventive maintenance programme should be developed and implemented, with a properly equipped workshop and maintenance personnel.

4. In view of the fact that the factory premises are already congested, the company should plan to expand its activities in the already secured plot 30 kilometres from the city centre.

(d) Project concepts

1. Obtain foreign exchange for procurement of the necessary spare parts for rehabilitating all plant machinery and equipment, including the procurement of the die-cutting machine.

2. Procure equipment and supplies for the establishment of an appropriate quality control laboratory and a maintenance workshop.

11.3 Tanzania Animal Feeds Company Ltd.

11.3.1 Management and organization

(a) Findings

While the senior management is well qualified and experienced, poor plant performance has prevented them from realizing their potential.

Managerial vacancies have placed unnecessary strain on the present General Manager.

(b) Recommendations for the short term

1. Recruit a new Production and Operations Manager as soon as possible, together with the necessary support staff, particularly in the purchasing and supply department.

2. Cancel the advertisements to recruit an internal auditor and senior planning officer.

3. Improve the communications with the Moshi and Mbeya plants, and give the Finance and Administration Manager in Dar es Salaam greater control over their accounting.

11.3.2 Marketing

(a) Findings

TAFCO has a Sales Section within the Production and Operations Department, but the Senior Sales Officer's position is currently vacant.

The demand for TAFCO's products far exceeds the output from Tanzania's feedmills, which has resulted in a sellers' market.

The real competition between animal feed companies is for scarce raw material inputs, which is exacerbated by the poor transport network.

There are 26 registered mills in Tanzania, many of which are unproductive.

TAFCO prices are Government-controlled and the company only sells on a cash basis at the "factory gate".

TAFCO does not distribute finished products.

(b) Recommendations for the short term

None.

(c) Recommendations for the medium and long term.

Given the rehabilitation of TAFCO, and assuming that input supply problems improve, the following recommendations are made:

1. Greater concentration in expanding to more widespread rural markets using existing operating mills as points of sale. Probably allocate specific areas to the separate mills.

2. Establishment of a sales/marketing department at the TAFCO Head Office at the Pugu Road feed mill in Dar es Salaam. Each of the other operating mills should have a company agent (salesman) responsible for area sales in his/her allotted territory.

3. In the face of increasing competition, TAFCO should have a budget allocation for sales promotion.

11.3.3 Inputs

(a) Findings

The supply of grains, brans and wheat meal is generally not a problem, since it comes primarily from the National Milling Corporation, with additional supplies coming from co-operative unions, large farmers and middlemen.

There are occasional transport shortages at peak times.

Oilseed cake is now in short supply, resulting from low oil mill throughputs, and some exports of cake for foreign retention.

Animal protein supplements in the form of fishmeal and meat and bone-meal are in very short supply, and prevent best quality feeds from being produced.

There is an adequate supply of local limestone and salt, and the essential amino acids, vitamins and trace minerals are now supplied under an aid programme from Canada.

(b) Recommendations for the short and medium term

1. Until such time as alternative sources are developed for improved protein supplements, a soybean processing facility, with associated roasting, should be developed to supplement the protein requirements.

2. Other means to improve the availability of protein supplements are to rehabilitate the fishmeal plant in Mwanza, and to encourage the meat canners to resume operations.

(c) Recommendations for the long term

1. Measures should be taken to limit the overfishing of small fish from the lakes, and to provide extra soybean oil to supplement the oilseed cake.

11.3.4 Cost and price structure

(a) Findings

TAFCO has to cope with increasingly high input prices. Only maize product prices are controlled by the government.

The government controls TAFCO's finished products prices, regarded as essential inputs into the Tanzanian livestock sector.

There is a high dependency on foreign exchange to import spare parts and minerals and vitamins.

TAFCO uses a cost-plus approach to setting the recommended price increase to the government when prices are reviewed. It also bears other sundry costs such as staff transport and medical aid.

(b) Recommendations in the short and medium term

1. Further relaxation of government control on price fixing and more regular review of prices.

2. ZADACO needs to continuously estimate costs of production of different products and to adjust prices regularly.

3. Modify tariffs on imported industrial spare parts that cannot be manufactured in Tanzania, and gradually reduce the rate to zero. Competing spare parts could have higher tariffs placed on them to encourage local fabrication.

(c) Short- and medium-term recommendations in terms of project concepts.

1. Review of the government price control regime.

2. Some measure of control over input prices.

3. Review of tariffs on imported spare parts.

4. Closure of uneconomic plants and upgrade those most efficient.

Note: Recommendations 1. and 2. assume that the present performance of TAFCO continues to show profit and capital reserve reimbursements. Should this not occur, stronger measures should be taken. One solution may be to privatize TAFCO and develop a more competitive market for animal feeds.

11.3.5 Physical plant

(a) Findings

The level of plant utilization is less than 50 per cent, as much of the production equipment is inoperable due to lack of maintenance. This resulted from a protracted period of scarcity of spare parts.

Bottlenecks exist in the grain cleaning and sorting section, the drag chain conveyor for the meals and oilseeds, the pre-mixing units, the pelletizing section, all air blowers and pneumatic pipelines, the air-jet filters, the rotary distributors and in the fumigation plant. The bottlenecks are technically rectifiable through the selective replacement of worn-out equipment and the repair of defunct parts or sections.

The major constraint is the lack of sufficient raw materials (i.e. animal protein, vitamins and mineral supplements). The fishmeal, bone-meal and oilseed cake are obtained locally but are in very limited supply. The vitamins and mineral supplements are imported from abroad.

There are no adequate quality control facilities or practice.

The company has no maintenance workshop and personnel.

(b) Recommendations for the short term

1. Mobilize financial resources for the procurement of spare parts and replacement machinery, including immediate installation of the drag chain conveyor which has already been purchased.

2. Establish an appropriately equipped plant laboratory and workshop to cater for routine raw materials and finished product analysis and for the fabrication of simple spare parts.

