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SECTOR AID AND STRUCTURAL ADJUSTMENT; THE CASE OF SUGAR IN TANZANIA

NETHERLANDS DEVELOPMENT COOPERATION

SECTOR AID AND STRUCTURAL ADJUSTMENT: THE CASE OF SUGAR IN TANZANIA

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Preface

This study of Netherlands aid to the sugar sector is part of a wider evaluation study on the impact of Netherlands development assistance to Tanzania over the past ten years. Netherlands aid to the sugar sector in Tanzania dates back to the early 1970s. The programme is one of the longest-standing and largest project activities within Netherlands bilateral aid. It has also been one of the most controversial activities in development cooperation with Tanzania.

This study attempts to assess the impact of Netherlands aid on the development of the sugar sector. Two phenomena are of particular importance in reviewing the effectiveness of Netherlands aid. Firstly, in the early 1980s, a shift took place in the type of aid granted to the sugar industry, namely from a project to a sector approach. Moreover, the Netherlands became Tanzania's only major donor in the sugar sector. Secondly, in the mid-1980s, Tanzania accepted a structural adjustment programme intended to restore the basis of a market-oriented economy after a period of strong state domination. The drastic change in Tanzania's development policy had important consequences for the sugar sector. This report can therefore also be regarded as a study of the effects of structural adjustment at the sectoral level.

The report consists of four parts: context; Netherlands assistance; evaluation findings; and conclusions and recommendations.

Part One provides information about the world sugar situation as a general background to the Tanzanian sugar industry (chapter 1); it gives a historical overview of Tanzania's sugar policy (chapter 2); and it describes the main characteristics and trends in the production of sugar in Tanzania (chapter 3).

Part Two focuses on Netherlands development assistance to the sugar sector. In chapter 4, Netherlands policy on the sugar sector is reviewed. A distinction is made between policies in the 1970s and the 1980s and those for the 1990s. The next chapter (5) deals with the implementation of the Netherlands aid programme to the sector. Three main types of activities are described: investment and rehabilitation projects; management assistance; and commodity import support.

In Part Three, the main evaluation findings are presented. In chapter 6, the overall performance of the sugar sector is reviewed. In this chapter, the following issues are discussed: cane production; utilisation of the processing capacity; and financial and economic performance. In chapter 7, an assessment is made of the efficiency of Netherlands aid. In this chapter, questions are raised with regard to the choice of technology and the management of aid. In chapter 8, the impact of Netherlands aid is evaluated. This assessment is based on the following three policy issues: economic self-reliance, poverty alleviation, and sustainability.

In Part Four, the main conclusions of this sector study are summarised on the basis of a number of key questions (chapter 9). Chapter 10 discusses the policy options for Netherlands aid to the sugar sector in the coming years.

The evaluation was directed and coordinated by Jan Sterkenburg (University of Utrecht) and Arie van der Wiel (Operations Review Unit). Although many other individuals have contributed to the evaluation study, IOV bears sole responsibility for this report.

Director IOV

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Summary of main findings

1. World sugar situation

Sugar market

During the past 20 years, i.e. the period of Netherlands support to the Tanzanian sugar industry, a number of crucial changes have influenced the world sugar situation.

This period has been characterised by a sharp expansion in output, a relative decline in sugar consumption caused by the development of artificial sweeteners, and a decreasing proportion of world sugar production traded on the free market. Of the 100 million tons of sugar which are annually produced at present, about 75 percent is consumed domestically. The percentage entering the free market is around 20 percent, and 5 percent is covered by special arrangements and bilateral agreements.

The price of sugar has shown a high degree of volatility over the past 20 years. A major factor influencing the price level is the volume traded in the free market. Since a large proportion of world production is not traded at all, and a substantial percentage of what is traded does not enter the free market, unexpected shortfalls or surpluses can lead to major price fluctuations. Another factor affecting the price level is dumping, which is practised by a number of sugar producers such as the EC in order to dispose of their surpluses.

Almost two thirds of world sugar is now produced by developing countries. Compared to the early 1970s, their share has increased with about 20 percent. The expansion of sugar production in developing countries has been especially high in Asia. But in Africa too, cane production has increased substantially. Between 1970 and 1990 production in Africa almost doubled, and now amounts to approximately 10 percent of total world production.

The sugar sector in almost all countries is characterised by a high degree of government intervention, chiefly through various forms of price control, affecting both consumer and producer prices. The effect of government intervention has been the creation of atomised markets in which domestic costs and prices bear little relation to international market conditions.

Organisation of production

The dominant sugar cane production system, notably in Sub-Sahara Africa, is that of the plantation which combines cane cultivation with sugar processing. In several countries, the plantations make use of cane produced by individual peasant farmers in the direct surroundings, so-called outgrowers. The extent of smallholder participation in production depends on a number of factors, of which the adequate and timely supply of cane to the processing plants is a crucial one. Sugar cane must be milled within two days of being cut, or it quickly loses its sucrose content. This puts a high demand on the efficient organisation of the production and transportation of sugar cane. A shift further than 50 percent of total production to outgrowers is usually not welcomed by factory management. An exceptional case is the Mumias scheme in Kenya, where the outgrowers' supply of cane to the factory is approximately 90 percent. In sugar processing, the capital-intensive, modern technology—the so-called vacuum-pan sulphitation (VPS) system—is by far the most widely used technology in all the major cane-sugar producing countries. It is estimated that more than 90 percent of the total world cane output is processed by VPS systems. The more labour-intensive open-pan sulphitation techniques (OPS) are mainly used in Asia, in particular in India.

2. Tanzania's sugar policy

Policy environment

During the years immediately after independence, i.e. in the period 1961–1967, Tanzania retained the free market economy it had inherited from the colonial period. In the agricultural sector, commercial private estates and progressive smallholders were encouraged, and agricultural production was oriented towards export promotion. A fundamental re-orientation of Tanzania's development policy was announced in the Arusha Declaration of 1967. In that year, the Tanzanian leadership officially set the country on a course of socialism and self-reliance. Self-reliance implied that the country would rely on its own resources to develop the economy and that the role and significance of foreign aid would be reduced. It also meant state control over the main sectors of the economy.

Economic growth slowed markedly after the Arusha Declaration. The trade deficit steadily worsened, resulting in a severe foreign exchange crisis, which led to quantitative import restrictions including the introduction of an all-embracing import licensing scheme.

Until the early 1980s, Tanzania considered the cause and extent of the economic difficulties to be principally due to exogenous factors rather than domestic policies. The oil crisis, the subsequent world recession and the consequent deterioration of the prices of Tanzania's major export commodities were seen as the main causes of the economic crisis. This view was endorsed by the donor community, including the World Bank, as Tanzania was given extensive development aid without the condition of policy reforms. In the late 1970s, donors gradually became more critical; they argued that however important external causes might have been, defective internal policies and institutional weaknesses were important contributory causes for the crisis. Differences of opinion between Tanzania and the donor community about the need for economic reforms caused a decrease of foreign aid. In the early 1980s, aid levels dropped from about US $ 700 million to less than US $ 500 million in 1985. The reduction in foreign aid coincided with a substantial decline in export revenues, and therefore contributed to the aggravation of the economic crisis.

Since the mid-1980s, Tanzania has taken drastic economic reform measures. The structural adjustment policy was intended to restore the basis for a market-oriented economy after a period of strong state domination. This policy emphasised a series of devaluations of the national currency, liberalisation of the pricing system, the privatisation of the industrial sector, and a general reduction in state intervention in the economy. These policy reforms have been accompanied by an expansion of foreign aid to about one billion US $ annually at the end of the 1980s.

Sugar production system

After independence, Tanzania embarked upon an ambitious plan to expand its sugar production. In so doing, it opted for a system of estate production with a highly capital-intensive and relatively complex modern processing technology. This type of technology was expensive and strongly dependent upon imports and expatriate technical and managerial expertise. There was little attention for alternative systems of production and processing technology. The choice of a large-scale production system with modern technology was based mainly on two considerations. First, the VPS technology is cheaper in terms of production costs because of the much higher sugar extraction rates. Second, the required short time between cane cutting and processing puts a high demand on an efficient organisation of production, which is best achieved through the plantation system.

In addition, the Tanzanian government had a strong political preference for modern large-scale agricultural production systems. Tanzania shared this preference with many developing countries during the 1970s. Furthermore, the bias towards import-intensive technology was stimulated by the financial conditions imposed by donors tying supplies to their own manufacturing industries.

Although the estate form of production had a high priority in Tanzania's sugar development policy, a substantial contribution by outgrowers to total output had been planned from the outset, varying from 30–50 percent between the various estates. Outgrower sugar cultivation was seen as an important instrument in raising the incomes and the standard of living of the farmers in the rural areas surrounding the estates.

The choice of a large-scale production system with modern processing technology had important consequences for the sugar industry and for the country's economy in general in three related fields. First, it substantially increased the country's import requirements, despite its gradually deteriorating foreign exchange position. Second, it enlarged the need for expatriate technical and managerial skills. And third, it created a need for the training of local staff at various levels.

Since the late 1960s the sugar industry was gradually brought under government control. The estates were nationalised or the government acquired majority shares. Moreover, the Sugar Development Corporation or Sudeco was established in 1974 as a holding parastatal to promote the development of the sugar industry, to monitor the production performance, and to arrange for the distribution of sugar over the country.

Pricing and marketing

During the past 20 years, the Tanzanian sugar industry has been characterised by a high degree of government intervention in price setting and distribution. Prices were established by the government for each stage of the marketing chain. Annual fixing of the ex-factory and consumer prices of sugar was a cumbersome procedure, chiefly because sugar was a politically sensitive product. The policy was based primarily on the principle of protecting the consumer from too high a price. In the price setting procedure the factories usually had to give in most. This resulted in consumer prices below production cost levels, especially during the 1980s. The low ex-factory price also had an unfavourable effect on outgrowers' production.

The growing disparity between supply and demand resulting from relatively low consumer prices and stagnating domestic production levels forced the government to introduce a rationing system whereby target groups and areas were allocated specific quotas. The distribution of sugar was put in the hands of Sudeco. Its distribution among the three main categories of consumers was roughly as follows: 20 percent went to industrial users, 50 percent was allocated to Dar es Salaam, and the remaining 30 percent was distributed among the other regions. Considerable differences between quotas and actual distribution have been observed; large quantities of sugar were sold on the open market at higher prices than the official one. In the rural areas, the actual price was more than twice as high as the official price.

Sectoral reforms

The structural adjustment policy introduced in 1986 led to important changes in the sugar sector policy. The main changes were:

(1) The estates' improved access to foreign exchange, chiefly in the form of retention moneys from sugar exports. In 1986, the sugar industry was allowed to retain its entire export earnings to finance the import of both inputs and capital equipment. Annually, the sugar industry exports 10,000 tons of sugar to the EC under the Lomé Convention.
(2) Improvements in the estates' de facto autonomy in the framework of parastatal reforms. This meant a reduction of Sudeco's role and drastic changes in the regulations governing the estates' personnel policy. These regulations covered conditions of employment, restrictions on hiring and firing, levels of wages and salaries and procedures for promotion. These bureaucratic procedures limited effective management along commercial lines.
(3) A liberalisation of imports and domestic trade arising from the abolition of Sudeco's monopoly position, and a larger role for private traders. In April 1992, the Government of Tanzania decided to deregulate sugar marketing and to abolish the pan-territorial pricing system. Under the present arrangement, private traders can purchase sugar either directly from the estates or from Sudeco's Dar es Salaam-based go-down at a price arranged by Sudeco and the government.
(4) Increases in ex-factory prices to facilitate economic operations. Since 1988, Sudeco and the sugar companies have obtained the authority to determine producer prices on the basis of projections of production costs and desired profit margins. In this way, the ex-factory price covers the full costs of production and reinvestment requirements. Sudeco discusses these prices with the government to arrive at the necessary consumer prices after adding the taxes, levies and marketing margins. As a result of these increases, consumer prices multiplied sixfold to Tshs 155 in 1990 and Tshs 185 in 1992. The new-price setting system has been accompanied by more regular payment and a better system of sugar removal on the part of Sudeco and, consequently, by an improvement in the companies' liquidity position.

The sugar policy changes associated with the introduction of Tanzania's economic recovery programme during the latter half of the 1980s have brought about an obvious improvement to the situation: sugar production has increased substantially since the beginning of the 1990s, outgrowers have increased their share in total output because of higher prices, and factories have increased their capacity utilisation. The improvement in performance has also resulted in the strengthening of the companies' financial position.

3. Sugar production in Tanzania

Estate production

The Tanzania sugar industry consists of five sugar factories and estates, owned by four companies, TPC Limited, the Kilombero Sugar Company, Kagera Sugar Limited and the Mtibwa Sugar Estate. The Kilombero Sugar Company operates two estates and factories. A holding corporation, the Sugar Development Corporation holds 100 percent of the shares in Mtibwa, TPC and Kilombero, and majority shares in Kagera.

Plantation white sugar production started in Tanzania near Arusha in the early 1930s, when the Tanganyika Planting Corporation (TPC) was established. TPC was operated by private Danish interest until the end of the 1970s when it was taken over by the Government of Tanzania. From the outset TPC was an irrigated estate in a rather dry area, where rain-fed smallholder cane could not be grown. In the 1950s, another new private estate was opened at Kagera in the West-Lake region by the Grewal Singh family. At the time of independence in 1961, these were the only two sugar factories in the country.

Plans devised during the colonial period to expand sugar production were adopted after independence, and two new estates were developed during the early 1960s in the Morogoro region: one at Kilombero by an international consortium and one at Mtibwa by the Madhvani Group. As a result of this, sugar production went up steadily during the 1960s, from approximately 40,000 to 80,000 tons per annum. The production increase during the 1970s was less spectacular, and moreover showed significant fluctuations. The average annual output in this period was around 100,000 tons. During the 1980s, there was hardly any output growth. The average output in this period was just over 100,000 tons. In the years since 1985, sugar production has even fallen to levels below 100,000 tons. Production showed a healthy recovery to over 110,000 and 120,000 tons in the period 1990–1992.

Outgrowers production

In the implementation of government policy, the outgrowers received little attention and support. Both Sudeco and the estate managers, including the foreign advisors, doubted the potential role assigned to the outgrowers. Their main arguments were the outgrowers' alleged lack of reliability in the supply of cane, their inability to provide the required crop husbandry standards, their reluctance to accept extension advice, their preference for food crops, and their low price responsiveness. The outgrowers' actual role was discouraged by the low ex-farm prices and the inadequate services provided by the estates, which needed all their resources to maintain their own output levels during the 1980s.

The production of outgrowers' cane was limited to Kilombero and Mtibwa. Their share in total output fluctuated from 15–20 percent in the 1960s and 25–30 percent in the 1970s, after which it decreased again to some 15 percent during the 1980s. The price increase of the 1990s brought about a sharp rise in the outgrowers' production as a result of both acreage expansion and higher yield levels.

4. Netherlands aid policy

Netherlands involvement in the sugar sector dates back to the 1960s. In this period, Netherlands participation was financed through export credits. Development assistance started in the 1970s. In the Netherlands assistance to the sugar sector, three periods can be distinguished: a period in which aid was used for the expansion of the production capacity i.e. the 1970s; a period in which emphasis was primarily put on improving capacity utilisation, i.e. the 1980s; and the period in which the rehabilitation of the sector in order to establish a self-reliant industry is the central focus, i.e. the 1990s.

Period of expansion: 1970s

During the 1970s, Netherlands aid to the Tanzanian sugar industry was not based on a coherent policy plan. At that time, bilateral negotiations between the two countries had a clear project orientation. Explicit policy objectives had not been formulated for the sector as such by the Netherlands, and a large-scale approach to the expansion of the sugar industry had not been a subject of discussion. Aid was primarily made available for the expansion of sugar production. About two thirds of Netherlands aid in this period was provided for the extension of the production capacity at Kagera and Kilombero. Decisions about Netherlands assistance to the sector were based chiefly on agro-technical reports and feasibility studies carried out by HVA, which was already involved in the implementation of a number of projects. The fact that the consultants had a vested interest in project implementation in the sugar industry may have contributed to its optimistic view about project results. In addition, a generally positive attitude towards Tanzania's development strategy and its policy of self-reliance had a favourable impact on the decision to assist the sugar sector.

Period of consolidation: 1980s

During the 1980s, the general objective of Netherlands development assistance to the Tanzanian sugar industry was twofold: to maintain and make effective use of existing domestic production capacity; and to contribute to the localisation of management in the sugar sector. The emphasis was on management support to two of the four estates (Kilombero and Mtibwa), and the supply of spare parts and inputs through commodity import support (CIS) to all estates.

In some other respects, 1980 was a turning point in Netherlands assistance to the sugar sector. From that year onwards, the Netherlands, in cooperation with Sudeco, commissioned a series of studies covering various aspects of the sugar sector as a whole. The aim of these studies was to obtain a deeper understanding of the economic problems of the sector, to provide assistance for Tanzanian policy formulation, and to identify the various options for Netherlands support. The identification of policy options became particularly important after the withdrawal of the two other major donors, the World Bank and Denmark. The studies differed from the agro-technical studies on the individual estates carried out in the 1970s and led to a more concrete formulation of policy objectives and policy conditions. This stricter Netherlands position complicated the bilateral talks, but also intensified the dialogue between the two countries. It also caused delay in the implementation of activities in the sector, since Tanzania obviously needed time to find sufficient domestic political support for the required policy changes.