3. Provide training programmes for laboratory and maintenance workshop staff.

(c) Recommendations for the medium and long term

1. Some consideration should be given to undertaking a feasibility study to examine the viability of developing soybean farms to provide a continuous supply of protein supplements.

11.4 Zanzibar Dairy Development Corporation (ZADACO)

11.4.1 Management and organization

(a) Findings

While the manager and most section leaders are well qualified, the Accountancy Department and the Personnel and Administration Departments need to be reinforced.

A more experienced section leader for the production department needs to be appointed.

Financial management is poor.

(b) Recommendations

1. Introduce much stricter financial regime by strengthening the accounts department.

2. A new section head should be recruited for the production department.

11.4.2 Marketing

(a) Findings

ZADACO is considering stopping its marketing of reconstituted milk because of a lack of transport facilities.

The marketing margin is very small (TSh 1.50 per litre of milk) and is not sufficient to cover costs.

Practically no pasteurized raw milk is marketed by the dairy.

The company is selling the reconstituted milk through its twelve kiosks at a loss. Butter and, more recently, yoghurt on an experimental basis are sold at the factory gate.

The enterprise is not actively engaged in a milk collection scheme, as farmers have little incentives to sell their milk to the dairy as prices are much higher in Zanzibar town.

(b) Recommendations for the short term

Note: these recommendations are based on the assumptions that the price policy will be substantially modified. (See under 11.4.4.)

1. The company should actively promote the sales of products which have a high profit margin. (e.g. yoghurt)

2. The company should study the possiblity of delivering reconstituted milk and other dairy products on a wholesale basis, rather than operating retail outlets by itself.

(c) Recommendations for the medium and long term

1. A market survey for pasteurized raw milk is needed to assess the market potential for this product line.

2. Other product lines, such as ice-cream production, could be investigated.

3. A milk collection scheme has to be established. Farmers should be promptly paid according to the quality of milk delivered.

(d) Recommendations in terms of projects

1. The company would need a substantial upgrading in its performance as a business enterprise. A joint venture or other form of co-operation with established successful dairy enterprises could be of great use to ZADACO.

11.4.3 Inputs

(a) Findings

Currently the dairy is supplied with all the inputs of skim milk powder and butteroil it requires from the World Food Programme, through an agreement which has another three years to run.

The supply of fresh raw milk has declined in recent years from over 2,000 to around 600 litres per day.

The input from the World Food Programme will therefore be required beyond the present three-year agreement.

The shortage of foreign exchange has limited the purchase of necessary inputs for yoghurt and reconstituted milk.

(b) Recommendations for the short term

1. Foreign exchange should be made available to enable the dairy to purchase its yoghurt cups and film for the milk. If this is done, a complete container load of cheaper 125-ml cups could be purchased to replace the more expensive, smaller delivery of 200-ml cups which had to be purchased for urgent use.

2. Purchase of the polyethylene laminate material would enable the dairy to resume the production of half-litre packs, which ceased almost a year ago, when stocks of packaging material ran out.

(c) Recommendations for the medium and long term

1. The decline in the output of fresh whole milk must be reversed, both by improving the management of the dairy's own five farms, and improving the price paid to the small farmers for their produce.

11.4.4 Cost and price structure

(a) Findings

The enterprise is operating at a loss. The main reason for this is that the Government-controlled price for reconstituted milk is too low to ensure the long-run survival of the enterprise. The difference between the ex-factory gate and the retail sales price is not sufficient to cover marketing costs.

The Government has a legitimate interest in not inflating consumer prices of reconstituted milk. Moreover, the dairy has a monopoly position in reconstituted milk, and for these reasons it could be argued that the Government should control the price for reconstituted milk. There are strong reasons to let the markets establish prices for other dairy products.

The price paid to the dairy farms for fresh milk is clearly inadequate to stimulate deliveries of raw milk to the dairy.

The rehabilitation of the physical plant as well as an improvement in marketing suggest that a much higher daily throughput can be obtained. This in turn would reduce unit costs significantly. However, it would still be necessary to revise prices.

(b) Recommendations for the short term

1. The price policy regarding dairy products needs to be thoroughly revised. This would include a mechanism by which the price of reconstituted milk can be continously adjusted to changes in input costs.

2. Prices for dairy products, except for reconstituted milk, should be liberalized.

3. If the trend towards a general liberalization of prices and foreign trade is continued, the Government must monitor the development of the dairy industry closely. The reason is that, in many Third World countries, imports of cheap dry skimmed milk powder and butteroil have created serious problems with the domestic dairy industry. A set of import duties and tarrifs would then have to be established.

(c) Recommendations for the medium and long term

1. In a longer-term perspective the health advantages of pasteurized milk are overwhelming. A law prohibiting the sales of unpasteurized milk in the towns should be introduced.

11.4.5 Physical plant

(a) Findings

The level of plant utilization is only 35 per cent of installed capacity. Major reasons for this low capacity utilization include:

- lack of sufficient cooling capacity due to the badly scaled refrigerant of the condensor cooler;

- lack of packaging materials and the breakdown of one of the packing machines for filling the half-litre plastic pouches;

- insufficient transport facilities;

- limited availability of fresh raw milk.

Several pieces of equipment are completely out of order mainly due to lack of spare parts and regular maintenance. These include:

- a diesel electric generator with a rated output of 200 KVA/278 amps which is out of operation due to a worn-out switchboard and to lack of an alternator;
- a transformer not in operation due to lack of some distributor units;
- an electricity plant control system with deficient wire-insulation, and in need of a complete rewiring;
- several vehicles grounded for lack of spare parts.

The quality control laboratory is poorly maintained and important equipment is either missing or out of operation. Its staffing leaves much to be desired.

The maintenance workshop has no working tools, facilities or personnel.