Period of rehabilitation: 1990s

During the 1990 bilateral talks with Tanzania, the Netherlands expressed its willingness to support the rehabilitation plan for the sugar sector. The general long-term objective of assistance was to contribute to the restructuring and economic self-reliance of the Tanzanian sugar industry. The more specific objectives were the rehabilitation of the three main sugar plantations and factories (TPC, Kilombero and Mtibwa), the privatisation of the three companies, which should lead to a more efficient production of cane and processing of sugar, the expansion of the production and processing capacity by some 45,000 tons per annum, an increase in the number of outgrowers and their output of cane, and a more commercial distribution system for sugar.

The main considerations for Netherlands support were the recent changes to Tanzania's sugar policy, resulting in a better outlook for the future economic and financial viability of the industry, and the long history of Netherlands support to the sector which could be successfully completed by the present rehabilitation. A phased implementation of the rehabilitation plan and a gradual privatisation after rehabilitation were crucial pre-conditions for Netherlands assistance.

The plan for the rehabilitation of the sugar industry was based on the NEI sector feasibility study and the second-opinion studies of another three consultants. The total foreign exchange costs of rehabilitation were initially estimated at US $ 103.2 million (1988 dollars), of which about 36 percent went on investment and some 64 percent on operating costs. The Netherlands contribution to rehabilitation was set at one-third or a maximum of US $ 38 million.

5. Implementation

Total Netherlands development assistance to the Tanzanian sugar industry during the period 1980–1991 amounted to Dfl 152 million (approximately US $ 75 million). Together with the assistance provided during the 1970s Netherlands support to the sector adds up to Dfl 260 million. With almost 20 percent of the total bilateral aid flow, the sugar industry was not only the largest single sub-sector in the Netherlands development cooperation programme with Tanzania, but also the longest-standing and largest Netherlands project activity in Africa.

In general, Netherlands aid to the Tanzanian sugar industry can be categorised under three broad headings: investment activities, institutional support including management assistance and training, and commodity import support. Distribution among these three categories was roughly as follows: investment activities 40 percent; institutional support 40 percent; and commodity import support 20 percent. With almost 50 percent of all assistance, Kilombero was by far the most important recipient, followed by Kagera and Mtibwa, each with about 15 percent. The remaining 20 percent was for TPC, Sudeco and the National Sugar Institute.

Investment activities

During the 1970s, investment activities with regard to the expansion of production were focused on two estates in particular, Kagera and Kilombero.

The first project supported by Netherlands development aid to the sugar sector was the expansion of Kilombero II. This project consisted of two parts: the construction of a factory with a capacity of 2,400 tons of cane per day; and the development of a sugar estate of approximately 5,000 ha, of which 3,000 ha would be under irrigation. The project costs were estimated at US $ 55 million and the financing was shared between Tanzania, the World Bank, Denmark and the Netherlands. The Netherlands' contribution amounted to US $ 11 million or 20 percent of the total costs and was meant for factory construction. A fixed price, turnkey contract was awarded to a Dutch firm (Stork/VMF) for the factory building, milling machinery, cane intake, steam and power generation plants. The construction was supervised by Kilombero's managing agents (HVA) under a separate contract and also financed by the Netherlands. The execution of the project started in 1974 and the factory was completed in 1976.

Netherlands involvement in Kagera started in the early 1970s. Feasibility studies were carried out by HVA in 1972 and by Bookers in 1976. Total project costs were estimated at US $ 40 million. Loans for the implementation were made available by India, the Bank of Abu-Dhabi and the Netherlands (US $ 10 million). With

Netherlands assistance the factory construction was financed (insurance and transport costs of the machinery, the civil works and installation) and the development of the estate. The estate expansion part of the contract was awarded to HVA. The factory was supplied by an Indian firm. Implementation of the project started in 1977 but came to a standstill when the war with Uganda broke out in 1979. It was resumed after the war in 1980, and in 1982, the factory was completed. In 1981, a NEI review mission raised serious doubts about the viability of the whole Kagera project. Although Sudeco initially disagreed with the conclusions in the NEI report, the Netherlands decided to withdraw further assistance to Kagera in 1984.

Netherlands assistance to Mtibwa was made available for the expansion of the factory from 1500 tcd to 2000 tcd. The Netherlands contribution amounted to Dfl 8.25 million and funds were mainly used for the purchase of machinery and equipment and for design and engineering. The Tanzanian contribution covered the civil engineering works, including the construction of the building. The project was implemented between 1982 and 1986.

Institutional development

Netherlands support for the institutional development of the sugar industry took three distinct forms: support for the National Sugar Institute, the provision of scholarships for overseas training, and management assistance.

Support for the National Sugar Institute (NSI) started after a study of the manpower situation in the sugar industry by HVA and BMB in 1972. Preparations for the establishment of the NSI began in 1974. The actual construction started much later than planned because of different views about the design. The construction activities comprised an administration block, eight teaching rooms and a laboratory, a block with eight separate workshops, two student hostels and staff houses. Netherlands aid was made available for both the construction of the buildings and the purchase of teaching equipment. In addition to aid for the physical infrastructure, assistance was provided for the management of the institute. The total amount spent on this activity was about Dfl 30 million.

The second form of institutional support was the provision of scholarships for overseas training. Between 1983 and mid-1986, 79 traineeships were financed by the Netherlands, most of which were in the technical field (sugar engineering and sugar processing). Management training was another important focus of attention with an average number of 18 trainees per annum up to 1989.

Since the mid-1970s, management assistance has been provided as part of Netherlands aid to three of the four estates. Initially, this type of assistance was only given to Mtibwa (1975–1990) and Kilombero (1977–1992). Later on, management assistance was also provided to Kagera (1979–1984). Since the early 1960s, Netherlands consultancy agencies had been involved in the management of the Kilombero estate. Before the mid-1970s, management contracts were financed directly by the companies. When Tanzania began to have serious foreign exchange problems, it more or less naturally turned to countries already involved in the sugar sector on a commercial basis to provide financial support. The total amount spent on management assistance was just over Dfl 70 million, distributed among the three estates as follows: Kilombero Dfl 38 million; Mtibwa Dfl 22 million; and Kagera Dfl 12 million. In the initial period (1975–1979) all seconded staff took on management or operational functions. In the period 1980–83, the seconded staff also included field and workshop experts. From the mid-1980s onwards, experts in agricultural field operations were withdrawn and replaced by local staff. After 1988, the seconded staff was limited to the factory and workshop. Their positions were changed to advisory ones, and on-the-job training became an important component. Since 1992, management has been fully localised, and no management support is provided any more.

Commodity import support

Commodity import support (CIS) for the sugar sector was made available from 1981 onwards, when the Netherlands contributed Dfl 22 million to the Agricultural Export Rehabilitation Programme earmarked for the import requirements of the four estates. The bulk of this import support was spent in 1982 (Dfl 16 million), after which Netherlands CIS to the sugar sector fluctuated at around Dfl 5 million per annum. At the end of the 1980s, it was decided to gradually shift Netherlands programme aid from an administrative allocation mechanism to a more market-oriented allocation system, i.e. the Open General Licence (OGL) facility. In 1992, CIS was no longer made available directly to the sugar sector and all programme aid was channelled through the OGL.

The total amount spent on CIS was slightly more than Dfl 50 million, distributed as follows among the four estates: Kilombero Dfl 22 million; TPC Dfl 14 million; Mtibwa Dfl 12 million; and Kagera Dfl 3 million. It was mainly spent on the purchase of machinery, spare parts, transport equipment and agricultural inputs. Sudeco was responsible for procurement.

6. Performance

Production performance

The sugar estates' actual production levels during the 1980s were substantially below their processing capacity. The installed capacity at the four companies amounted to some 230,000 tons on an annual basis. With an average output of 100,000 tons of sugar, capacity utilisation amounted to less than 50 percent. If Kagera is excluded, where production was extremely low (less than 10 percent) capacity utilisation increased to about 60 percent. Since 1990, Mtibwa and Kilombero have shown a significant improvement of their utilisation rate (75 to 80 percent). The capacity utilisation of TPC went down from 60 to 50 percent.

The main causes of the suboptimal use of available processing capacity during the 1980s were threefold: mechanical breakdowns, the maintenance of machinery, and lack of cane. Low cane output was the result of underutilisation of the available estate area and disappointing yield levels. In general, yield levels had been influenced negatively by three main factors: shortcomings in the irrigation system which resulted in negligible differences between irrigated and rain-fed cane, the non-availability or shortage of transport equipment, and deficiencies in management. In addition to these structural problems, incidental factors had an unfavourable impact on yield levels in specific years, such as cane diseases and weather conditions.

Financial performance

Total financial production costs for the period 1980–91 are estimated at US $ 430 per ton of sugar, including recurrent costs of US $ 350 and depreciation of US $ 80. It is estimated that the foreign exchange component in the costs of production amounted to about US $ 210 per ton of sugar. For the 1980s, the average ex-factory price is estimated at US $ 390 per ton, indicating that total production costs were not fully covered. In the period 1982–86, the ex-factory price levels were even below recurrent costs. Since 1989, profit margins have improved substantially. In 1991/92, an ex-factory price of almost US $ 450 was approved, whereas total production costs in that year amounted to slightly less than US $ 400 per ton.

Cultivation costs constitute the highest share of the costs of production, on average about 60 percent, but there are large differences among the estates. Field costs are lowest at Mtibwa and quite high at Kilombero. The high field costs at Kilombero are related to the considerable wage costs, reflecting overemployment. Factory costs show far less variation among the estates.

With relatively high costs of production and ex-factory prices fixed artificially below the actual cost of production, the estates experienced considerable losses for many years during the 1980s. At the end of the 1980s, the situation improved drastically as a result of the increase in the ex-factory prices and a better average capacity utilisation. Of the four estates, Kagera can be considered a financial disaster; it continues to produce at a loss and has enormous debts. The Kilombero company has recently improved its financial position but still has a poor liquidity situation and a high indebtedness. Especially its foreign debt obligations became a major burden. The financial position of Mtibwa is much better.

Economic performance

The economic analysis evaluates the importance of the investment for the overall economy of Tanzania. Because of the substantial distortions in the economy during the 1980s, prices used in the financial analysis often do not reflect the real scarcity of production factors, goods and services. In the economic analysis, distortions are dealt with, and financial prices are multiplied by conversion factors. For an economic analysis of the sugar industry, a standard conversion factor of 0.5 over the period 1980–91 has been applied to local costs; and the opportunity cost of capital has been assumed to be 10 percent. Under these conditions, the economic costs of production amounted to US $ 320 per ton over the period 1980–91. As sugar production in Tanzania is an import substitution industry, the economic benefits of domestic sugar production can be measured by comparing the economic costs of production with the import parity price of sugar. The average world market price of sugar was US $ 250 per ton over the period 1980–91, which equalled a c.i.f. price Dar es Salaam of US $ 335. This means that during the 1980s, costs of production in the sugar industry were only marginally covered by economic benefits.

It is clear that both the financial and economic rates of return were substantially lower than expected at the time the expansion of the sugar industry was planned during the 1970s.

7. Efficiency of aid

The efficiency of Netherlands aid to the sugar sector has been assessed with regard to the choice of the sector, the choice of technology, and the quality of aid management.

Choice of sector

On the basis of an economic cost benefit ratio, sugar was compared with a number of other agricultural crops. This comparison showed that, although sugar was not the most profitable crop, it was still economically attractive for Tanzania to grow its own sugar, instead of importing it. Because of the marginal economic rate of return, the World Bank decided to withdraw from the sector in the early 1980s. It has been argued, however, that it is not fair to compare cost prices in Tanzania with the international market prices, as the world market is considered a dump market. The OECD has estimated that a full trade liberalisation of the sugar market would raise the price by more than 50 percent, i.e. to about US $ 450 per ton.

Most countries, especially developed countries, sell their sugar surpluses on the world market at a loss. In comparison with other countries, the Tanzanian sugar industry can be considered as a normal cost industry and even a low cost industry compared to European beet sugar production.

Choice of technology

Tanzania's choice of a large scale production system with modern technology, and Netherlands support for it, were an issue of regular debate during the 1980s. However, the advice requested did not indicate good opportunities for alternative technologies. On the basis of the available information, it is clear that in economic and financial terms, there hardly was an alternative to modern technology to achieve the desired rapid expansion of Tanzanian sugar production. Not only is this technology used in 90 percent of the world's cane sugar production, it is also cheaper in terms of investment and production costs. Alternative technologies put a higher demand on land resources with possible unfavourable effects for food crop production, and have higher fuel requirements, which may create environmental problems.

Aid management

During the 1970s, aid to the sugar sector was mainly provided in the form of project aid to expand the production capacity of the sugar industry. In addition, technical assistance was made available to improve management. Because of the problems with capacity utilisation, gradually a consensus had emerged that a greater proportion of aid should be provided in non-project form. However, as a result of differences of opinion about Tanzania's macro-economic policy, programme aid was not considered opportune any longer. It was therefore decided to provide sector aid, whereby both programme aid, project aid and technical assistance are combined.

The shift to a sector approach has had a favourable effect on aid management. The individual activities could be appraised in a wider sectoral framework, the various modalities became inter-connected and mutually supportive, and the feasibility studies at the sector level undertaken by independent consultants provided a more realistic picture of the problems facing the sugar industry.

This partially corrected one of the major deficiencies at the design and appraisal stage during the 1970s, namely an excessive optimism about financial and economic rates of return, project completion times, and the recipients resources to establish a self-reliant sugar industry. The sector approach was strongly biased towards the sugar companies' economic viability. Non-economic issues, such as poverty alleviation and target group orientation, were hardly taken into consideration .

A second notable change during the 1980s was the increased flexibility in procurement conditions. For most of the 1970s, Netherlands aid was almost completely tied. At the end of the 1970s, there was a switch to partial untying. De facto, about 50 percent of the goods and services came from the Netherlands during the 1980s. For CIS, this proportion was much lower, namely only 10 percent. Around 90 percent of CIS supplies came from so-called ineligible source countries, i.e. industrial countries. This policy of untying had a favourable influence on aid efficiency, especially with regard to standardisation. In principle, with regard to the procurement procedures, the DAC guidelines should have been followed, which means an open international tendering procedure. In practice, direct negotiations were the most common modality of procurement. Although it is difficult to assess what this absence of competition has meant for the efficiency of project implementation, it is believed that more competition would probably have had a downward effect on prices.

8. Impact of aid

The impact of Netherlands aid has been assessed on the basis of the following three policy issues: economic self-reliance, poverty alleviation, and sustainability.

Economic self-reliance

Netherlands assistance to the sugar sector was primarily oriented towards increasing Tanzania's economic self-reliance.

In determining the effects on the country's economy, one yardstick of particular importance is the impact of the sugar sector's development on the balance of payments. From a macro point of view, sugar production in Tanzania was considered primarily as an import substitution activity. The main aim of developing the sugar industry was to reduce import dependence. It appears, that this objective has been achieved fairly successfully. At present, Tanzania imports approximately 10 percent of its consumption compared to 50 percent in the early 1960s. The domestic production of sugar in Tanzania resulted therefore in substantial savings in foreign exchange, i.e. about US $ 150 million during the period 1981–1991. This figure is based on the assumption that lower domestic production would have been fully compensated by increased imports, which, of course, is doubtful in view of Tanzania's problematic foreign exchange position.

Another yardstick of the economic impact of Netherlands assistance to the sugar sector is its rentability. In the period 1980–91, the factory utilisation rate fluctuated around 60 percent of installed capacity. This percentage considerably exceeded the average for Tanzania's manufacturing industries. Assuming that capacity utilisation in the sugar industry had been reduced to the 30 percent of manufacturing industry in general, and that Netherlands assistance in fact doubled the industry's capacity utilisation, the rentability rate of the aid flow was 17 percent. This is quite satisfactory, as it considerably exceeds the opportunity costs of capital. Therefore, the Netherlands assistance resulted in a successful holding operation which prevented the total collapse of the sugar industry, and—in this way—it contributed substantially to the recent output expansion.

Finally, the economic impact of Netherlands aid is evident from its spin off on the country's general economic development. This contribution has been measured by the generation of extra government revenue through taxes, improvements to the employment situation, and the regional development effects in the areas surrounding the estates. For the Tanzanian government, the revenues from the sugar industry were quite substantial, being about ten percent of total sales tax revenue. The above average performance of the sugar industry meant that some 10,000 employees retained their jobs. The regional development effects of the sugar industry are clearly visible in the areas surrounding the estates in terms of increased food crop cultivation and sales, other commercial activities in markets and shops, higher incomes and improved housing, better communications and transport services and improved community services.

The conclusion is that Netherlands aid to the sugar sector contributed clearly to Tanzania's economic growth and its self-reliance in sugar production.

Poverty alleviation

In support for the sugar sector, poverty alleviation was not explicitly mentioned as a major objective of Netherlands assistance. Netherlands aid was not directly oriented towards the poorest. This does not mean that the poorer segments of the population did not benefit from Netherlands aid. Three categories of direct potential beneficiaries of the Netherlands assistance to the sugar sector can be distinguished: consumers, estate employees and outgrowers.

The Tanzanian government sees sugar as a basic food item and an important source of energy in the food supply. The importance of sugar to dietary habits in Tanzania has been confirmed by studies which indicate that sugar ranks very high among essential consumer items. Sugar is highly appreciated because of its sweetness, which adds to the palatability of food. However, most nutritionists do not consider sugar as an essential food item. It is a pure energy supplier, and refined sugar does not provide vitamins, proteins or minerals. In the late 1960s, the plan was to raise consumption from the then 10 kg to 20 kg per capita. This objective has not been realised; because of a decrease in imports and disappointing domestic production, average consumption decreased to 5 kg per capita in 1991.

The wide disparity between supply and demand forced the government to introduce a rationing system, whereby target groups and areas were allocated a specific quota. For political reasons, the quota for Dar es Salaam was very high in comparison with the other regions, i.e. circa 50 percent of the total volume. In general, the quota system was disadvantageous for the rural population. In addition, large quantities of sugar were sold in the open market at substantially higher prices than the official one, undermining the government price control regulations. Recent increases in the official price as a consequence of the reform programme therefore hardly affected the poor. Sugar was and remains an expensive consumer good.

The sugar industry is a major employer, with about 20,000 workers. About one third of the labour force are casual labourers. These seasonal workers are mainly used for cane cutting. These cane cutters belong the poorest section of the community. The work on the estates hardly interferes with the agricultural cycle in their home areas as they return in time to till their fields. The living conditions of cane cutters on the estates gave rise to regular complaints in the past, especially with regard to housing. Since the late 1980s, improvements in the estates' financial position had a favourable effect on employment conditions. The number of women employed by the estates is not very significant and amounted to approximately 10 percent of the total labour force. Women are especially employed for weeding.

The share of outgrowers in total cane production was considerably lower than planned. Low cane prices and lack of support from the estates were the main reasons for this. Recent cane price increases have improved outgrowers' production and their incomes, including those of small-scale producers. Netherlands assistance has never considered outgrowers as an explicit target group, and little attention has been given to possibilities for the expansion of outgrowers production. The cultivation of sugar cane by outgrowers did not show (yet) a negative impact on food supplies because of land scarcity and crop competition. The production of food crops is primarily in the hands of women and they are hardly involved in cane cultivation.

The conclusion is that Netherlands assistance to the sugar sector contributed only marginally to the alleviation of poverty in Tanzania. It was difficult to obtain for the lower-income groups, only small quantities of sugar reached the rural areas, and there was limited attention for smallholders' participation in sugar cane production.

Sustainability

Sustainability has been defined by the OECD as a programme's ability to deliver an appropriate level of benefits for an extended period of time after major financial, managerial and technical assistance from an external donor is terminated. In assessing a project's sustainability various dimensions or aspects of the concept may play a role, but their relative importance varies according to the type of project. In this study the emphasis was put on the following aspects: financial, technological, institutional, and environmental sustainability.

Financial sustainability refers to the extent to which the financing of all present and future expenditure is secured. The main obstacles to financial sustainability have been the unfavourable government policies and Tanzania's balance of payments crisis. The former prevented the companies to accumulate adequate resources for maintenance and rehabilitation, whereas the latter hampered the import of the most essential inputs and capital goods. This bottleneck could not be removed at the project or micro-economic level.

Recent policy changes have considerably enhanced the potential financial sustainability of the sugar industry. The arrangement for the retention moneys means that some two thirds of the foreign currency needs for recurrent costs are now covered by sugar and molasses exports. For the remaining one third the OGL facility is the principal resource. For rehabilitation investments the sugar industry remains dependent on foreign aid.

The choice of modern technology complicated not only the financial but also the institutional sustainability because of the heavy import dependence and the high demand on management capacities. Institutional sustainability has been pursued through management secondment and various types of training. Initially, management assistance paid little attention to manpower training. The emphasis was solely placed upon the increase of production. An evaluation in 1986 on the manpower situation concluded that job descriptions tended to emphasise the achievement of operational tasks (doing the job) and were generally vague on institutionial development. Experts generally proved to be good technicians but rather poor trainers. After this critical evaluation report, the in-service training was explicitly included in the consultant's terms of reference. The technical training at the NSI and the overseas courses clearly contributed to the localisation of manpower, especially at the middle-level management. All in all, the various training activities resulted in the full localisation of management. In addition, the recent increases in cane production and capacity utilisation at Kilombero and Mtibwa indicate efficient management, especially with regard to the organisation of production.

Cane cultivation did not pose serious environmental problems. Only minor water pollution problems have been observed when the sale of molasses stagnated. There are no indications of soil degradation. Sugar cane is a crop with an extensive root system and with very short fallow periods. The use of herbicides and insecticides was limited. Because of the high dependence on a single variety of cane on the estates there is a growing risk of pests and diseases and consequently of an increased use of chemicals. Therefore there is a need for adapted research into new varieties.

The conclusion is that sustainability has been enhanced substantially by recent policy changes. However, Netherlands assistance has not yet resulted in a financially fully self-reliant sugar industry. For rehabilitation investments, in particular the foreign-currency part, the industry remains dependent on donor sources.

9. Main conclusions

The main conclusions of this sector study have been based on the following key questions.

Was it economically justified to develop a local sugar industry?

One of the main arguments for investing in the local production of sugar was that it was economically attractive for Tanzania to produce its own sugar instead of importing it. The expansion plans were based on high world market prices and indicated a very favourable economic rate of return. However, one of the most striking characteristics of sugar prices is that they are notoriously volatile. In appraising the economic impact of the expansion plans, the long-term price trends were insufficiently taken into account. When the cyclical nature of the world market is taken into consideration, the local production costs are only marginally covered by economic benefits. On the other hand, it may be argued that the world market is a dump market, and therefore that it is unfair to compare cost prices in Tanzania with dump market prices. The OECD estimated that in the case of full trade liberalisation the world market price would be 50 percent higher.

The conclusion is that the local production of sugar in Tanzania was justified in economic terms. However, with crops such as sugar and particularly in countries like Tanzania, where operational difficulties abound, it is more realistic to be somewhat conservative in the projection of benefits and implementation schedules.

How appropriate was the choice of technology?

The choice of a large-scale production system with modern technology was primarily based on efficiency, i.e. the pursuit of more favourable economic rates of return. The technology was cheaper in terms of production costs because of much higher sugar extraction rates. But political factors such as Tanzania's preference for modern production systems and the tying of aid funds also influenced this decision. Tanzania was no exception in its preference for large-scale production with modern technology; more than 90 percent of world cane output is produced in this way.

The conclusion is that the choice of the large-scale production system with modern processing technology was economically justified. However, this preference for modern technology had important consequences for the economy and the sugar industry in particular. The selected mode of production increased the country's import requirements in a gradually deteriorating foreign exchange situation. Furthermore, it raised the need for expatriate technical and managerial skills.

How successful were the aid investments in the sugar sector?

The investments made for the expansion of sugar production during the 1970s did not lead to the expected effects. The actual economic rates of return lagged considerably behind the appraised ones.

The approach applied during the 1980s—a holding operation aimed at a better utilisation of existing capacity—was very successful. Factory capacity utilisation was considerably higher than the national average, Netherlands support to Kilombero and Mtibwa realised a very favourable rate of return (17 percent), and positive results were achieved in the localisation of manpower.

The conclusion is that the aid prevented the collapse of the Tanzanian sugar industry and provided the basis for successful growth in production in the 1990s under full Tanzanian management.

What were the major constraints on sugar production?

The main causes of the disappointing performance of the sugar sector were threefold: the shortage of foreign exchange, the unfavourable pricing policy, and deficiencies in management. The shortage of foreign exchange was closely related to Tanzania's general economic decline after the mid-1970s. This decline was partly caused by the deterioration of the country's terms of trade but was also the result of poor general development policies. Secondly, price setting by the government at a level below actual performance costs resulted in estates operating at substantial losses. Finally, the state domination of the sugar industry prevented an organisation of production along commercial lines.

The conclusion is that the major constraints on a healthy development of the sugar sector in Tanzania were the ineffective sugar policy and the unfavourable economic environment. The latter was partly caused by external factors, especially the country's deteriorating terms of trade after the mid-1970s.

What was the impact of the structural adjustment programme on the sugar industry?

The introduction of the economic recovery programme had important consequences for the sugar sector. Reforms in the sugar sector included liberalisation of price setting, foreign exchange measures, and institutional reforms.

The effects of structural adjustment in the sugar sector were manifest from the end of the 1980s onwards, and comprised a significant growth in output, a rise in the capacity utilisation rate of the factories at Kilombero and Mtibwa, a sharply rising contribution by outgrowers in total production, and higher profits for the sugar companies.

The conclusion is that the economic liberalisation has had a favourable impact on the performance of the sugar sector.

How effective was the sector aid approach?

During the early 1980s, because of growing disagreement about Tanzania's macro-economic policy, the Netherlands decided to shift part of its commodity import support to sectorally oriented programmes. Sector aid means a broad and coherent approach to interrelated development constraints.

Under the sector approach, a combination of types of aid is provided: programme aid, project aid and technical assistance. The main arguments for this sector approach were: it permitted donors to enter into an appropriate form and level of policy dialogue where they felt that policy modification or institutional strengthening could be realised. Furthermore, it offered some degree of identifiability and accountability, absent from more general programme aid. Finally, sector aid is more flexible than project aid and has more potential for rapid disbursements. This was of importance as the Netherlands wished to continue its aid relationship without further reducing its financial allocations to Tanzania.

The Netherlands sector aid approach only partially addressed the problems in the sugar sector. It was primarily focused on estate and factory production. Little attention was paid to the socio-economic integration of the sugar industry in the regional environment.

The conclusion is that the sector aid approach has made a significant contribution to the reform process in the sugar sector, and consequently to the improvement of the economic performance of the sugar industry. However, the sector approach was narrowly defined and social aspects were neglected. In the sector approach and policy dialogue macro-economic aspects dominated. For certain issues, such as privatisation, the policy discussions were based too much on general structural adjustment concepts and too little on sector-specific constraints.

10. Policy options

Experiences with developments in the sugar sector during the 1980s revealed the necessity of a drastic restructuring of the Tanzanian sugar industry. The main restructuring issues are the nature of rehabilitation investments, the privatisation of the sugar industry, the foreign exchange allocation, the need for institutional reform, the role of the outgrowers, and the deregulation of sugar marketing.

Rehabilitation investments

The rehabilitation of the sugar industry is directed towards a more effective utilisation of available resources and production capacity. The arguments in favour of rehabilitation are: the favourable cost-benefit ratio, and the improved outlook for a self-reliant sugar industry. The priority setting has been based upon the most favourable cost-benefit ratio, and therefore priority has been given to the rehabilitation of Mtibwa. However, companies which have a fairly healthy financial position in terms of liquidity and profitability such as Mtibwa, may rely more heavily on commercial loans. For Kilombero, which is hampered by unfavourable operating conditions, the interest of external investors is limited.

It is recommended that the Netherlands complete its long-term assistance to the sugar sector in such a way that an economically viable sugar industry is established. The phasing of rehabilitation on the basis of cost-benefit ratios is acceptable.

It is also recommended that the most necessary investments at Kilombero be undertaken during the first phase of the rehabilitation plan. A study has to be carried out to identify the most urgent investments.

Privatisation

One of the main current issues in the policy discussions between Tanzania and the Netherlands is the necessity of privatisating the estates. The Netherlands position is that management of the estates along commercial lines can best be achieved through privatisation. To facilitate this process the strategy of rehabilitation prior to privatisation was chosen.

Tanzania rejects the idea of privatising the entire sugar industry. Arguments are the absence of a stock exchange and the lack of capital among large segments of the Tanzanian population. Under these conditions full privatisation would mean foreign ownership and/or control by Tanzanians of Asian origin. The interests of international firms to invest in a country with severe balance of payments problems and in a sector which produces mainly for the domestic market are very limited. The only potential investors in this industry are members of the local Asian business community. This option will meet strong political resistance.

It may be concluded that the Netherlands did not clearly elaborate on its position with regard to the modalities of privatisation and the steps towards achieving the most preferable modality for the sugar industry. Furthermore, various studies indicate that rehabilitation prior to sale should be avoided. There is little evidence that governments recover the costs of physical restructuring in the form of higher sales prices.

On the basis of these observations, it is recommended that the dialogue between Tanzania and the Netherlands be continued, concerning the various options for the commercial operations of the sugar industry. Private management arrangements with incentives to reduce costs and enhance productivity and capacity utilisation appear to be an attractive alternative. In this context, it is worthwhile to evaluate the experiences with the private management arrangements at Kagera.

Foreign exchange allocation

An important argument in favour of domestic sugar production in Tanzania has been foreign exchange savings. However, sugar production using modern technology has a relatively high import component. The sugar industry can acquire a substantial proportion of its foreign exchange requirements from the proceeds of sugar exports to the EC and the export of molasses. Additional import needs may be financed through the OGL facility, provided this window operates effectively and donors provide the necessary support to the OGL facility.

Access to OGL also depends on the liquidity position of the sugar industry. Increased capacity utilisation, proper maintenance, and a keen eye on the opportunities for local manufacture of imports, will lower the industry's foreign exchange requirements per unit of output.

It is recommended that the possibilities for reducing the import component in Tanzanian sugar production be investigated and supported, and the future availability of an effective foreign exchange window for the sugar industry be ensured.

Institutional reforms

The stable institutional setting and the training of local staff were favourable elements in the sugar industry during the 1980s. Restructuring of the industry through rehabilitation and operations on commercial lines will demand a stronger entrepreneurial outlook on the part of management and changes to the institutional framework.

These changes will lead to an increase in the companies' autonomy, and a reduced, service-type role for Sudeco. Additional institutional changes have been announced by the Tanzanian government, but have not yet been put into practice.

It is recommended that further changes in the institutional framework be implemented in order to enhance the companies' operations on commerial lines.

Role of outgrowers

Recent price increases have revealed the potential for outgrowers' sugar cane cultivation. The favourable conditions have led to an increase in the number of outgrowers, their yields, and their share in total production. It has also resulted in growing interest on the part of estate staff in developing their own private cane farms. These developments may provide new opportunities for Netherlands assistance in line with the preferred privatisation of the sugar industry. But it may also lead to favouritism by the estate in their services to company staff and employees, and create tension with the local population in the areas surrounding the estates concerning the staff's acquisition of land. To realise the potential for outgrower cane cultivation, a thorough study, a detailed policy plan, and gradual implementation are required.

It is recommended that such a policy plan be devised taking due account of the optimal utilisation of outgrowers' potential, the opportunities for privatisation of the sugar industry in relation to the expansion of outgrowers' production, and the need to reduce income inequalities and to prevent social tension in the sugar-producing areas. In the policy plan, attention is also required for the effects of expansion of sugar cultivation on food crop production, in particular in relation to the position of women.

Market liberalisation

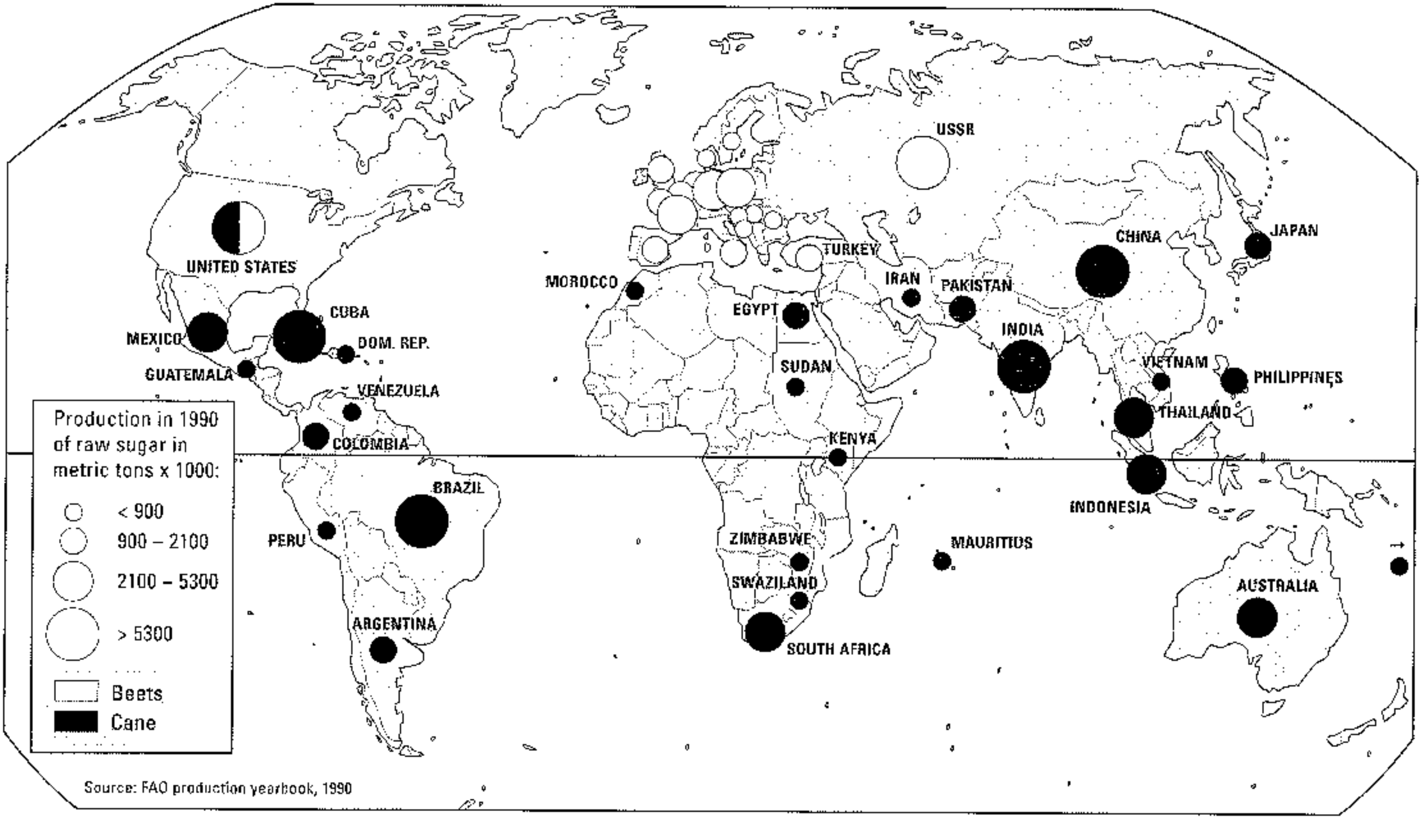
Worldwide the sugar industry is characterised by a high degree of government intervention through various forms of price control and subsidies, because the international market is considered a dump market. Until recently this was also the case in Tanzania.