(b) Recommendations for the short term

1. Mobilize financial resources for the procurement of spare parts and the replacement of obsolete machinery, laboratory equipment and chemicals.
2. Obtain and train adequate competent quality-control personnel and maintenance workshop personnel.
3. Develop and implement an improved sanitation and hygiene programme incorporating good maintenance and a pleasant and safe plant environment.

(c) Recommendations for the medium and long term

1. Establish and enforce detailed rules for grading the quality of fresh milk received from the farmers. An incentive scheme should be worked out to reward the more efficient fresh milk suppliers.
2. Develop and implement better management of the company's dairy farm, including the transportation of fresh milk to and from the plant.
3. Increase fresh milk production at the company's dairy farms by improving productivity as well as by expanding the farm size.
4. Promote increased production of yoghurt and butter.

CHAPTER 12
SUMMARY OF PROJECT CONCEPTS

12.1 General project concepts

(a) Assistance to the Ministry of Industry and Trade in formulating an industrial rehabilitation programme with emphasis on agro-related industries.

(b) Assistance to the Ministry of Industry and Trade in establishing and strengthening existing regional and national maintenance centres and workshops.

(c) Assistance to the Ministry of Manpower in identifying management training requirements for the agro-related industries.

(d) Assistance to the Tanzanian Bureau of Standards in formulating a national quality control programme in the agro-related industries.

(e) Review and development of maintenance procedures for the agro-based industries.

(f) Assistance to the Ministry of Industry and Trade in establishment of an appropriate information management system.

12.2 Institutional project concepts

(a) The management information systems linking the Ministry of Industry and Trade, the parastatal holding corporations and the subsidiary companies need strengthening.

(b) The capability for undertaking sectoral overview studies and planning is rather weak, making it difficult to evolve sector specific policies and strategies. These capabilities should be strengthened through the creation of special sectoral units in the Ministry which could make use of their own human resources or consulting firms like TISCO to undertake such sectoral studies.

(c) The practice of having similar activities operate under different parastatal holding corporations complicates co-ordination (e.g. fruit canning under National Milling Corporation and Tanganyika Packers, but the two are not related institutionally, or Southern Paper Mills under National Milling Corporation, while Kibo Paper and other public sector paper industries are under Tanzania Karatasi Associated Industries). Because NMC and TKAI are independent of each other, the development of SPM in consonance with the other paper industries could be complicated.

(d) The practice of sharing specialized equipment and skills in similar industrial activities seems to be limited. Arrangements could be made to promote sharing of capacities (e.g. on a commercial basis). Arrangements along the same lines could be made to facilitate

exchange of experiences in the area of industrial rehabilitation in specific industrial branches.

12.3 Sectoral and subsectoral concepts

(a) Branch-level study of the sugar industry.

(b) Branch-level study of the animal feeds industry.

(c) Branch-level study of the coconut industry.

(d) Study of spare parts manufacturing.

(e) Market survey of the export potential for processed fruit and vegetable products.

(f) Branch-level study to investigate packaging requirements to promote export of agro-based industries.

(g) Assistance to MIT in identification of computerization needs.

12.4 Plant-level project concepts

12.4.1 Tangold Company Ltd.

(a) Upgrading of managerial skills.

(b) Upgrading of skills in accounting and financial analysis.

(c) Feasibility study on rehabilitation of plant machinery and equipment.

(d) Rehabilitation of the quality control laboratory.

(e) Feasibility study on cool storage for fresh fruits and vegetables.

(f) Assistance in formulating a preventive maintenance programme.

(g) Improvement of packaging and labelling.

(h) Assessment of possibilities for a joint venture.

12.4.2 Twiga Paper Products Ltd.

(a) Rehabilitation of plant equipment and machinery.

(b) Establishment of a quality-control laboratory.

(c) Establishment of a maintenance workshop.

12.4.3 Tanzanian Animal Feeds Company Ltd.

(a) Feasibility study on rehabilitation of TAFCO.

(b) Feasibility study on alternative sources of protein supplements.

(c) Establishment of a maintenance workshop.

(d) Introduction of in-plant quality control system.

12.4.4 Zanzibar Dairy Development Corporation

(a) Improvement in management.

(b) Strengthening of financial management capabilities.

(c) Development of an effective marketing strategy.

(d) Improvement of farm management.

(e) Evaluation of the dairy farming development programme.

(f) Review of the pricing policy for the livestock sector.

(g) Development of a milk collection scheme.

(h) Rehabilitation of the dairy plant.

(i) Appraisal of possibilities for establishing a joint venture.

(j) Establishment of a maintenance workshop.

12.4.5 For all plants visited

(a) Establishment of a computerized management system.

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ANNEX 1

LIST OF PRINCIPAL ORGANIZATIONS, COMPANIES AND PERSONS CONTACTED BY THE UNIDO MISSION TO TANZANIA 10 February - 10 March 1989

Organization/Company	Person(s) met
I. Government Departments and Major Parastatals	
Ministry of Industry and Trade	Mr. A. Kanyilili, Director of Heavy Industries
	Mr. W. Nyachia, Director for Investment and Implementation
	Mr. J.G. Mrema, Senior Economist
	Mr. H.T. Mmbaga, Senior Economist
	Mrs. E.E. Mangesho, Senior Economist
	Mr. O.P.S. Ngemera, Senior Economist
	Mr. Noemer, Senior Economist
	Mr. O.S. Mageni, Industrial Engineer
Ministry of Agriculture	Mr. Bedda H. Katani, Head of Agricultural Programmes and Plans
Ministry of Finance, Economic Affairs and Planning	Dr. D.K. Mbogoro, Minister of State
	Mr. R.M. Mlowa, Assistant Commisioner
	Mr. H.E. Mrango, Senior Economist
Chamber of Commerce, Industry and Agriculture	Mr. B.C. Mwenda, Executive Director
	Mr. D.S. Mhando, Finance and Administration Manager
Morogoro	Mr. N.B. Mwaduma, Regional Planning Officer Acting Regional Development Director
	Mr. J.M.P. Tindika, Inspector of Weights and Measures