Since 1986, the marketing of sugar has been liberalised gradually. The liberalisation comprises the importation of sugar, domestic trade performed by private traders, and the abolition of the pan-territorial consumer price. The present high level of taxation and levies on domestic sugar production in Tanzania and the relatively low import duties have made it attractive for traders to import sugar rather than buy it domestically. This has resulted in a lowering of consumer prices in the Dar es Salaam area, an increase in stocks at the estates, and supply shortages in some parts of the country.

It is recommended that a tax and levy structure be devised to protect and provide incentives for local producers in the short term, and that a fair price setting be arranged in the long term by establishing a sugar council with representatives from the various interest groups in the sugar sector in Tanzania.

Part I. CONTEXT

FIGURE 1 MAJOR SUGAR PRODUCING COUNTRIES



Source: FAO production yearbook, 1990

1. The world sugar situation

1.1 Sugar production

The sugar industry is characterised by a number of contrasts and dichotomies. Production, for example, falls into two well-defined and virtually self-contained geographical and political patterns. Beet sugar is produced principally in Europe and to a lesser extent in North America. Between them, these two regions account for about 90 percent of all beet sugar production. Very little beet sugar is produced in the developing countries.

The reverse pattern holds for cane sugar. Apart from small quantities produced in the overseas territories of Spain, Portugal and France (and recorded as European production), cane sugar is produced primarily in the developing countries of Latin America, the Caribbean and Asia. Smaller quantities are produced in Africa, especially in South Africa, and in Oceania, chiefly in Australia.

At present cane production amounts to around two thirds of world total output. This is slightly higher than twenty years ago when it was approximately 60 percent of total production.

Figure 1 shows the most important sugar production areas in 1990.

Notwithstanding sizeable fluctuations, the annual output of sugar increased from 80 million tons in the early 1970s to almost 110 million tons in 1990. Most of this was due to the phenomenal increase in world sugar prices which occurred in the wake of the first oil price increase of 1973 (Abbott, 1990). This price increase provided an incentive for many countries to expand production in order to capitalise on buoyant market conditions, or to intensify their drive for self-sufficiency. Other factors, such as the expiry of the US Sugar Act in 1974, good weather conditions, and a series of good crops in some major producing countries also helped to stimulate world production. By 1978, the world market was experiencing a serious problem of over-production and falling prices. Producers responded by cutting output with the result that by 1980 shortages began to appear. These caused prices to rise sharply again and so set off another bout of expansion which culminated in the 1982 record crop. After 1982 the production of sugar continued to increase, especially in the developing countries.

More than 60 percent of the world's sugar is now produced by developing countries. Compared to the early 1970s, there has been a remarkable increase in the share of developing countries in total world production, namely from 45 to over 60 percent. Most of the sugar produced in developing countries came from Latin America and the Caribbean. In this region, production is, in fact, dominated by Brazil and Cuba, with almost 60 percent of the total output. Other main producers are Argentina, Columbia and Mexico.

Sugar production in Asia has shown a substantial increase over the past few years. By the end of the 1980s Asia had replaced Latin America and the Caribbean as the largest producer of sugar cane. About one third of the total sugar output in Asia comes from India. Other important producers are China, Indonesia, Thailand, Pakistan and the Philippines.

Compared with Asia and Latin America, sugar cane production in Africa is relatively new. Large-scale sugar cane growing started in Africa in the mid-19th century and was introduced in the area by Arab traders. However, production started to expand in earnest in the 1950s. At present, production in Africa is spread over a large number of countries, most of which shared in the expansion of world output which took place during the 1970s. The largest producing country in Africa is South Africa with an average of 2.3 million tons per annum during the period 1988–1990, or approximately one quarter of the total African output. Other significant producers are Egypt with one million tons, Mauritius with 0.6 million, Morocco with 0.6 million, Kenya with 0.5 million, Zimbabwe with 0.5 million, Swaziland with 0.5 million and Sudan with 0.4 million. Tanzania produces about 0.1 million tons.

1.2 The world sugar market

On a per capita basis the world consumption of sugar averages around 20 kg per annum. Apart from one or two years when high world prices have driven it down, the average per capita world consumption has remained stable around this figure for the last two decades.

While the overall level has hardly changed since the early 1970s, a number of interesting characteristics are worth mentioning. First, the developed countries are the largest consumers of sugar on a per capita basis. Current levels in Europe and North America are about twice the world average. These macro-regions generally have a low-income elasticity of demand for sugar. Consumption levels in developed countries are already at or close to saturation point. In fact, per capita consumption in these countries has declined significantly in recent years. The development of artificial sweeteners is clearly responsible for this contraction. Per capita consumption levels in the net-exporting developing countries are also well above the world average. In Latin America and the Caribbean, they averaged roughly the same as in the developed countries. Per capita consumption in net importing countries is generally lower, although it varies widely from country to country. In Bangladesh, for example, it is less than 2 kg per capita and for most Sub Saharan African countries it is below 5 kg. At the other end of the scale are the Arab states, which traditionally have been large consumers of sugar.

To cut down on the high costs of importing oil and to make use of their sugar, a number of developing countries such as Brazil have started to convert sugar into fuel alcohol, most commonly known as ethanol. The prospects for this alternative use of cane, however, are less rosy since the fall in oil prices in the middle of the 1980s (Coote, 1987).

Second, important changes have occurred in the volume and structure of sugar exports. At the turn of the century more than half of all the sugar produced was for export. Now, most sugar is consumed where it is produced and the proportion entering world trade has fallen to less than 30 percent of total output. Of the 100 million tons of sugar which are produced annually, between 70 and 75 million tons are consumed domestically. The amount entering the free market varies between 18 and 20 million tons annually with another 5 to 6 million tons covered by special arrangements and bilateral agreements.

Twenty years ago almost 60 percent of all exports were traded under special arrangements. This proportion is now down to about 25 percent. Basically, bilateral agreements provide a guaranteed market for specified quantities of sugar and a concrete period of time. In this way, they help to increase exports, and in a tighter market, often prove lucrative to exporters. In general, these arrangements reflect a special historical, political and ideological relationship between exporting and importing countries. The two most obvious examples are Cuba's exports to Socialist and Eastern Bloc countries and the Sugar protocol of the Lomé Convention between the European Community and the ACP countries.

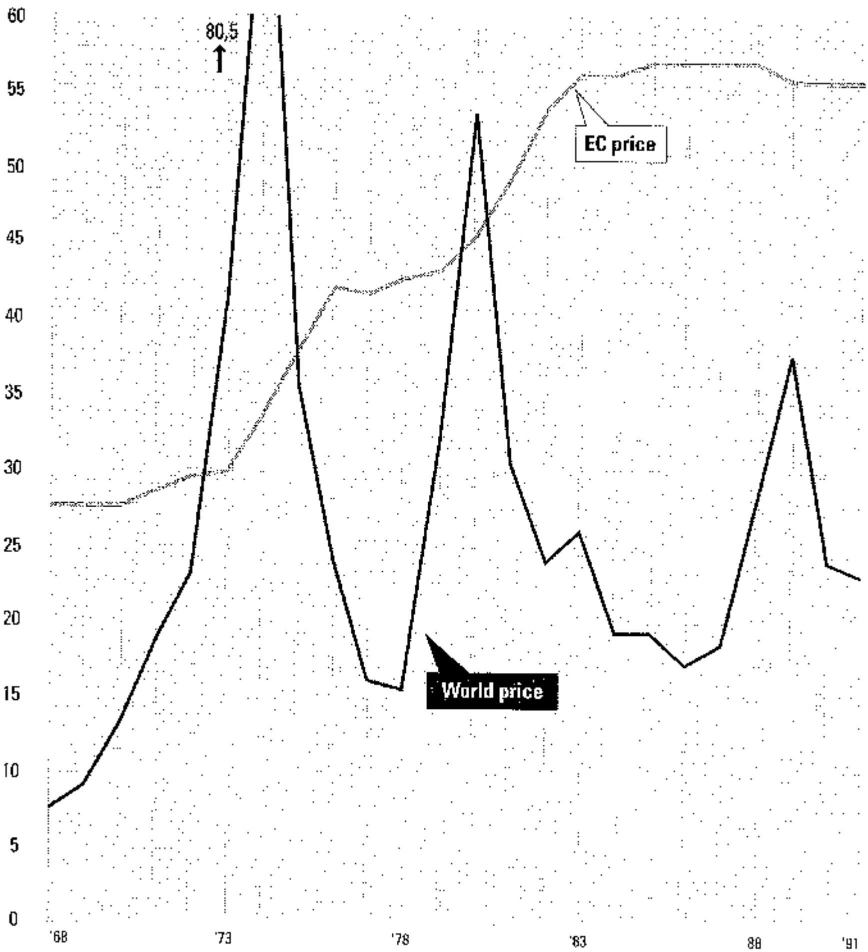
Apart from changes in the quantities becoming available for export, there has been a significant shift in the type of sugar traded on the free market. Decades ago most of the sugar exported was raw sugar produced in the cane growing countries—mostly colonies. The majority of this raw sugar was imported into Europe and the USA, where it was refined in autonomous refineries. Currently, more than half of the sugar traded in the world market is refined sugar. The main reason for this shift is the surplus of refined sugar in the EC as a result of its agricultural policy. But also many developing countries have set up their own refineries and have become major exporters of refined sugar.

Sugar production in the EC

The EC is the largest single producer of sugar in the world. The EC's average output during the 1980s was around 15 million tons, which equalled about 13 percent of world output.

The expansion of the EC sugar production has been strongly stimulated by the policy introduced in 1968. The main objective of the Community's sugar policy was to become self-sufficient in sugar. Before 1968 the EC self-sufficiency rate was about 80 percent. At present this rate is around 130 percent. Consequently, the EC moved from a net importer of sugar to a net exporter. The EC is now the largest exporter of sugar to the free market with a market share of about 25 percent, and it has a virtual world monopoly in the export of refined sugar, with almost 70 percent of total exports.

Figure 2. World and EC sugar prices 1968–1992* (in ECU/100 kg)



Source: EC

*) Figures refer to crop seasons:1968=1968/'69

The main principles underlying the EC sugar policy are: First, the production of sugar is regulated by quotas (each EC member is allocated a maximum quota); Second, there is a system of guaranteed minimum prices covering the basic quotas; Third, import levies are raised to protect the internal market. As a result of the high tariff barriers, the EC does not import any sugar from outside. An exception is made for imports from ACP countries. Under the Lomé Convention, the EC annually imports about 1.3 million tons of sugar from these countries at a guaranteed minimum price (paid within the Community to the sugar industry); Fourth, subsidies are provided for exporting surpluses produced under the quota system.

The EC's sugar policy has resulted in overproduction and burdensome surpluses. Moreover, the allocation of national production quotas has limited the concentration of production in regions ecologically and infrastructurally best suited for beet-sugar cultivation. Therefore, self-sufficiency has been achieved at great costs. The costs of this policy are mainly charged to the consumers, who have had to pay more for their sugar. For example, at present a consumer in the Netherlands has to pay more than Dfl 2 for one kilo of sugar. Approximately half of this amount is used as a subsidy to protect the existing production and pricing structure in the EC. As figure 2 indicates the guaranteed minimum price of sugar on the EC market over the past ten years is on average 2.3 times higher than the world market price.

The Netherlands also produces a considerable surplus of sugar. The 25,000 Dutch beet-sugar farmers together cultivate about 130,000 ha. The processing of these beets is in the hands of two companies: the Cooperative Sugar Union and the Central Sugar Company. Depending on weather conditions, sugar production varies from 1–1.2 million tons. The quota allocated to the Netherlands is 872,000 tons. Since consumption is around 540,000 tons, approximately half of the annual production has to be exported to the world market.

Third, the trade pattern for sugar on the free market has shown a remarkable change over the past few decades. Whereas in the 1970s total net imports by the developed countries amounted to approximately two thirds of the free market trade, by the end of the 1980s, their share had been reduced to nearly a quarter. This reduction by the developed countries was compensated for by the increased activity of the developing countries. In percentage terms, their share of the market rose from 31 percent in 1974 to 60 percent in 1990. Most of this increase came from Asia; oil-producing countries like Indonesia, Iran, Iraq and Saudi Arabia increased their imports substantially. This pattern has also occurred in Africa, where Algeria, Nigeria, Libya and Morocco have been identified as the new expanding markets.

As regards exports, the most outstanding development is obviously the massive expansion which has taken place among the developed countries. Their net exports to the free market rose from about 3 million tons in 1974 to a maximum of 9 million tons in 1982, more than 40 percent of the export market. This remarkable performance was due almost entirely to the EC which moved from being a net importer in 1975 to become a net exporter. It is now the largest single exporter on the free market. It has managed to achieve this position first through its own sugar policy which allowed it to dump increasing amounts of sugar on the free market, and second by not becoming a member of the 1977 International Sugar Agreement (Abbott, 1990).

Finally, it can be observed that, regardless of differences in political system, governments world wide intervene to a greater or lesser extent in the production, distribution and marketing of sugar. Such intervention takes many shapes and is intended to achieve a variety of objectives: for example, to ensure that producers get a fair and reasonable income, to subsidise the domestic price of sugar, or to protect domestic production from overseas competition. Whatever the objectives are, the effect has been the creation of atomised markets in which domestic costs and prices bear little relationship to international market conditions.

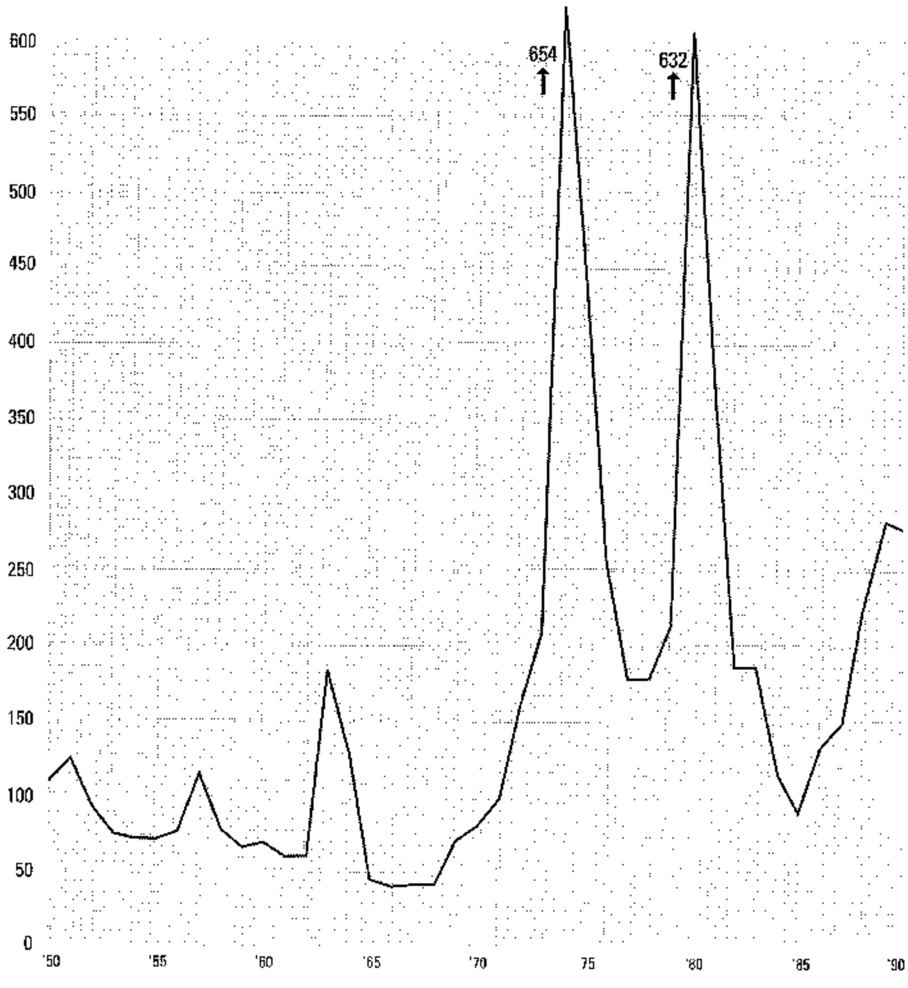
1.3 World market prices

There is no single price for sugar on the world market. This is due to the fact that there are several types of sugar and the price for each one depends largely on where it is sold and the conditions under which it is traded. Two important markets for raw sugar can be distinguished: namely New York and London. The average of these two prices is taken as the International Sugar Association (ISA) daily price which, for all practical purposes, is regarded as the free market price for sugar. The most outstanding characteristic of this price is that it is notoriously volatile, as is clearly demonstrated in figure 3. For details, see Appendix III, table 1.