	Mr. E.M. Lwelenja, Regional Trade Officer
	Mr. M.H. Mhode, Trade Officer
	Mr. D. Zobano, Assistant Trade Officer
Tanzania Fertilizer Corporation	Mr. Raum Ringo, Deputy Marketing Manager
National Chemical Industries	Mr. H.M. Kitilya, Director of Development and Finance
	Mr. M.P.M. ole Paresoi, General Manager
	Mr. V.M. Almasi, Assistant Development Officer
National Milling and Operations	Mr. E. Andrew, Director of Planning Corporation
	Mr. J.N. Ndavisabha, Acting Procurement Manager
Small Industries Development Organisation	Mr. D. Ruiagora, Director of Extension and Training
	Mr. O. Maliomi, Engineer (Food/Chemical Industries)
Sugar Development Corporation	Mr. S.A.M. Msimbira, Principal Operations Officer
	Mr. C.A.S. Nyeupe, Senior Planning and Development Officer
Department of External Finance and International Co-operation, Zanzibar	Mr. S.A. Ahmed, Director

II. Companies reviewed

Kibo Paper Industries Ltd.	Mr. F.A. Koromo, General Manager
	Mr. Methard Tiba, Production
	Mr. J.O. Mbaga, Marketing Manager
	Mr. Francis Luganga, Production Manager
	Mr. Enos A.S. Panja, Accounts Manager
	Mr. Levi Malimi, Paper Mill Production

Metal Box (Tanzania) Ltd.	Mr. D. Richmond, Managing Director
Tanzanian Animal Feeds Company	Mr. J.P. Kinabo, General Manager
	Mr. A. Taalib, Finance and Administration Manager
	Mr. A. Komba, Personnel Officer
	Mr. S. Mkude, Senior Miller
Tanzania Packages Manufacturers Ltd.	Mr. T. Mworia, General Manager
Tanzania Tobacco Processing Company	Mr. N.K. Lyang, Head of Production
	Mr. R.S. Kyleymta, Manpower Development Manager
	Mr. P.K. Tema, Principal Planning Officer
Tangold Products Limited	Mr. R.B. Hoza, General Manager
	Mr. G.K. Namwala, Finance and Administration Manager
	Mr. Z.M. Twin'Omujuni, Senior Food Technologist
	Mr. Y.A. Sehaba, Technician
Tropical Foods Limited	Mr. J.B. Rugemalira, Marketing Director
	Mr. M.R. Mutabihirwa, Director of Operations
	Mr. K.D. Tripathi, General Manager
Twiga Paper Products Limited	Mr. D.L. Kharawala, General Manager
	Mr. L.H.A. Suleman, Administration Manager

III. Business and Banking Sector

Tanzania Investment Bank	Mr. W.A. Mlaki, Director of Projects Supervision

IV. Embassy and Development Cooperation Representatives

British High Commission	Mr. R.J. Smith, First Secretary (Development)
Embassy of the Czechoslovak Socialist Republic, Commercial Section	Dr. F. Malata, Commercial Counsellor
	Mr. J. Matousek, Commerical Officer

Embassy of Finland	Mr. K. Karanko, Ambassador
Gesellschaft für Technische Zusammenarbeit (GTZ), Federal Republic of Germany	Mr. R. Mutschler, Head of Office, Project Administration Service
Embassy of the Hungarian People's Republic	Mr. G. Lihr, Third Secretary
Embassy of Italy	Mr. F. Pignatelli, First Secretary
Royal Netherlands Embassy	Mr. H.H.M. Zaal, Third Secretary
Embassy of the Union of Soviet Socialist Republics	Mr. S. Illarionov, Ambassador

V. International Agencies

Delegation of the Commission of the European Communities	Mr. E. Bermann
	Mr. S. Roorda Van Eysinga, Rural Development Advisor
Danish International Development Agency (DANIDA) Tanzania Section	Mr. A.B. Lorentzen, Head of Development Agency
Royal Norwegian Embassy Development Co-operation (NORAD)	Mr. O. Kran, Senior Programme Officer
Swedish International Development Agency (SIDA)	Dr. M. Broden, First Secretary, Programme Officer
	Mr. J. Janson, First Secretary, Programme Officer
United States of America Agency for International Development (USAID)	Mr. J.F. Stepanek, Director
UNDP Office Dar es Salaam	Mr. B. Demehsa, Resident Representative
	Mr. J. Rasmussen, Programme Officer
World Bank	Mr. Enrique J. Rueda-Sabater, Deputy Resident Representative

Persons met in Zanzibar

I. Ministry of Trade and Industry	Mr. K. Suleiman, Principal Secretary
	Mr. K. Kombo Songoro, Director of Industries
	Mr. A.M. Khamis, Industrial Implementation Officer
II. Companies visited	
Zanzibar Dairy Corporation	Mr. S.A. Hammed, General Manager
	Mr. M.K. Mwinyi, Technical Manager
	Mr. J.H. Juma, Accountant
	Mr. S.S. Mbarak, Section Leader, Personnel and Administration
	Mr. M.K. Mwyni, Section Leader, Processing
	Mr. M. Yussuf, Acting Section Leader, Production
	Mr. Awadh Khatib Haji, Section Head, Sales Department
Animal Feed Plant	Mr. Suleiman O. Ahmed, General Manager
	Mr. Juma Is-haq Bakari, Managing Director
Small Industries Development Organisation	Mr. Mussa Ali Mussa, Electrical Engineer
	Mr. Abdulfatah Mohammadd Ahmed, Refrigeration and Air-conditioning Technician
	Mr. Salmin Senga, Plant Manager, Oil, Milk and Hydrogenization Plant
Oil Extraction Plant	Mr. Gulam Haji Karim
	Mr. Kirobo Suleiman
	Mr. Makame Msomi Khahib

ANNEX 2

UNIDO's approved and/or operational technical co-operation projects

(approved = PAD issued)

United Republic of TANZANIA

Project Number	Backstopping Responsibility	All.Acc.Code	Project Title
SI/URT/88/801	IO/IIS/IMR Mr. Farah	J12207	Assistance to the Metal and Engineering Industry Development Association (MEIDA) maintenance services
DP/URT/86/027	IO/IIS/IMR Mr. Farah	J12208	Assistance for strengthening the industrial management capabilities
XA/URT/88/667*	IO/IIS/IMR Mr. Bassili	J12209	Establishment of furniture/joinery and schools exercise book workshops: co-operation between Turkey and Tanzania
US/URT/85/229**	IO/T/AGRO Mr. Moll	J13102	Production of sisal bags - assistance in production management and machinery maintenance
IW/URT/82/W02	IO/T/AGRO Mr. Berg	J13104	Establishment of a leather goods unit, Isanga, Mbeya
US/URT/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/URT/80/022*	IO/T/MET Mr. Buckle	J13209	Establishment of a Small Industries Development Organization (SIDO) foundry with integrated mechanical workshops
SI/URT/89/803	IO/T/ENG Mr. Seidel	J13312	Assistance to M/S Tasia Ltd. in upgrading the manufacture of the leaf spring and accessories for transport equipment
XP/URT/89/030	IO/T/ENG Mr. Sharapov	J13313	Technical study of the dockyards at Dar-es-Salaam and Tanga ports
SI/URT/89/802	IO/T/ENG Mr. Fritz	J13316	Assistance to the Mang'ula Mechanical and Machine Tool Workshop (MMMT)
DP/URT/81/026*	IO/T/CHEM/PH Mr. Wijesekera	J13422	Assistance for the production of plant derived pharmaceuticals
DP/URT/86/026*	IO/T/CHEM/PH Mr. Wijesekera	J13422	Assistance to the essential oil industry - Zanzibar
SI/URT/86/875	IO/T/CHEM Mr. Sugavanam	J13426	Expert assistance for the establishment of a pesticide pilot plant under a soft loan advance from the Italian Government

* Large-scale project (= total allotment $150,000 or above)
** Total allotment $1 million or above

ANNEX 3

UNIDO's completed technical co-operation projects, since 1972

United Republic of TANZANIA

Project Number	Backstopping Responsibility	Spec.Act./ All.Acc.Code	Project Title
RP/URT/78/001	IO/IIS/INFR	31.3.A	Preparatory mission of National Director to Vienna and Dakar
TF/URT/80/001	IO/IIS/INFR	31.3.J	Associate expert to TIRDO (Mr. Hintsanen) (multifund to DP/URT/78/019)
DP/URT/78/019	IO/IIS/INFR	J12101	Establishment of the Tanzania Industrial Research and Development Organization (TIRDO)
DP/URT/81/037	IO/IIS/INFR	J12101	Establishment of the Tanzania Industrial Research and Development Organization (TIRDO) (phase II) (multifund to SM/URT/81/037)
SM/URT/81/037	IO/IIS/INFR	J12101	Establishment of the Tanzania Industrial Research and Development Organization (TIRDO) (phase II) (multifund to DP/URT/81/037)
TF/URT/82/003	IO/IIS/INFR	J12101	Associate expert (Ms. Holvikivi) (multifund to DP/URT/78/019)
TF/URT/83/001	IO/IIS/INFR	J12101	Associate expert (Mr. Kell) (multifund to DP/URT/78/019)
TF/URT/72/002	IO/IIS/INFR	31.3.D	Organization and operation of agricultural machinery and implements repair and maintenance facilities
DP/URT/73/002	IO/IIS/INFR	31.3.D	Assistance to the development of small-scale and village industry
RP/URT/82/002	IO/IIS/INFR	31.3.L	Evaluation of village blacksmiths project (US/URT/77/003)
TF/URT/78/006	IO/IIS/INFR	31.3.L	Assistance to small-scale industries and industrial estates in Tanzania
UD/URT/77/092	IO/IIS/INFR	31.3.L	ECDC: Strengthening of extension services of the Small Industries Development Organization (SIDO) of Tanzania
US/URT/77/003	IO/IIS/INFR	31.3.L	The consolidation of the village production of agricultural implements by local blacksmiths in the URT
US/URT/77/024	IO/IIS/INFR	31.3.L	Provision of techno-economic assistance to industrial co-operatives

UNIDO's Completed Technical Co-operation Projects

United Republic of TANZANIA (2)
since 1972

Project Number	Backstopping Responsibility	Spec.Act./ All.Acc.Code	Project Title
US/URT/81/200	IO/IIS/INFR	J12103	Development of industrial co-operatives (phase II) (Associated Agency: ILO)
IS/URT/71/807	IO/IIS/INFR	32.3.02	Export product programme, second stage
DP/URT/81/038	IO/IIS/INFR	J12105	Assistance to the industrial estate in Zanzibar
DP/URT/69/004	IO/IIS/IMR	31.3.00	Assistance to the National Development Corporation
IS/URT/71/805	IO/IIS/IMR	31.3.01	Industrial management services, project planning and marketing
SM/URT/73/805	IO/IIS/IMR	31.3.01	Industrial management services, project planning and marketing
DP/URT/74/017	IO/IIS/IMR	31.4.B	Industrial accountant, State Mining Corporation (OPAS expert)
DP/URT/80/015	IO/IIS/IMR	31.4.C	Productivity and accountancy sector enterprises, preparatory assistance mission
DP/URT/65/510	IO/IIS/PLAN	32.1.00	Industrial Studies and Development Centre, Dar es Salaam
DP/URT/71/005	IO/IIS/PLAN	31.2.A	Industrial strategy
DP/URT/78/018	IO/T/AGRO	J13102	Strengthening of the National Textile Corporation (TEXCO)
IW/URT/84/W01	IO/T/AGRO	J13102	Assistance to Kurasini Women Tailoring Society
SI/URT/83/801	IO/T/AGRO	J13102	Assistance to the Ubungo Garment Factory (TEXCO)
IS/URT/71/802	IO/T/AGRO	30.6.00	Assistance to breweries in malt production
RP/URT/79/001	IO/T/AGRO	31.7.C	Assistance to breweries
SI/URT/82/801	IO/T/AGRO	31.7.C	The creation of the preconditions for the successful development of the coconut industry in Zanzibar
TF/URT/77/003	IO/T/AGRO	31.7.C	Establishment of a demonstration plant for fruit processing in Tanzania, Zanzibar, phase I