The volatility of the sugar market can also be illustrated by means of a price instability index. This index measures the average deviation from the price trend in a particular year. This price index indicates that sugar compared with other agricultural products seems to be one of the most unstable commodity markets. A major influence upon price setting is the volume traded in the free market. Because a large part of the world production is not traded at all and a substantial portion of that traded does not enter the free market, relatively small unanticipated shortfalls or surpluses can lead to major price fluctuations.

Prices fell from the early 1950s to the beginning of the 1970s as production outstripped consumption. There were brief recoveries in 1957 and 1963/64. The

Figure 3. World sugar prices 1950–1990 (in US $ per ton)



Source: FAO production yearbook (various issues)

price of sugar in 1966 was the lowest on record. Low world prices, together with substantial falls in production in Cuba and the USSR culminated in the sugar crisis of 1974, when the free market price of sugar reached an all time record. This set off another spurt of expansion. Producers who wanted to cash in on the shortage increased acreages under cultivation. Others responded by speeding up their self-sufficiency programmes. Together, these actions led to considerable over-expansion and excess capacity in the industry and virtually insured that a slump in sugar prices would follow. By 1978, the free market price for sugar was down to the level of 1972 again, whereas 1980 witnessed a replay of the 1974 scenario.

Having averaged a level similar to that of 1974, prices fell again after 1980. Five years later in 1985, world market prices had taken a nose dive to about US $ 90/ton. Figures for 1989 indicate that the average world sugar price rose again in the second half of the 1980s to US $ 282/ton. The collapse of world sugar prices during the first half of that decade was attributed to substantial production increases in the EC and a sharp rise of production and exports in the developing countries. By 1984/85 world raw sugar cane prices were substantially below production costs in every major producing country in the world (Abbott, 1990).

At the end of the 1980s, the stocks to consumption ratio had drastically improved leading to forecasts of further price improvements in the present decade. The stocks to consumption ratio is a critical measure of the supply/demand balance. Most sugar analysts regard a maximum stock level of 25 percent of annual consumption as adequate for normal market requirements. A smaller ratio indicates a scarcity situation and a larger one indicates a surplus. The US Department of Agriculture forecasted the stocks-consumption ratio for the 1989/90 marketing year at 16.8 percent, their lowest recorded ratio since 1974–75, pointing at a scarcity situation. This is supported by the price forecasts for the first half of the 1990s. The World Bank's average projected world market raw-sugar price for the period 1990–95 is estimated at US $ 275/ton.

Lately, trade forecasters have been struggling to evaluate the impact of the upheavals in the former Soviet Republics and Eastern Europe on the world sugar market, in particular with regard to what these changes mean for the special Moscow-Havana trade arrangements. Experts believe that both Cuba and the Commonwealth of Independent States will continue their traditional barter arrangements, although the volume of sugar involved will be reduced. It is indisputable, therefore, that the events in Eastern Europe over the past few years will have an impact upon the sugar market in both the short and long term. Not only are the region's consumption and imports falling as subsidies on retail prices are phased out, but many experts also foresee a future production boom in the ex-Sovjet Union. This implies that Cuba will have to find new export markets for its products in the near future. However, the world sugar price will be no closer to being primarily market-driven than it was before the restructuring in Eastern Europe, according to experts.

In the following sections, attention will be limited to the production of sugar cane.

1.4 Farming systems

Structurally, two main stages can be distinguished in the sugar cane production process. The primary stage described below covers all the activities and operations in the field from the preparation of the land, planting, and harvesting to transportation to the mills or factories. The second stage is the processing of sugar.

Sugar cane is a perennial grass, which is cultivated in tropical and semi-tropical climates. Depending on other conditions, an average annual rainfall of approximately 1600 mm is required. For ripening which involves the building up of sucrose content in the stalks, a dry season of some 4–5 months is needed. During such a dry season the cane can also be transported from the fields to the factory without too many difficulties. An average daily temperature of approximately 28 degrees is the most favourable, and growth is checked by temperatures lower than 15 degrees.

Sugar cane is propagated by cutting fully grown stalks into pieces. The first crop after planting, called the plant crop, reaches maturity after 14–22 months, depending on climatological and soil conditions. The mature plant is 3–4 metres high and about 5 centimetres thick. After cutting the seed cane, the remaining stool sprouts again, and a number of successive so-called ratoon crops are produced. This practice of ratooning is continued over 6–7 years or longer. Although yields decrease with successive ratoons, ratoon crops are more profitable than the plant crop because of lower labour requirements, and a shorter period to mature. Maturing of a ratoon crop may take between 12 and 18 months (Acland, 1971).

Sugar cane produces a very extensive root system in the order of 30 or more tons of organic matter per hectare. This rooting ability controls erosion. In addition, cane enhances the fertility of the soil as its massive root system breaks down comparatively slowly to provide the soil with a rich supply of organic matter and humus.

Sugar cane is produced under a wide variety of conditions and systems. Cane sugar production in the long established cane growing areas in the world—such as the Caribbean—has traditionally been organised on a plantation or estate basis. In parts of the Caribbean, where sugar cane has been grown for 300 years, plantations have been formed over the years by the amalgamation of originally very small estates, each with its own sugar works and distillery, into organisations with modern central factories and cane areas covering large tracts of land. In other regions, such as Africa, where the industry has been established more recently, modern units in the form of large plantations were introduced at the outset.

This approach has, however, been called more and more into question. A socially more acceptable, and economically more valid approach—it has increasingly been argued—would be to encourage the participation of smallholders in sugar growing in developing countries. Rather than ambitious plantation schemes designed to supply an unpredictable world market, small-scale operations with a much lower level of mechanisation might be preferable. This is particularly likely to be true of those countries interested in expanding sugar production principally for domestic consumption. More than 60 percent of the world's supply of sugar cane is now grown by small farmers on plots averaging less than 5 ha (Abbott, 1990).

There are however significant differences in farming systems between the various sugar producing areas. Smallholder participation in production is highest in Asia and lowest in Africa with Latin America and the Caribbean somewhere in between.

In Africa, plantations have been actively encouraged partly in an attempt to promote large-scale production and self-sufficiency in sugar, and partly as a means of bringing about fundamental economic and social change in the agricultural sector. Countries with a dominant estate mode of production are Senegal, Ivory Coast, Ghana, Sudan, Ethiopia, Zimbabwe, Malawi, Swaziland and Zambia.

An alternative mode of plantation production in Africa is the establishment of nucleus estates and sugar factories in combination with the participation of individual farmers, who are called outgrowers. In general, contracts are signed between the estate and individual farmers about each party's responsibility for the various agricultural production operations. Usually the company ploughs, harrows and furrows the plot and even provides labour for cutting. In addition, the company has a field supervisory staff who constantly monitors the performance of cane in each farmer's plot, and also provides the fertilisers. Lastly the company uses its own means to transport cane from farms to the mill. Examples of countries with a substantial share of outgrowers production in Africa are Mauritius, South Africa and Kenya.

A shift further than 50 percent of total production to outgrowers is usually not welcomed by factory management. The feeling is that cane supplies from outgrowers are too irregular to base too much of the factory intake on these supplies. Implicit in this view is that the risks of increased dependence on outgrowers are too high in terms of possible higher operating costs of the factory and more frequent interruptions in production schedules. The Mumias Sugar Scheme in Kenya is an exceptional case, where the outgrowers' supply of cane to the factory was gradually increased to approximately 90 percent of total factory output.

The main agricultural practices in sugar production comprise land preparation, planting, fertiliser application, irrigation, crop maintenance, harvesting and cane transport to the factory. Land preparation consists of a number of practices such as land clearing, levelling, ploughing and soiling. Soiling involves a kind of chiselling operation combined with gathering soil from both sides of the cane rows and piling it over the cane stalks which not only improves soil aeration, but also helps the plant develop its roots and stand firmly in the soil. Land preparation is almost exclusively done by tractors. Planting involves the preparation of seed cane material and the actual planting of stems in the field. Planting is sometimes done by hand but mechanised planting is increasingly taking place. A regular supply of water is the most important determinant of yield levels. The use of irrigation systems is therefore widely spread. Irrigation is, however, almost exclusively limited to plantation and large estate production. Crop maintenance takes place in the form of weeding, the spraying of herbicides and pest control. Virtually all weeding is done manually.

Harvesting starts with drying off the cane. This involves denying the cane plants irrigation water for a period of 4–6 weeks before harvesting it in order to induce the plant to raise its sugar reserve (sucrose). Then follows a process of burning, cutting and transporting the mature cane for milling in a sugar factory. In many countries, the cane is burnt before being harvested. The main advantage of burning is that it makes harvesting less laborious. The main problem involved is that very rapid inversion in the sucrose content starts in the standing cane after burning. Cutting may be manual or mechanical. Manual cutting is preferable since the cane stalks can be thoroughly thrashed, cut at ground level and therefore be relatively clean when they arrive at the factory. Finally, an efficient organisation of the loading of cane and its transport to the factory is crucial. A period of 48 hours between cutting and milling is the usually accepted limit before a serious loss of quality occurs.

For improving efficiency a whole range of potential measures can be taken. For example, many producers organise harvesting operations on a strict rotation basis in order to reduce the so-called 'kill to mill' time i.e. the time between harvesting and milling, since the sooner the cane is processed after harvesting, the higher the amount of sugar which is recovered. The efficiency of this system is limited in countries like India where there are a large number of very small producers who individually transport their cane to the factories. The problems of organising an efficient supply system under these circumstances are virtually insoluble.

One way of comparing the relative efficiency of different production systems is to look at their respective extraction rates or tons of sugar per hectare. There are vast disparities among major producers. In the production of cane sugar, for example, Zimbabwe produces 13.3 tons of sugar per ha as against India 2.3. This huge gap reflects both differences in yield levels and in sugar extraction rates.

Given the wide variety of conditions and systems under which cane is grown, it is inevitable that there will be significant variations in output and yields between as well as within producing countries. Although yields can be improved by a whole range of complementary inputs, the most obvious ones being the development of new and higher-yielding cane varieties, pest-resistant strains, and the use of chemical crop ripeners, performance seems to be dictated more by climatic conditions than any other single factor. The variation in yields in Africa therefore demonstrates the importance of irrigation to successful cultivation. In Zimbabwe, Zambia and Malawi where cane is grown under irrigation, yields exceed 100 tons of cane per ha whereas in Mauritius and South Africa, where less than 20 percent of the crop is irrigated, yields are considerably lower i.e. 70 tons per ha.

1.5 Sugar processing

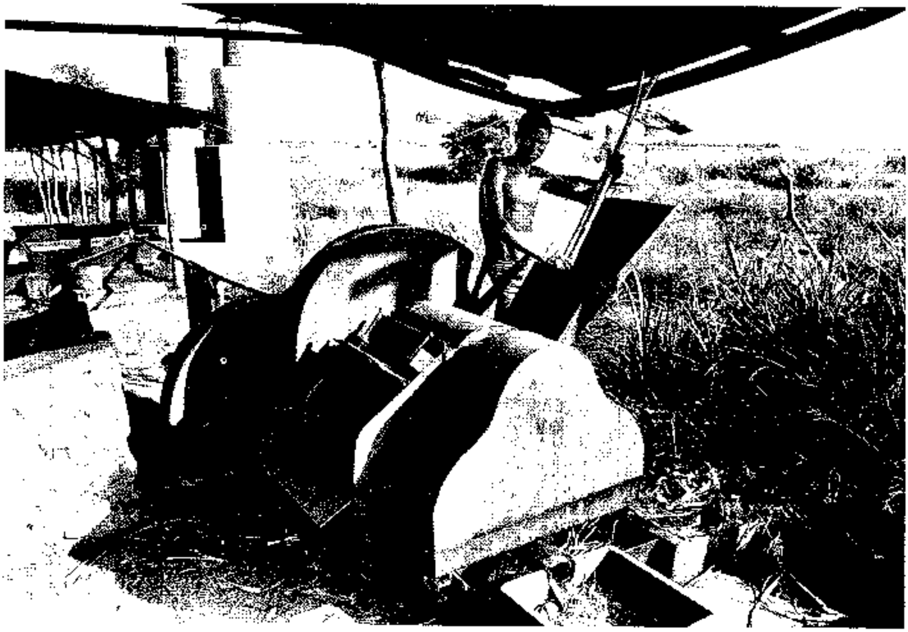
The secondary stage of the production process encompasses the extracting of crystalline sucrose from the cane. A first distinction has to be made between the non-centrifugal and the centrifugal method of sugar processing. The 'raw sugar' produced in the non-centrifugal process is dark-brown to black, has a high moisture content, and contains many impurities. This type of sugar is known as jaggery or *gur*. The basic processes of crushing of cane to extract the sucrose containing juice, the boiling, evaporation and the separation of crystalline sugar and molasses remained unaltered for centuries. A decisive change in the manufacturing process was the use of centrifuges to separate crystals and molasses, which occurred in the 19th century. Only Asia still produces large quantities of non-centrifugal sugar. The total annual production of non-centrifugal sugar is approximately 13 million tons or 10 percent of total world sugar output. The two main producers of this type of sugar are Pakistan and India.

In the centrifugal sugar process, two basic types of technique can be distinguished: the large-scale, capital-intensive, vacuum-pan sulphitation techniques and the labour-intensive open-pan sulphitation techniques. These two types are commonly referred to as VPS and OPS (Kaplinsky, 1984 and Lemmens, 1987). The open-pan centrifugal process was developed in India on the basis of the jaggery technology. The introduction of centrifuges in this process made it possible to separate the crystals from the molasses in an efficient manner. This process is also called *khandsari* sugar production. There is a wide variety of OPS systems. The most simple units use hand-driven centrifuges, and the evaporated cane juice is often crystallised without stirring. The larger units use power-driven crystallisers and centrifuges. The wet sugar output is put on platforms in the open air and dried in the sun. The capacity of the OPS factories varies from 50 to 300 tons of cane per day. The sucrose recovery rate of the simpler traditional processes vary between 4.5 and 5.5 percent, whereas the modernised process attains rates of 6.5 to 7.5 percent. By comparison the recovery rate of the VPS varies from 8 to 13 percent.

The vacuum-pan sulphitation (VPS) processing of cane can be described in detail as follows:

Once the cane reaches the mill, it is cut into smaller pieces and shredded into fibrous material. The shredded cane is fed into a series of heavy rollers or mills, where it is crushed and the juice is extracted. The juice is then pumped away for processing into raw sugar. The residue, known as bagasse, is used for fuelling the mill's furnaces or for making other fibrous products.

Next the juice is clarified by adding lime and boiling the mixture under pressure. The clear juice rises to the top and is then drawn off, while the impurities settle at the bottom of the clarifier. This is drawn off also and mixed with fine bagasse, which is filtered. The mixture of mud and bagasse, known as filter cake, is used as



a fertiliser. The clear juice is passed through a series of evaporators, which draw off most of the water under vacuum. By the end of this process, the juice has been converted into raw syrup.

The concentrated syrup, which is about 70 percent sugar at this stage, is boiled again in a vacuum pan in order to extract more water. When this is done, raw sugar crystals form. The mixture of sugar crystals and syrup is then released through the bottom of the vacuum pan into centrifuges. These centrifuges with perforated baskets separate the raw sugar crystals from the syrup which is boiled again to extract more sucrose. Normally, the process is repeated three times after which the amount of syrup left is no longer worth extracting. This syrup, or molasses, is used to produce alcohol, rum, methylated spirits and, more recently, ethanol. The raw sugar is then dried by tumbling through a stream of air in a rotating drum. Finally, it is transported to sugar bulk installations or terminals for distribution (Abbott, 1990).

The OPS system is often considered more appropriate for the conditions in many developing countries. The OPS provides over six times the total employment and requires less than 40 percent of the investments of the VPS system. In addition, the OPS techniques are less complicated and offer better opportunities for domestic manufacturing industries in the generally smaller and less-industrialised economies of developing countries. In contrast, the VPS system has a high import component and consequently makes heavy demands on foreign exchange. Finally, the VPS system which is usually connected to large-scale estate production, makes high demands on management capacity, a production factor which is often scarce in developing countries.

The OPS system also has a few major disadvantages. It produces sugar with a lower sucrose content, which in fact implies that more land is needed to produce the same quantity of sugar. In countries with a shortage of suitable land and a severe competition between sugar cane and food crops, this is a serious disadvantage. Furthermore, the sugar produced under the OPS system is of a lower quality which may influence consumer demand. Recent improvements in OPS techniques comprise the use of centrifuges to separate sugar crystals more efficiently from the molasses, changes in crushing technology which increase the rate of juice extraction and the introduction of a shell furnace which can burn wet bagasse directly and requires less fuel (Kaplinsky, 1984). These changes have also influenced the abovementioned advantages of the OPS system; they increase capital costs and reduce the labour intensity of sugar processing. However the 'intermediate' system is still less capital-intensive and considerably more labour-intensive than the VPS system.

In spite of the apparent lesser suitability of VPS systems, many developing countries have preferred this type of technique, including those in Sub-Sahara Africa. It is estimated that more than 90 percent of the total world cane production is processed by means of VPS systems.

Tanzania, too, opted for the modern VPS system in its policy to expand domestic sugar production. The country's general development policy and its sugar policy are subject of analysis in the next chapter.

2. Tanzanian sugar policy

2.1 Macro-economic situation

During the years immediately after independence, i.e. in the period 1961–1967, Tanzania retained the free market economy it had inherited from the colonial period. In the agricultural sector, commercial private estates and progressive smallholders were encouraged, and agricultural production was oriented towards export promotion. The manufacturing sector was dominated by private capital, both local (mainly Asian) and foreign, and production was based on import substitution. During this brief period, the Tanzanian economy experienced an increase in its per capita GDP and a relatively favourable balance of payments situation. Although the Tanzanian government encouraged investment by foreign and local private capital, it was also sensitive to demands for rapid Africanisation and it accelerated the expansion of the cooperatives in order to strengthen the position of the African population in the economy.

A fundamental re-orientation of Tanzania's development policy was announced in the Arusha Declaration of 1967. In that year, the Tanzanian leadership officially set the country on a course of socialism and self-reliance. The main objective of the new policy was the creation of an egalitarian socialist society without exploitation and with improved human welfare. State provision of basic services—health, education, sanitation and water—was pursued to ensure access for all Tanzanians to at least minimum standards of these services. Self-reliance implied that the country would rely on its own resources to develop the economy and that the role and significance of foreign aid would be reduced. It also meant state control over the main sectors of the economy. Consequently, the Arusha Declaration was followed by increased government intervention in production, marketing, and distribution. Traditional cooperatives were brought under state control and later replaced by parastatal institutions. The banking and insurance system was nationalised, large private trading companies and industrial enterprises were taken over by the state, and certain types of agricultural estates were turned into state farms. A new strategy for rural development was another key element of the socialist policy. *Ujamaa* villages with communal forms of production became the basic rural economic and social unit. Slow progress in developing voluntary Ujamaa villages led the government to initiate compulsory villagisation in the early

1970s. This resulted in the resettlement of large segments of the rural population within a very short period of time.

The rapid changes in the institutional framework and the intensification of government control had an unfavourable impact on the economy. Economic growth slowed markedly after the Arusha Declaration from slightly more than four percent per year between 1967 and 1973 to 2.3 percent between 1973 and 1978. The trade deficit in this period steadily worsened, in 1974–1975 resulting in a severe foreign exchange crisis, which led to quantitative import restrictions including the introduction of an all-embracing import licensing scheme. Economic stagnation was the result of external and internal factors. The 1973 oil crisis, the second oil price shock at the end of the 1970s, the subsequent world recession and fall in the prices of Tanzania's major export commodities, and the war with Uganda all caused a period of severe economic crisis. Total output declined on average by about one percent per annum. Industrial capacity utilisation went down to 20–30 percent, and the country's physical infrastructure collapsed. The situation was undermined further by the pricing policies of parastatal monopolies entrusted with the marketing and export of crops. To reduce their losses, the parastatals lowered crop purchase prices. Farmers discouraged by the low prices abandoned or neglected their export crop plantations or switched to domestic food crops, thus further aggravating the balance of payments situation. Finally, the crisis sharply reduced the government's revenues and eroded its ability to maintain community services (World Bank, 1990).

Until the early 1980s, Tanzania considered the cause and extent of the economic difficulties to be principally due to exogenous factors rather than to domestic policies. This view was endorsed by the donor community, including the World Bank, as Tanzania was given extensive development aid without the condition of policy reforms. At the end of the 1970s, donors were gradually becoming more critical and argued that, however important external causes might have been, mistaken domestic policies and institutional weakness were important contributory causes for the economic crisis. Initially, Tanzania rejected the economic reform measures requested by the donor community, but later reluctantly accepted the conditions for the expansion of support. In the early 1980s, aid levels started to drop from about US $ 700 million to below US $ 500 million in 1985. The reduction in foreign aid coincided with a substantial decline in export revenues, and therefore contributed to the aggravation of the economic crisis.

In 1986, an agreement was signed between Tanzania and the IMF to support a three-year Economic Recovery Programme (ERP) intended to restore the basis for a market-oriented economy. Policy measures arising from the agreement included the reduction or removal of subsidies, increase in the agricultural producer prices of major export crops, the gradual abolition of a wide range of parastatals, the liberalisation of trade, the reduction of government expenditure, and a series of devaluations. The 1986 agreement was extended in 1990 by a three-year Economic and Social Action Programme (ESAP or ERP II) with similar objectives and policy measures, but more attention focused on alleviating the social costs of the economic adjustment programme.

The 1986 agreement led to a sharp expansion of donor aid to Tanzania to about US $ 1100 million in 1990, which substantially increased the country's dependence on aid. The official development assistance (ODA) amounted to US $ 47 per capita in 1990, which equalled more than 40 percent of Tanzania's GDP and almost 85 percent of its imports.

But not only did the volume of the aid flow increase; the type of assistance granted also showed a significant change. Since the mid-1980s, commodity import support (CIS) has become the dominant form of aid. Donors have considered CIS to be the most effective instrument in supporting the restructuring of the Tanzanian economy. At the end of the 1980s, approximately half the development assistance was being made available in the form of non-project aid. The remaining 50 percent was divided into project aid (30 percent) and technical assistance (20 percent). Whereas at first most of the CIS funds were allocated administratively by Tanzania and donors to beneficiaries, more recently (1991/1992) about 80 percent of these funds have been channelled through the so-called Open General License (OGL) facility. Under the OGL system, an open market approach is followed in the allocation of funds. OGL provides foreign exchange to importers of raw materials, industrial inputs and spare parts for which import licences are issued automatically, provided the shilling equivalent is deposited with the Bank of Tanzania. At first, the issuing of licenses under the OGL system was governed by a short list of eligible goods. Since 1991, the government has shifted to a negative list, i.e. a list of commodities not eligible for import under OGL. Luxury goods and foods and beverages, including sugar have been excluded. A number of practical problems have prevented the OGL system from operating optimally.

A World Bank (1991) assessment of the performance of the Tanzanian economy under the structural adjustment programme indicated respectable growth in both output and per capita income. In the period 1986–1990, the economic growth rate exceeded four percent per annum. However, there are several areas where macro-economic performance continued to be unsatisfactory. Export performance, for instance, lagged behind expectations, and as a result, foreign exchange reserves continued to decline and arrears on debt repayments to increase. The trade deficit increased by about 32 percent from 1985 to 1990, or in actual terms from US $ 710 to 960 million. The two main reasons for this growing deficit were the boom in private consumption on the one hand, and imports and stagnation in export earnings on the other hand. The lower export growth was primarily caused by the deterioration of the external terms of trade for Tanzania's main export products (coffee and cotton). Increased imports were financed principally by external financial assistance. At present, official exports amount to only one third of imports. In an evaluation of the performance of the structural adjustment policies in Tanzania, Rattsoe (1992) therefore seriously questioned the sustainability of the ERP in terms of import capacity, macro-economic stability and production capacity.

2.2 Tanzania sugar policy

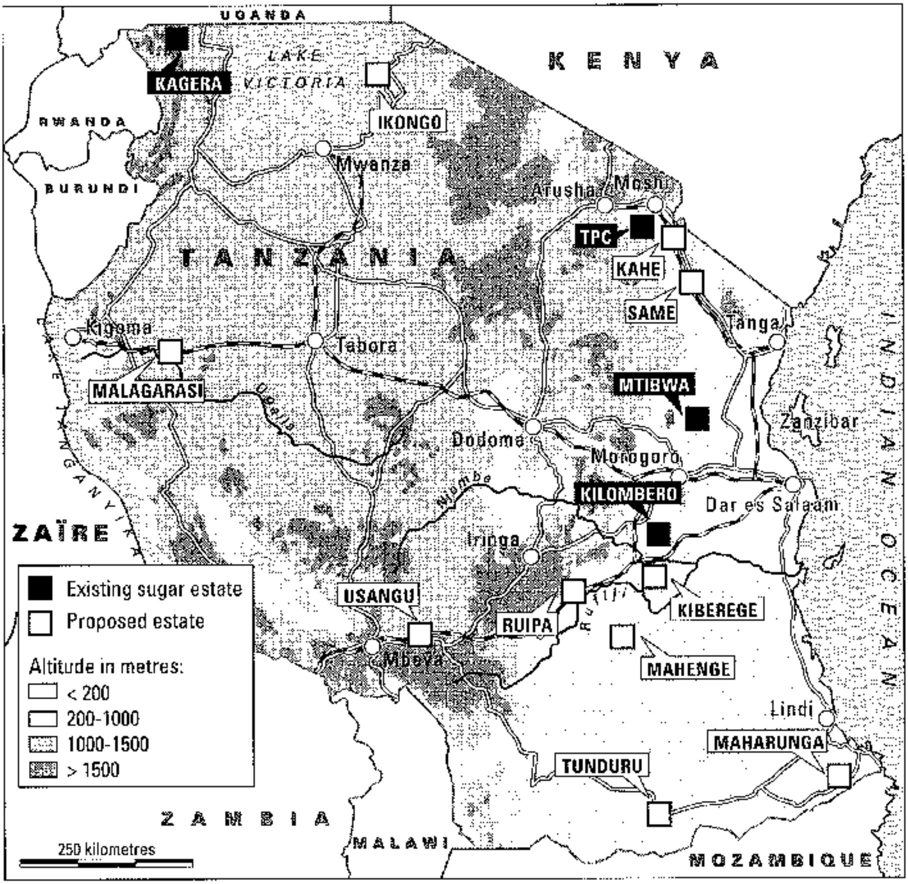
At independence, Tanzania was having to import about half its domestic consumption of sugar. Since sugar was considered an essential food item in high demand in the country, the Tanzanian government decided to pursue a policy of domestic self-sufficiency. Domestic consumption considerably exceeded local production at four privately-owned estates located at Arusha (TPC), Kilombero, Turiani (Mtibwa), and Kagera. Plans were formulated for a sizeable expansion of local production and various studies were conducted to assess the viability of domestic sugar production. The government decided to implement the expansion primarily through large estates, although formally an important contribution to total production was expected from peasant farmers. The expansion programme designed by the middle of the 1970s aimed at a sugar production level of 470,000 tons by 1990. In addition to some expansion at the three existing estates, a spectacular expansion of Kagera was planned, and new areas for sugar development were identified in Mtwara region (Maharunga and Tunduru), south of Kilombero (Ruipa, Mahenge and Kiberege), the Usangu plains west of Mbeya, around Malagarasi in the west along the Tabora-Kigoma railway line, areas around Kahe and Same southeast of Moshi, and at Ikongo near the Kenyan border east of Musoma (see figure 4).

This meant that the objective of domestic self-sufficiency was coupled with that of regional economic development in remote and isolated parts of the country, including border areas. In this way, the expansion of sugar production would strengthen the economic and political integration of these areas in the newly independent state. The 1977 sugar survey reviewed the programme, and proposed the expansion of sugar production at TPC, Kilombero and Mtibwa, the development of Kagera, and the establishment of new estates at Ruipa and Ikongo.

In addition, the sugar industry was brought under government control, which was exercised through the National Agricultural and Food Corporation (NAFCO), and from 1974 onwards through a new parastatal for the sugar industry, the Sugar Development Corporation (SDC or Sudeco). This intensive government control also involved the nationalisation of the sugar estates, strong representation for government ministries on the Sudeco board, and the fixing of consumer and ex-factory price levels.

Although the estate form of production had a high priority in Tanzania's sugar development policy, a substantial contribution of outgrowers to total output had been

Figure 4. Sugar estates in Tanzania



planned from the outset, varying from 30–50 percent between Kilombero, Kagera and Mtibwa. Outgrower sugar cultivation was seen as an important instrument in raising the incomes and the standard of living of the farmers in the rural areas surrounding the estates. However, in the implementation of government policy, the outgrowers did not receive the required attention and support. Both Sudeco and the estate managers, including the foreign advisors, doubted the potential role assigned to the outgrowers. Their main arguments were the outgrowers' alleged lack of reliability in the supply of cane, their inability to provide the required crop husbandry standards, their reluctance to accept extension advice, their preference for food crops, and their low price responsiveness (Werkhoven, 1978). The outgrowers' actual role was discouraged by the low ex-farm prices and the inadequate services provided by the estates, which needed all their resources to maintain their own output levels during the 1980s.

Because of the high world market price for sugar following the oil crisis in the early 1970s, feasibility studies commissioned by Sudeco considered expansion of sugar production very profitable for Tanzania. Consequently, the Tanzanian government decided to accelerate and expand its earlier plans for the intended growth in the sugar industry. The high world market prices of the mid-1970s decreased again rapidly, but this did not lead to changes in the plans for expansion. Implementation of the plans lagged considerably behind planning in any case.

Up to 1975 policy conditions were quite favourable for the sugar estates. Prices were relatively stable and high enough to allow for sufficient reinvestment in capital equipment. Field, transport and factory equipment could be kept in good condition and production was not seriously hampered by breakdowns and lack of equipment. Moreover, the Tanzanian foreign exchange position was such that capital equipment and spare parts could be obtained from abroad within a short period. There were also many well-stocked local dealers and items temporarily not obtainable were supplied by Kenyan trading firms. Consequently, estates did not have to keep large stocks of goods.

From 1976 onwards, i.e. in the very period of planned expansion, production costs began to rise and ex-factory price increases were too low and too late to cover the costs. In addition, the estates received a relatively small share of the price increases when compared to the organisations involved in distribution. Moreover, the Tanzanian foreign exchange position seriously deteriorated, especially from 1977 onwards. The imports required by the sugar industry were tied to opening a confirmed letter of credit, a process that took six to nine months in the early 1980s. Consequently, the estates faced an acute shortage of spare parts, which affected maintenance unfavourably and which caused increasingly frequent breakdowns. The closing of the border with Kenya stopped molasses exports and the import of spares from that country.

All in all, the very period during which a substantial expansion of the sugar industry had been planned, was characterised by a deteriorating macro-economic environment and discouraging sugar production policies.

The consequences of government policy for the sugar industry were serious losses to the estates due to low ex-factory prices—although still above import parity for most years—and, consequently, a shortage of financial means for rehabilitation and maintenance. The increased dependence on donor assistance for the rehabilitation of the sugar industry sparked off a discussion between the Tanzanian government and Sudeco on the one hand and donors involved in the sugar industry on the other about the need for fundamental changes in Tanzania's sugar development policy. The Netherlands, as the main donor, participated intensively in this discussion.

The willingness to introduce major policy changes in the sugar sector was accelerated by the agreement between Tanzania and the IMF/World Bank in the mid-1980s to implement an economic reform programme. During the second half of the 1980s, major adjustment measures were taken which also affected the sugar sector with regard to pricing policy, domestic trade liberalisation, foreign exchange regime, fiscal policies, import liberalisation, and parastatal reform.

Pricing policy

Till the mid-1980s, prices were established by the government for each stage of the marketing chain. The annual fixation of the ex-factory and consumer price of sugar was a cumbersome procedure, chiefly because the sugar price was a politically sensitive subject. The pricing policy was based primarily on the principle to protect the consumer from too high a price. From there a downward calculation was made to arrive at the ex-factory price by subtracting sales taxes and Sudeco wholesalers and retail margins. In this procedure about the price setting usually the factories had to give in most. This resulted, in fact, in consumer prices far below production cost levels or implicitly in a consumer subsidy by the government. In this period, the industry could financially survive mainly through donor assistance.

Since 1988, Sudeco and the sugar companies have obtained the authority to determine producer prices on the basis of projections of production costs and desired profit margins. In this way, the ex-factory price covers the full costs of production and reinvestment requirements. Sudeco discusses these prices with the government to arrive at the necessary consumer prices after adding the taxes, levies and marketing margins. As a result of these increases, consumer prices multiplied sixfold to Tshs 155 in 1990 and 185 in 1992. The new price setting system has been accompanied by more regular payment and a better system of sugar removal on the part of Sudeco and, consequently, by an improvement in the companies' liquidity position.

Domestic trade liberalisation

The growing disparity between supply and demand in recent decades as a result of relatively low consumer prices and stagnating domestic production levels forced the government to introduce a rationing system whereby target groups and areas were allocated specific quotas. The implementation of the quota system was in the hands of Sudeco. A recent NEI report observed considerable differences between quotas and actual distribution. This indicates that financial considerations superseded social goals in the implementation of the system. Under the scarcity conditions, the system was, of course, also rather corruption-prone (NEI, 1991).

The liberalisation of the economy had far-reaching consequences for the sugar marketing policy. In April 1992, the Government of Tanzania decided to deregulate sugar marketing and to abolish the pan-territorial pricing system. Under the present arrangement, private traders can purchase sugar either directly from the estates or from Sudeco's Dar es Salaam-based go-down, at a fixed price arranged between Sudeco and the government. Sudeco attempts to regulate sales in such a way that the total production processed in a six months period is dispatched over the full 12 months, and the various parts of the country receive quantities roughly corresponding with the previous quota. To facilitate the functioning of the system, Sudeco prefers to have a network of official dealers, i.e. private trading firms purchasing on cash terms. Under the new system, the inefficient Regional Trading Companies, parastatals many of which have considerable arrears in payments to Sudeco, are circumvented.