UNIDO's Completed Technical Co-operation Projects

United Republic of TANZANIA (3)
since 1972

Project Number	Backstopping Responsibility	Spec.Act./ All.Acc.Code	Project Title
UC/URT/79/202	IO/T/AGRO	31.7.C	Establishment of food testing and quality control laboratory in the United Republic of Tanzania
UT/URT/79/202	IO/T/AGRO	31.7.C	Establishment of food testing and quality control laboratory in the United Republic of Tanzania
DP/URT/78/010	IO/T/AGRO	J13104	Assistance to leather and leather products (multifund to SM/URT/78/010)
SM/URT/78/010	IO/T/AGRO	31.7.D	Assistance to leather and leather products (multifund to DP/URT/78/010)
RP/URT/84/003	IO/T/AGRO	31.7.D	Study tour of local counterparts to 'Semaine du cuir', Paris
SI/URT/77/805	IO/T/AGRO	31.7.D	Assistance to the leather goods industry
SI/URT/77/806	IO/T/AGRO	31.7.D	Manufacture of leather board from scrap
SI/URT/82/802	IO/T/AGRO	31.7.D	Survey of the footwear production and management methods in Tanzania
US/URT/79/240	IO/T/AGRO	31.7.D	Assistance to the leather and leather products industry pilot plant
BR/URT/84/001	IO/T/AGRO	J13104	Rehabilitation of leather, footwear and leather products industry
UC/URT/84/062	IO/T/AGRO	J13104	Assistance to the Tanzania Institute of Leather Technology (TILT), evaluation mission
DP/URT/74/025	IO/T/MET	31.8.B	Consultancy services, State Mining Corporation
SM/URT/74/025	IO/T/MET	31.8.B	Consultancy services, State Mining Corporation
SM/URT/74/024	IO/T/MET	31.8.C	Coal expert, State Mining Corporation
SM/URT/81/004	IO/T/MET	J13208	Techno-economic evaluation and project report for the establishment of the iron and steel industry
RP/URT/80/005	IO/T/MET	31.8.D	Promotion of TCDC: Establishment of a foundry with integrated mechanical workshop, Mwanza, Tanzania

UNIDO's Completed Technical Co-operation Projects

United Republic of TANZANIA (4)
since 1972

Project Number	Backstopping Responsibility	Spec.Act./ All.Acc.Code	Project Title
SI/URT/85/801	IO/T/MET	J13209	Foundry performance improvement programme
RP/URT/74/002	IO/T/ENG	30.1.05	Maintenance and repair
DP/URT/74/001	IO/T/ENG	31.9.D	Boat building development, Pasiansi, preparatory assistance
DP/URT/78/020	IO/T/ENG	31.9.A	Preparatory assistance for the establishment of an engineering and design centre
SI/URT/76/003	IO/T/ENG	31.9.A	Repair and maintenance workshop for textile industry
DP/URT/81/032	IO/T/ENG	31.9.C	Consultancy services, co-ordination, popularization and the use of non-conventional sources of energy
DU/URT/74/006	IO/T/ENG	30.1.02	Agricultural mechanization (Executing agency: FAO)
IS/URT/71/804	IO/T/ENG	30.1.02	Organization and operation of agricultural machinery and implements repair and maintenance facilities
SM/URT/73/804	IO/T/ENG	30.1.02	Organization and operation of agricultural machinery and implements repair and maintenance facilities
TS/URT/74/001	IO/T/ENG	30.1.02	Exploratory mission agricultural machinery, repair and manufacture
VC/URT/70/001	IO/T/ENG	31.9.Z	Two mobile repair and maintenance workshops for agricultural machinery and implements for Tanzania
SI/URT/77/801	IO/T/CHEM	32 1.A	Assistance in the expansion of the cement industry
RP/URT/81/003	IO/T/CHEM	32.1.B	Pilot study on natural resources
RP/URT/84/006	IO/T/CHEM	32.1.B	Introduction of mobile brickmaking technology (see RP/URT/85/606) (IDDA)
RP/URT/85/606	IO/T/CHEM	32.1.B	Temporary 1985 IDDA allotments (ex RP/URT/84/006 - Introduction of mobile brickmaking technology (continued under XA/URT/85/606) (IDDA)

UNIDO's Completed Technical Co-operation Projects

United Republic of TANZANIA (5)
since 1972

Project Number	Backstopping Responsibility	Spec.Act./ All.Acc.Code	Project Title
XA/URT/85/606	IO/T/CHEM	J13419	Introduction of mobile brickmaking technology (continued under XA/URT/88/604)
XA/URT/88/604	IO/T/CHEM	J13419	Introduction of mobile brickmaking technology (continuation of XA/URT/85/606)
SI/URT/77/802	IO/T/CHEM	32.1.B	Assistance to the NDC in the establishment of a sheet glass plant
SI/URT/79/801	IO/T/CHEM	32.1.B	Development of appropriate ceramic technologies
SI/URT/79/803	IO/T/CHEM	32.1.B	Industrial utilization of graphite
TS/URT/80/007	IO/T/CHEM	32.1.B	Industrial utilization of graphite
IW/URT/83/W01	IO/T/CHEM	J13419	Preparatory assistance for the development of ceramic technologies for rural areas
TF/URT/85/001	IO/T/CHEM	J13419	Associate expert (Mr. Starita)
DP/URT/74/024	IO/T/CHEM	32.1.C	Coal development, State Mining Corporation
UC/URT/77/056	IO/T/CHEM	32.1.F	Integrated bio-gas plant development in Tanzania and regional promotion in ten least developed countries in Africa
UD/URT/77/056	IO/T/CHEM	32.1.F	Integrated bio-gas plant development in Tanzania and regional promotion in ten least developed countries in Africa
SI/URT/84/801	IO/T/CHEM	J13421	Expert assistance for the establishment of a pesticide pilot plant under a soft loan advance from the Italian Government
DP/URT/77/013	IO/T/CHEM/PH	J13422	Assistance in the establishment of a pharmaceutical plant in Zanzibar
SI/URT/77/803	IO/T/CHEM/PH	32.1.D	Pharmaceutical adviser
SI/URT/82/803	IO/T/CHEM/PH	32.1.D	Utilization of aromatic plant natural resources in the production of pharmaceuticals

UNIDO's Completed Technical Co-operation Projects

United Republic of TANZANIA (5)
since 1972

Project Number	Backstopping Responsibility	Spec.Act./ All.Acc.Code	Project Title
TS/URT/76/001	IO/T/CHEM/PH	32.1.D	Preliminary assessment of possibilities for programming the supply and quality of pharmaceuticals in Zanzibar
DP/URT/74/028	IO/T/CHEM	J13424	Assistance to the Tanzania Petroleum Development Corporation
RP/URT/82/006	IO/T/CHEM	32.1.H	Assistance to the Tanzania Petroleum Development Corporation
TF/URT/77/007	IO/T/CHEM	32.1.H	Assistance to the Tanzania Petroleum Development Corporation
UC/URT/78/236	IO/T/CHEM	32.1.H	Petroleum refining/petrochemical adviser
UC/URT/85/220	IO/T/CHEM	J13424	Technical adviser for the Tanzania Petroleum Development Corporation (TPDC) (multifund to US/URT/85/220) (continued under SI/URT/87/801)
US/URT/85/220	IO/T/CHEM	J13424	Technical adviser for the Tanzania Petroleum Development Corporation (TPDC) (multifund to UC/URT/85/220) (continued under SI/URT/87/801)
SI/URT/87/801	IO/T/CHEM	J13424	Technical assistance to the Tanzania Petroleum Development Corporation (TPDC) (continuation of UC/US/URT/85/220)
DP/URT/78/011	IO/T/CHEM	32.1.G	Assistance to pesticides industry
RP/URT/79/006	IO/T/CHEM	32.1.G	Techo-economic study for formulation of selected pesticides
SI/URT/77/807	IO/T/CHEM	32.1.G	Expert assistance in the selective establishment of pesticide industries
SI/URT/77/808	IO/T/CHEM	32.1.G	Expert assistance to the pesticide formulation industry
TS/URT/77/004	IO/T/CHEM	32.1.G	Fact-finding and programming mission concerning the development of the pesticide industry
DP/URT/74/015	IO/T/CHEM	32.1.C	Development of salt production
DP/URT/81/003	IO/T/CHEM	32.1.C	Techno-economic study on small-scale soda ash production plant near Lake Natron

UNIDO's Completed Technical Co-operation Projects

United Republic of TANZANIA (7)
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Project Number	Backstopping Responsibility	Spec.Act./ All.Acc.Code	Project Title
SI/URT/76/801	IO/T/CHEM	32.1.C	Assistance in the development of salt production
SM/URT/76/001	IO/T/CHEM	32.1.C	Assistance in the development of salt production
DP/URT/72/014	IO/SD/FEAS	32.1.02	Assistance to NDC (OPAS)
DP/URT/71/522	IO/SD/FEAS	31.6.A	Industrial studies and development centre, phase II
DP/URT/74/018	IO/SD/FEAS	31.6.A	Assistance to the National Development Corporation, phase II
SI/URT/79/802	IO/SD/FEAS	31.6.A	Assistance to the Tanzania Wood Industry Corporation (TWICO): parquet industry, feasibility study
TF/URT/77/001	IO/SD/FEAS	31.6.A	Industrial studies and development centre
DP/URT/72/026	IO/SD/FEAS	31.6.B	Assistance to the State Mining Corporation
DP/URT/78/001	IO/SD/TRNG	31.5.A	Industrial training and consultancies
RP/URT/82/005	IO/SD/TRNG	31.5.A	Strengthening the training capacity of the Tanzanian Institute of Leather Technology
SI/URT/78/801	IO/SD/TRNG	31.5.A	Industrial training advisory services to the Ministry of Industries
DP/URT/86/024	IO/SD/TRNG	J12309	Preparatory assistance for industrial training and consultancy
XP/URT/86/061	IO/SD/TRNG	J14201	Preparatory assistance for the strengthening of the capacity and capability of Tanzania in the field of food testing and quality control in food processing industry
DP/URT/73/031	IO/SD/TRNG	31.5.B	Training programme in management development
DP/URT/74/034	IO/SD/TRNG	31.5.B	Training engineers for small-scale industry
RP/URT/76/002	IO/SD/TRNG	31.5.B	Industrial training in the field of patents and licenses