Foreign exchange regime

Before 1985, the sugar industry was dependent on the government or donors for its foreign currency requirements. Because of the scarcity of foreign currency, the allocation of these funds by the government to the sugar sector was restricted. The main flow of foreign currency was provided by the donors, the Netherlands in particular.

Since the mid-1980s, a number of measures have been taken to liberalise the foreign exchange regime. Measures of relevance to the sugar sector are the introduction of an own exchange window, export retention schemes, and the Open General Licence facility (OGL).

In 1986, as one of the first measures under the structural adjustment programme, private transfers of foreign exchange were liberalised. During the period 1986 to 1990, these private transfers (also called own exchange window) constituted one quarter to one third of the import licences issued. It is likely that a substantial part of these own funds is derived from illegal exports. The window is instrumental in the import of sugar.

In 1986 also the export retention scheme had been extended to three categories of exports: category A covered about 25 traditional agricultural exports which were handled by the marketing boards; category B covered non-traditional industrial products, while category C covered non-traditional products and services. Exports under category A were covered by individual commodity agreements, which allowed retention of variable percentages of export earnings, about 10 percent in general (Maliyamkono and Bagachwa, 1990). The sugar industry acquired an exceptional position, as it got the right to use 100 percent of its foreign exchange revenues to finance imports of inputs and capital equipment. Annually, the sugar industry exports 10,000 tons of sugar to the EC under the Lome Convention and it earns some foreign exchange through the export of molasses.

Moreover, in 1988 the OGL system was introduced. This facility provides foreign exchange to importers of raw materials, industrial inputs and spare parts with a minimum of administrative interference. The import of food items such as sugar is excluded from the OGL facility.

Fiscal policies

The sugar industry has always been an important source of revenue for the Tanzanian government. The main instrument has been a sales tax, although excise duties and other taxes have also been added to the ex-factory price for short periods of time. The sales tax as the main form of taxation fluctuated sharply during the 1980s as a proportion of the ex-factory price. In general, there was a high level of taxation in the period 1980–1986—varying from 40–78 percent after a sharp upward trend during the second half of the 1970s—and a gradually decreasing trend after 1986, i.e. after the implementation of the structural adjustment programme, to about 20 percent in 1991. Yet, in absolute terms, the sales tax per ton increased up to 1990 and total tax revenue went up from Tshs 220 million in 1980 to 3,065 million in 1990, which equals a fourteen fold increase over the decade. The sugar taxes' contribution to total sales tax revenue fluctuated between 5 to 10 percent during most of the 1980s (Bank of Tanzania, 1991).

Import liberalisation

Till the mid-1980s, the importation of sugar was controlled by Sudeco. However, since the introduction of the economic recovery programme, the importation of sugar by private traders has been liberalised. Imports come from neighbouring countries in the south (Malawi and Zambia in particular) and from overseas via Dar es Salaam (especially from Thailand). Import duties on sugar were about 30 percent till the late 1980s, but have been reduced recently as part of a further liberalisation of the market. This has however resulted in domestic prices exceeding the import parity price because development levies and taxes on the locally produced sugar are considerably higher than import duties. As a result of this, consumer prices in Dar es Salaam are below the officially set price of Tshs 185 per kg. Furthermore, traders have no advantage in buying directly from the estates as the ex-factory price is the same as Sudeco's ex-warehouse price in Dar es Salaam, which include the transport cost between the estate and Dar es Salaam. Under these conditions, it is more attractive for traders to import sugar than to buy from the local sugar companies. At present, the Tanzanian government is reviewing the price structure of both imported and local sugar to protect and provide incentives to domestic production.

Parastatal reform

After the Arusha Declaration, the sugar estates were nationalised and brought under a holding company, initially NAFCO, and, after 1974, under Sudeco. The estates became subsidiary companies of Sudeco. The structural adjustment policy has also led to a drastic reform of the parastatal sector. The parastatal policy statement of 1991 announced a divestiture programme under which all commercial state enterprises will be open to foreign and local private participation. The sugar industry has not been mentioned in the most recent Policy Framework Paper (1992–1994), which indicates that full privatisation of this industry is not envisaged, and that the production of sugar on commercial lines to enhance efficiency is pursued by other means than privatisation. The contract signed with Newsco for the lease of Kagera is a form of privatisation being tested at present. In addition, according to the Public Corporation Act, 1992 and Treasury Circular No 1 of 1992, Sudeco's role will be reduced to that of a management agent, and it will no longer be the holding corporation for the sugar companies. This implies that Sudeco will cease to perform its monopoly marketing-distribution function in the near future. Sudeco's role and tasks in the Tanzanian sugar industry are presently under review.

After the nationalisation of the sugar industry, personnel policy was subject to regulations governing the parastatals as laid down by the Standing Committee on Parastatal Organisations (SCOPO). This extensive list of regulations covered conditions of employment, restrictions on hiring and firing, levels of wages and salaries, procedures for promotions and grievance procedures. These SCOPO regulations were checked by C.C.M. party branch offices established at each estate, through which party officials interfered in various ways in the management of the estates. The SCOPO regulations and political intervention limited the estate management's capacity for flexible and effective manpower development and personnel policy, and led to overemployment, promotion not related to merit, and employment on political criteria rather than qualifications. This situation is subject to drastic changes at present. With the formal introduction of the multi-party system, the party branch offices have been closed down and the abolition of the SCOPO regulations has been announced for the near future.

The preceding description of Tanzania's sugar development policy reveals the fundamental change of policy by the middle of the 1980s. Before 1986, policy was characterised by a priority for expansion of production by means of the creation of new estates, by a low level of ex-factory prices, high taxation and a high degree of government/Sudeco intervention in the day-to-day management of the estates. After the introduction of the economic recovery programme, the production environment has been deregulated and the sugar producing companies have obtained more room for improved management, and operations on commercial lines.

2.3 Institutional framework

At present, the sugar industry is one of the largest agro-processing industries in Tanzania. It contributes approximately 35 percent to the gross output of the food manufacturing sector and some 7 to 10 percent to total manufacturing value added.

The sugar industry is also a major employer with a labour force of about 20,000, including casual labour for cane cutting.

The Tanzania sugar industry consists of five sugar factories and estates, owned by four companies, TPC Limited, the Kilombero Sugar Company, Kagera Sugar Limited and the Mtibwa Sugar Estate. The Kilombero Sugar Company operates two estates and factories. A holding corporation, the Sugar Development Corporation, holds 100 percent of the shares in Mtibwa, TPC and Kilombero, and majority shares in Kagera. Associated with the sugar industry is the Tanzania Liquid Storage Company, which specialises in the export of molasses. The latter company is jointly owned by Sudeco (20 percent), TPC (40 percent) and a British company (40 percent). The Sugar Development Corporation also owns and operates a training institute for the training of lower and middle management staff, the National Sugar Institute.

The Sugar Development Corporation is a parastatal which resorts under the Ministry of Agriculture. It was established in 1974 by presidential order under the Public Corporation Act of 1964. The establishment of Sudeco represented an attempt to rationalise the sugar sector by amalgamating the various bodies charged with different aspects of the sugar industry in production, marketing, distribution, and research. The main tasks of Sudeco have been described as follows. Firstly, to promote the development of the sugar industry to achieve and sustain national self-sufficiency in sugar as soon as possible in conformity with government policy on food self-sufficiency. Secondly, to manage and safeguard government investments in the sector. Thirdly, to carry out the task of sugar distribution in the country and to arrange for the necessary imports.

Sudeco has always been strongly dominated by the Tanzanian government. The Chairman of the Board of Directors is appointed by the President on the recommendation of the Ministry of Agriculture, and includes two representatives of that ministry and one from the ministry of Finance.

To perform its tasks Sudeco is organised into five departments, namely planning and development, operations, distribution and marketing, personnel and administration, and financial and management reporting. Recently, the Sudeco staff has been reduced from 39 officers in 1986 (excluding administrative staff) to 20 in January 1989.

In sharp contrast to the well-structured organisational framework at the apex of the sugar sector, there is an absence of an umbrella organisation representing the outgrowers. Although a substantial proportion of sugar cane producers have been organised in an association to facilitate estate services around Kilombero, this has been chiefly for the benefit of the estate. It is not an organisation representing all outgrowers and fostering their interests against other parties in the sugar sector. Only recently preparations have been made to establish a real outgrowers organisation.

The institutional framework of the sugar sector has not undergone any major changes since Sudeco was established in 1974. Therefore, the sector has been characterised by a highly stable institutional environment. However, the relationship between Sudeco and the estates has been an issue of regular discussions. Although the chairmen of the board of directors of the estates are members of the Sudeco board, the estates have felt dominated by Sudeco—and in that respect by the government. In their view, this dominance has had a negative effect on the performance of the estates. This situation has been complicated by the appointment of foreign management organisations to run the estates.

A 1986 evaluation report is cautious in its description of the relationship between Sudeco and the estates.

> There seems to be some consensus that the estates are rather autonomous and that Sudeco's role is facilitating rather than managing. But the line of demarcation between 'facilitating' and managing is quite obscure. This happens in many more organisations throughout the world .... Although there is a distinct tendency ... to emphasize decentralisation, there may be forces within Sudeco that do not favour this trend. The main reason for them is obviously efficiency .... Sudeco in its facilitating role feels itself too much dependent on expatriate estate management, who has a different opinion about e.g. localisation. (CCC/Sudeco, 1986)

Recently, an improvement in the relationship between Sudeco and the estates has been reported. This improvement has been influenced by a better system of monthly payments for sugar deliveries, a more efficient removal of sugar by Sudeco, easy access by estates to foreign exchange earned from sugar exports, and better arrangements for overdraft facilities for the estates. In general, in 1989, the estates had a much more positive opinion about the services rendered to them than before (NEI, 1991). Yet in the opinion of the estates, the role of the Sugar Development Corporation for the sugar industry has to be redefined, now the marketing system has been deregulated. The Tanzanian government has already announced such a redefinition As a matter of fact, Sudeco's position as a holding corporation of the sugar companies will be abolished, and it will cease to perform its monopoly marketing function.

Organisationally, the National Sugar Institute (NSI)—a training institution for the sugar industry—also comes under Sudeco's umbrella. The NSI started its operations in 1979. Plans for setting-up training facilities for the sugar sector date back to the early 1970s. These plans were based on the observed serious shortage of skilled manpower and the ambitious plans for expansion. The functions of the NSI are threefold:

- the training of persons in skills required by the Tanzanian sugar industry in the fields of cane production and sugar processing;
- the assessment of manpower needs for the sugar industry with the specific intention of developing and maintaining appropriate training programmes;
- the undertaking of studies relating to work performance with the aim of monitoring and improving productivity in the sector by means of appropriate training.

3. Sugar production in Tanzania

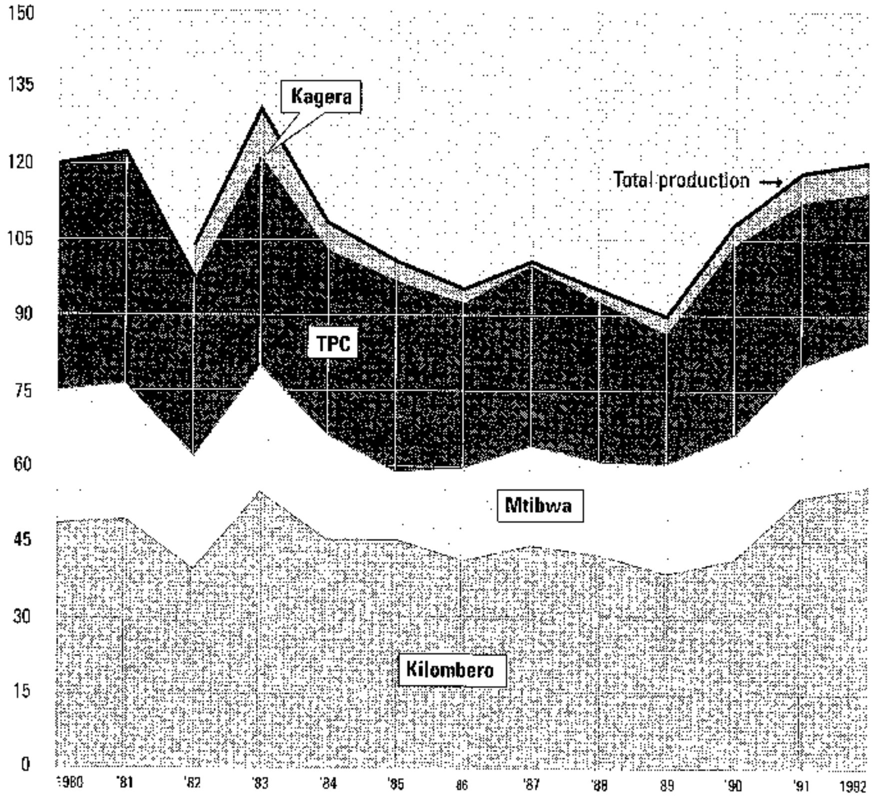
3.1. Production trends and consumption characteristics

Sugar production was introduced in Tanzania at the beginning of this century by Asian and Arab traders. It was mainly produced for the manufacture of jaggery, locally known as '*sukari guru*'. Jaggery is a kind of brown fondant. It is particularly popular in the Asian and Arab communities both for cooking and in sweetmeats. Most jaggery units were in the Morogoro and Moshi/Arusha areas. Jaggery factories were usually small and simple. The cane is crushed to extract the juice which is then boiled until it is thick enough to set in moulds when cooling. When, after independence, the Asians left the countryside and took up residence in the larger towns, the jaggery more or less disappeared from the rural areas. This disappearance was stimulated also by the Tanzanian government's prohibition to operate jaggeries within a 50 km radius of the sugar estates. At present, jaggery sugar is only occasionally available in the market. It seems that, even in scarcity situations, jaggery was not seen by the local population as a substitute for sugar. The main use of this type of sugar was for the brewing of local beer and for the distillation of spirits.

Plantation white sugar production started in Tanzania in the early 1930s. In 1931 the Tanganyika Planting Corporation (TPC) was established at Arusha Chini in the Kilimanjaro region and operated by private Danish interest until the end of the 1970s when it was taken over by the Government of Tanzania. TPC was from the outset an irrigated estate in a rather dry area, where rain-fed smallholder cane could not be grown. Initially, the installed milling capacity was 350 tons per day. During the mid-1950s, this was increased to 1,550 tons. Also in the 1950s, a new private estate was opened in the Bukoba area in West Lake District to cultivate rain-fed cane. At the time of independence in 1961 these were the only two sugar factories in the country.

Plans devised during the colonial period to expand sugar production were adopted after independence, and two new estates were developed during the early 1960s in the Morogoro region, one at Kilombero and one at Mtibwa. As a result of this, sugar production went up steadily during the 1960s, from approximately 40,000 to 80,000 tons per annum. The production increase during the 1970s was less spectacular, and moreover showed significant fluctuations. The average annual output in this period was around 100,000 tons. Years in which sugar production substantially exceeded 100,000 tons were 1976, 1978 and 1979. The production increase at the end of the 1970s was probably mainly the result of a new expansion of the production capacity at Kilombero II. During the 1980s, there was hardly any output growth. The average production in this period was just over 100,000 tons. In the years since 1985, sugar production has even fallen to levels below 100,000 tons. Production showed a healthy recovery to over 110,000 and 120,000 tons in the period 1990–1992. For detailed production figures for the period 1963–1992, see Appendix III, table 2.

Figure 5. Sugar production per estate 1980–1991* (in metric tons x 1000)



Source:Sudeco
*) Figures refer to crop seasons:1980= 1980/'81

As table 3.1 indicates, the export of sugar has been quite stable over the past ten years. Under the EC/ACP Lome Convention Agreement, Tanzania has a quota of 10,500 tons to export annually to the EC market. In the 1970s these exports went to the UK, whereas, during the 1980s, the destination was France.

Table 3.1 Sugar production, imports and exports in Tanzania: Five-year annual averages (.000 tons)

Period	Production	Imports[1]	Exports
1956–60	23.3	22.1	0.9
1961–65	49.1	13.9	1.6
1966–70	78.2	4.9	0.1
1971–75	98.4	31.2	4.2
1976–80	115.2	21.3	16.2
1981–85	113.4	10.1	11.0
1986–90	99.0	11.0	10.5

[1] Official imports.

Source: Sudeco.

The price received for sugar exports is almost twice the world market price. The income from these exports amounted to US$ 6 million in 1990/91. Since 1983, total sugar export proceeds are allocated to the sugar industry via the Sugar Development Corporation. In some years, small quantities of sugar have been exported to neighbouring countries. In principle, Sudeco has an authorisation from the government to export 5000 tons above the EC quota. However, because of the low world market prices compared to the cost price in Tanzania, it is impossible to establish regular export markets.