UNIDO's Completed Technical Co-operation Projects

United Republic of TANZANIA (8)
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Project Number	Backstopping Responsibility	Spec.Act./ All.Acc.Code	Project Title
RP/URT/77/005	IO/SD/TRNG	31.5.B	Fourth general course on development banking
RP/URT/78/002	IO/SD/TRNG	31.5.B	Financial economics
RP/URT/80/002	IO/SD/TRNG	31.5.B	Organization of standards work
RP/URT/80/003	IO/SD/TRNG	31.5.B	Tool designing
RP/URT/84/002	IO/SD/TRNG	31.5.B	Training in instant coffee technology
RP/URT/85/001	IO/SD/TRNG	31.5.B	Industrial training management
RP/URT/85/002	IO/SD/TRNG	31.5.B	Training in productivity management
SM/URT/73/031	IO/SD/TRNG	31.5.B	Training programme in management development
UC/URT/80/093	IO/SD/TRNG	J12310	Industrial training (multifund to UD/URT/80/093)
UD/URT/80/093	IO/SD/TRNG	J12310	Industrial training (multifund to UC/URT/80/093)
XP/URT/86/099	IO/SD/TRNG	J12310	Industrial training management
IW/URT/83/002	IO/SD/TRNG	31.5.C	Seminars for women entrepreneurs on managerial and technical aspects of expansion of small industrial enterprises (RP/URT/84/001 also refers)
RP/URT/84/001	IO/SD/TRNG	31.5.C	Seminars for women entrepreneurs on managerial and technical aspects of expansion of small industrial enterprises (IW/URT/83/002 also refers) (IDDA)
RP/URT/82/003	IO/SD/TRNG	31.5.C	Selection mission of women entrepreneurs and national counterparts for seminars on expansion projects in Tanzania

UNIDO's Completed Technical Co-operation Projects

United Republic of TANZANIA (9)
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Project Number	Backstopping Responsibility	Spec.Act./ All.Acc.Code	Project Title
UC/URT/82/046	IO/SD/TRNG	J12311	In-plant group training programme in the field of foundry for the Small Industries Development Organization (SIDO) of the United Republic of Tanzania, Yugoslavia 2 May - 28 November 1984 (supplementary financing to DP/URT/80/022)
DP/URT/80/023	PPD/AREA/LDC	30.6.Z	UNIDO programming mission: Third UNDP-IPF Country Programme
RP/URT/79/005	PPD/SPA/ECDC	30.9.Z	Promotion of TCDC: Visit of a delegation of senior officials from Tanzania to UNIDO Headquarters for high-level consultations with UNIDO officials
RP/URT/79/007	PPD/SPA/ECDC	30.9.Z	Visit of three experts from Yugoslavia to Tanzania to conduct pre-feasibility study for the two projects granted by Yugoslavia
RP/URT/79/009	PPD/SPA/ECDC	30.9.Z	Round table ministerial meeting on industrial and technical co-operation among developing countries
RP/URT/80/001	PPD/SPA/ECDC	30.9.Z	Visit of three experts from Yugoslavia to Tanzania to conduct prefeasibility study
RP/URT/80/006	PPD/SPA/ECDC	30.9.Z	Promotion of TCDC: Visit of two experts from Tanzania to Brazil to reach final agreement as follow-up of the Arusha Solidarity Meeting
RP/URT/82/004	PPD/SPA/ECDC	30.9.Z	Promotion of technical co-operation among developing countries. Visit of three experts from Turkey to Tanzania to discuss technical offer
RP/URT/82/001	PPD/SPA/COOP/NGO	30.5.Z	Conference on the economic and social potential of industrial co-operation in developing countries, Arusha, 15 - 19 February 1982
SM/URT/71/806	IPCT/II	32.2.02	Industrial economist to advise the Tanzanian Investment Bank on project appraisal
DP/URT/74/003	IPCT/II	31.1.A	Assistance to the Tanzania Investment Bank

UNIDO's Completed Technical Co-operation Projects

United Republic of TANZANIA (10)
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Project Number	Backstopping Responsibility	Spec.Act./ All.Acc.Code	Project Title
RP/URT/80/004	IPCT/II	31.1.A	Assistance in evaluating ammonia urea plant joint venture proposals
TF/URT/77/002	IPCT/II	31.1.A	Assistance to Tanzania Investment Bank
DP/URT/80/016	IPCT/II	31.1.D	Training in investment promotion
RP/URT/81/004	IPCT/II	31.1.D	Training in investment promotion
XP/URT/86/106	IPCT/DTT/PUB	G03200	Small-scale enterprise for women entrepreneurs: textile and garments
DP/URT/80/010	IPCT/DTT/TEC	62.4.Z	Tanzanian participation in the trade fair 'technology for the people'
DP/URT/81/010	IPCT/DTT/TEC	62.4.Z	Tanzania participation in trade fair technology for the people - Mexico City 1981

ANNEX 4

UNIDO's pipeline projects

Project number	Project title	Budget - $
DP/URT/XX/XXX	Assistance for reactivation of existing capacities and upgrading of 22 foundires in Tanzania	1,010,000
DP/URT/XX/XXX	Development of building, res. unit and mobile brickmaking technology	147,000
DP/URT/XX/XXX	Assistance to the Tanzania engineering and manufacturing design organization (TEMDO) for establishment of pilot and demonstration physical manufacturing facilities	3,800,000
DP/URT/86/023	Production of livestock vaccines - phase I	1,100,000
DP/URT/86/024	Industrial manpower developments - phase II	1,131,065
DP/URT/86/027	Assistance for strengthening the industrial management capabilities	1,086,610
DP/URT/88/XXX	Techno-economic feasibility of small-scale agro-mineral industry	345,000
DP/URT/88/XXX	Assistance during and after the establishment of pesticide complex at Moshi	361,000
DP/URT/89/XXX	Assistance in establishment of a coconut cream plant	250.000
SI/URT/89/XXX	Assistance for upgrading Messrs. Themi Farm Implements and Engineering Co. Ltd. Arusha for the manufacture of oil squeezers, decorticating machinery, threshers, planters and seeders	31,000
UF/URT/84/172	Development and utilization of low-cost building materials	89,500
US/URT/85/031	Assistance to the Tanzania institute of leather technology	103,900
US/URT/85/194	Assistance to Holili dimension stone production industry	106,600
US/URT/88/133	Feasibility study for manufacture of electrical lighting, fittings and installation accessories	119,000