To supplement domestic supply, Sudeco also imported sugar regularly. Over the last ten years, imports by Sudeco have amounted to some 10,000–15,000 tons annually. Since 1986 also private traders have been permitted to import sugar. A major obstacle to the importation of sugar is the mobilisation of foreign exchange. As sugar is on the negative list of the Open General License system, importers have to get foreign exchange from their own resources, for example in the form of retention on exports. In spite of this obstacle, sugar imports have increased recently and seriously compete with domestic production.

It is estimated that in 1990/91 sugar consumption in Tanzania amounted to approximately 130,000 tons (NEI, 1991). This estimation is based on adding domestic production and imports and subtracting exports. Domestic production of sugar amounted to some 110,000 tons in 1990/91. In that year Sudeco imported 11,500 tons and some 20,000 tons of sugar were imported by private traders. Some of these imports enter Tanzania unofficially from the neighbouring sugar surplus countries Zambia and Malawi. Local production and imports lead to a per capita consumption of slightly more than 5 kg. The consumption level of sugar has dropped substantially over the past few decades. In the early 1970s, sugar consumption reached its peak with almost 10 kg per capita. The fall in per capita sugar consumption was mainly caused by supply constraints. Whereas the population more or less doubled between the late 1960s and the early 1990s, the supply of sugar on the local market remained fairly stable around 130,000 tons.

The importance of sugar to dietary habits in Tanzania has been confirmed by recent studies which indicate that sugar ranks very high among essential consumer items. After clothes, sugar scores second on the list of priority goods (Cooksey, 1987). Sugar is also classified as an essential food commodity by the Tanzanian government. It is considered as a basic item of the local diet and an important source of energy in the food supply.

Since sugar is considered a basic food item, the sugar price was regulated by price control measures to avoid that sugar would become too expensive and out of reach of the majority of the population. Government estimates of the demand for sugar (or more accurately sugar requirements) were therefore based on some desired level of per capita consumption. It appears that the main basis for this estimate of 'demand' was the consumption level of Tanzania's northern neighbour Kenya, where per capita consumption amounts to some 20 kg. On the basis of this principle, Sudeco estimated the demand for sugar at the end of the 1980s at more than 400,000 tons.

The large disparity between supply and demand over the past decades forced the government to introduce a rationing system whereby target groups and areas were allocated a specific quota. Based on the availability of sugar for the local market annual quota were fixed for different types of consumers including industrial users (breweries, food companies), consumers in Dar es Salaam and consumers in the region. Because of political reasons the quota for Dar es Salaam was very high in comparison with that for the other regions, permitting a per capita consumption of about 25 kgs per year. Quota for the regions were based on their population. The distribution over these three main categories of consumers was roughly as follows: 20 percent went to industrial users, 50 percent was allocated to Dar es Salaam and the remaining 30 percent was distributed over other regions. Considerable differences between quota and actual distribution could be observed (NEI, 1991). Large quantities of sugar were sold in the open market at higher prices than the official one. In the rural areas the actual price was more than twice as high as the official price (Maliyamkono and Bagachwa, 1990).

However, since the end of the 1980s the official price of sugar has been drastically increased. This substantially higher price will have a significant impact on the potential sugar consumption. In the estimation of potential demand, income levels play a crucial role. The price elasticity of the demand for sugar in Tanzania is assumed to be high, namely around two. This means that a one percent change in the price of sugar changes the demand by two percent. Given a retail price of Tshs 190 per kg the potential demand in 1991 is estimated at 160,000 tons (NEI, 1991). This is substantially lower than the 470,000 tons estimated in the 1970s by Sudeco for that year.

Compared to per capita consumption in other low-income countries, Tanzania's present per capita consumption is around average. Among the group of the 20 lowest-income countries, Tanzania scores even high. Only four countries have per capita consumption levels of sugar exceeding that of Tanzania. In the

African context, countries having a significantly higher consumption level are the North African states such as Algeria and Egypt (around 30 kg per capita), which traditionally have been large consumers of sugar, and the net exporters of sugar, such as Zambia (13.0), Malawi (13.0), and Kenya (20.0).

3.2 Estate production

As is stated above, sugar is produced by four sugar companies on the mainland of Tanzania, managing five estates. The agro-ecological conditions, the history of ownership, capacity expansion, and the level of development aid differ for the various estates. A short description of these characteristics for each estate is given below, as well as data on their performance during the 1980s.

TPC estate

The TPC estate is located to the south-east of Arusha in the Kilimanjaro region in an area with temperatures suitable for sugar cane, although irrigation is essential. Annual rainfall averages only about 500 mm and all months except April are sufficiently dry for harvesting. A gross crop length of 300 days leaves two months for factory overhaul. For part of the estate only rather saline irrigation water is available. Cane quality is rather poor, owing to climatic factors, salinity and pest problems (Tate & Lyle/Booker, 1977).

TPC Limited was established in 1930 and operated as a branch of A/S The Tanganyika Planting Company of Copenhagen. It was privately owned by A.P. Moller of Denmark. The company started with a small second-hand factory with an installed capacity to crush 350 tons of cane per day (tcd). The first sugar crop was milled in 1936. New mills and boilers were added in 1955–56, which increased the capacity to 1,550 tons. Between 1973 and 1976, an additional plant was installed, and the capacity increased to 2,500 tcd. Factory capacity expansion was accompanied by extending the area under cane. In June 1973, TPC was incorporated in Tanzania under the Companies Ordinance as TPC Limited. Since the mid-1970s investments in TPC have been drastically reduced, and consequently, annual production has gone down. A major reason for the reduction has been the low ex-factory sugar price in relation to increases in cost. In 1979, the company entered into an agreement with the Government of Tanzania for the sale of all shares to the Sugar Development Corporation. Consequently, TPC became a parastatal organisation and a wholly-owned subsidiary company of Sudeco.

During the 1970s and early 1980s, TPC received Danish development assistance. This was discontinued when Denmark withdrew its assistance to the sugar industry in 1984. Since 1985, TPC has been allocated foreign currency from the annual sugar export to the EC and through Netherlands import support to the sugar sector. In addition, loans have been obtained from the East African Development Bank and through Japanese import support, each for US $ 2 million, to rehabilitate the milling section and buy new farm equipment respectively.

On TPC, almost 100 percent of the cane is irrigated. The available area under irrigated cane was about 5,500 ha and has been expanded recently to 5,800 ha. TPC does not use the outgrower system. Climatic conditions permit an operating period of 270 days, which is substantially higher than the other estates namely 180 days. Since TPC operates more or less the whole year through it does not use seasonal workers. At TPC, about 5000 people are employed. Since 1991, the management of TPC has been fully in the hands of Tanzanian nationals. Till that date, TPC had had a management contract with Carl Bro, a Danish consulting firm.

Sugar production at TPC showed a gradually increasing trend between the middle of the 1960s and the middle of the 1970s, from some 30,000 tons to 45–50,000 tons per annum. Then the output level stagnated at around 45,000 tons up to 1981. During the 1980s production levels decreased to around 30.000 tons. See table 3.2 and Appendix III, table 2.

Table 3.2 Sugar cane production and factory performance, TPC

	1980[1]	81	82	83	84	85	86	87	88	89	90	91	92
Cane crushed (.000 tons)	542	533	450	478	440	435	400	383	352	319	428	348	325
Yield (tons/ha)	100	110	113	110	119	112	98	80	68	62	74	61	60
Sugar production (.000 tons)	45	46	35	42	37	38	33	36	32	26	39	33	30
Factory yield (% sucrose)	8.4	8.6	7.8	8.7	8.4	8.7	8.4	9.3	9.8	8.3	9.2	9.4	9.0
Capacity utilisation (%) (60,000 tons)	75	77	58	70	61	63	55	60	53	44	62	55	50

[1] Figures refer to crop seasons: 1980 = 1980/81. *Source: Sudeco.*

This decline is mainly caused by a reduction in the annually harvested cane area and by sharply declining yield levels after 1985. Some of the areas were abandoned because of processing problems (milling section), high pest infestation and shortage of irrigation equipment.

Kagera Sugar estate Limited (KSL)

The Kagera sugar estate is located on the main road to Uganda, about 40 miles west of Bukoba in the West Lake Region. The estate lies at an altitude of 1,300 feet and climatic conditions for cane cultivation compare unfavourably with the other sugar producing areas, mainly because of the marginal temperatures. The rather low mean day and night temperatures restrain the growth of the cane and there is a period of 18–24 months between harvests. Rainfall at Kagera is also considered deficient, but because of the rather low evaporation rate, irrigation was considered less essential. However, without irrigation, yields must be expected to be low. The rainfall pattern makes April the only month in which harvest operations have to be stopped (Tate & Lyle/Booker, 1977). KSL was started in 1956 by the Grewal Singh family, who already operated a saw mill in the area and had extensive interests in timber and sugar production in Uganda. It was part of Kagera Saw Mills Ltd. Initially, the estate produced cane for jaggery production until the factory was completed in 1958–59. The factory was assembled from second-hand parts and equipment obtained from India and Kenya. An overhead irrigation system covering some 300 ha was installed in 1967.

Negotiations about a joint venture between Kagera Saw Mills and the National Agricultural and Food Corporation (NAFCO) were successfully completed in 1970. When Sudeco was formed in 1974, the KSL shares held by NAFCO were transferred to Sudeco.

As early as 1970, NAFCO had started to look into the possibilities of expanding sugar production in the Kagera area. In 1972, NAFCO and Kagera Sugar Mills agreed to build a sugar refining plant with a capacity of 56,000 tons of sugar per annum. Two years later, Sudeco commissioned a new feasibility study by Booker Agricultural International. The main departures from the 1972 plans were the expansion of the estate to 16,000 ha with 8,000 ha under irrigation (as the contribution of outgrowers and *ujamaa* villages was considered unreliable), and the construction of a new factory with a capacity of 3,500 tcd, and an alcohol plant with an output of 7.3 million litres. Sugar output was valued at import prices, and an internal rate of return of 8.8 percent was expected. The plans provided for an increase in the cost of the project from Tshs 200 million to Tshs 400 million. In 1976, a revised report reduced the size of the factory to 2500 tcd and the distillery to 3.9 million litres. Sugar output was now valued at export parity, and the internal rate of return decreased to 4 percent. The report also gave an alternative plan leaving out the distillery, reducing expenditure on housing, and again using the import price for output valuation. This tripled the internal rate of return to 12.4 percent. Sudeco opted for the latter plan (NEI, 1981). The project was implemented under two separate contracts. The factory construction contract was awarded to the Indian firm Walchandnager Industries Ltd., and financed by loans from India (80 percent) and the Abu Dhabi-Fund. The contract for the development of the estate was obtained by HVA and financed by Tanzania and Netherlands development aid. Implementation of the projects started in 1977, but activities came to a standstill when the war with Uganda broke out in 1978. They were resumed after the war, and in 1982, the factory and the tractor workshop were completed. The factory experienced substantial operational problems with the power supply and the boilers. Estate expansion took some more time, and by the middle of 1984, about 4,800 hectares were at various stages of development (Chambua, 1990). Since the mid-1980s, no further donor support has been given, as the estate was considered financially and economically unviable.

During the 1960s, the annual growth of output was about 15 percent, and it consistently ran at a profit and without subsidy. By the mid-1970s, production had stagnated, which was partly attributed to uncertainty about the expansion plans and partly to a decline in the initially promising outgrowers' production. The reason for the latter decline was poor management by urban-based owners of the cane farms, and the widespread occurrence of fires in the cane (Raikes, 1976). A common reason for the decline in production by estate and outgrowers, was the shortage of labour for harvesting, which until 1970 was solved by recruiting migrant labourers from Rwanda and Burundi. On government order, recruiting had to be stopped to keep the jobs for Tanzanians, and during the 1970s seasonal labourers came from the Mbeya region. However this did not meet the demand for permanent labour, and the labour situation remained a crucial bottleneck.

Production at Kagera came to a complete standstill as a consequence of the Tanzanian-Ugandan war from 1978 to 1982. The exp..nded estate and the new factory resumed production in 1984, and achieved the highest output figures ever during a three-year period (1982/84). Thereafter, production declined again to the level of the early 1960s, i.e. around 3,000–3,500 tons per annum (see table 3.3). Between 1983/90, a total of only 38,000 tons of sugar was produced, indicating an average capacity utilisation of a mere 5 to 10 percent.

Table 3.3 Sugar cane production and factory performance, Kagera

	1980[1,2]	81[2]	82	83	84	85	86	87	88	89	90	91	92
Cane crushed (.000 tons)	–	–	95	137	115	65	67	21	33	34	50	86	74
Yield (tons/ha)	–	–	69	77	67	55	46	29	33	35	43	n.a.	n.a.
Sugar production (.000 tons)	–	–	7	9	6	4	3	1	2	3	4	5	5
Factory yield (% sucrose)	–	–	7.2	6.4	5.3	5.8	5.0	4.4	7.1	7.5	7.1	5.9	6.0
Capacity utilisation (%) (60,000 tons)	–	–	11	15	10	6	6	2	4	4	6	8	8

[1]Figures refer to crop seasons: 1980 = 1980/81. *Source: Sudeco.*
[2]For 1980 and 1981 no production because of the war and the construction of the new factory

The poor performance of Kagera was primarily caused by the estate's isolated position with long and costly lines of communication, especially when during the period of general economic decline in Tanzania, the transport situation strongly deteriorated. The discontinuation of Netherlands assistance in 1984 aggravated the production conditions at Kagera; in combination with deficiencies in management it caused a cannibalisation of processing facilities, while large parts of the recently established cane fields returned to bush.

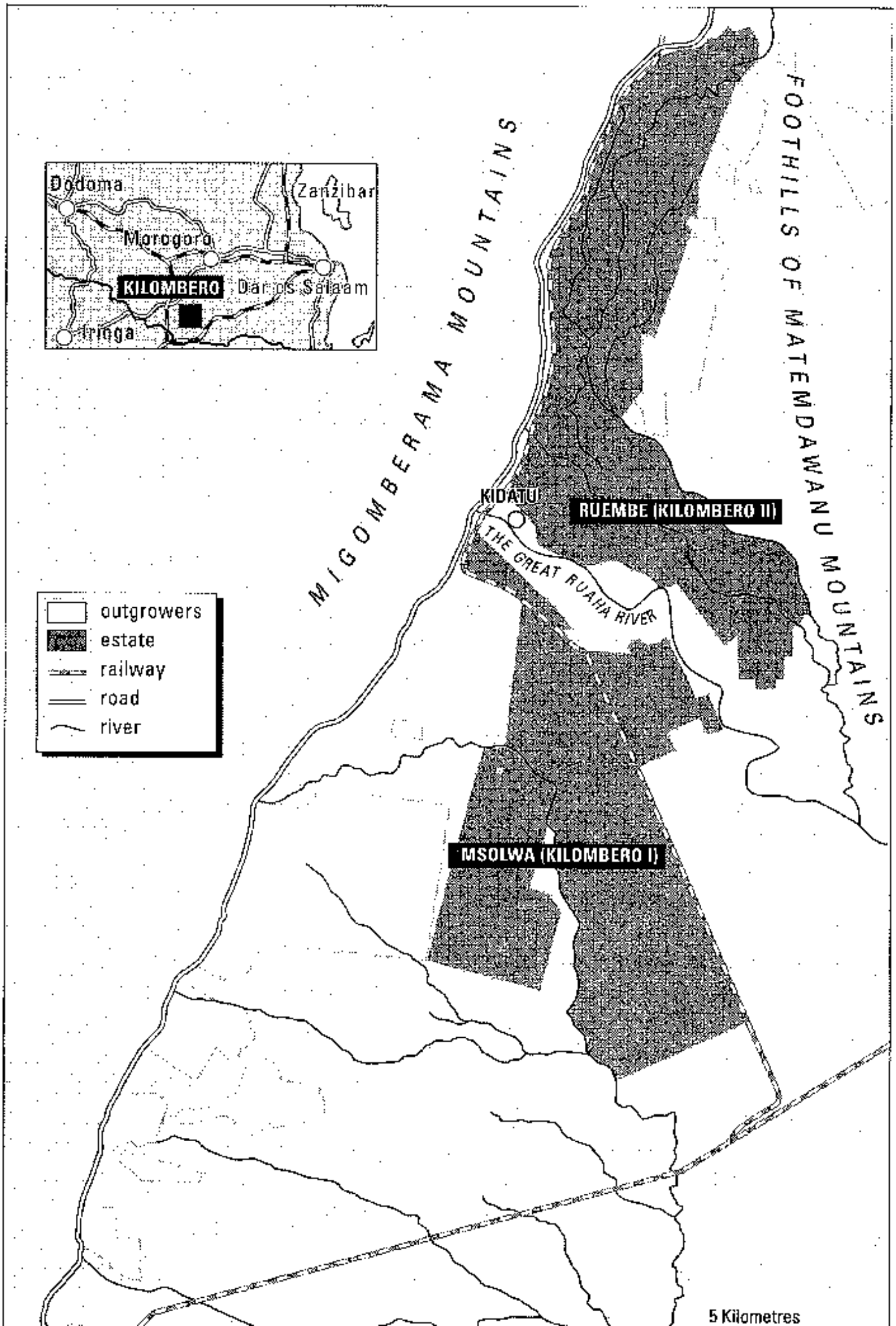
In 1988, the situation changed again when Booker/Tate took an interest in Kagera. A private company was formed to provide management assistance to the estate. This company—Newsco—is jointly owned by Booker-Tate and a private Tanzanian company (51 percent) and Sudeco (49 percent). Booker-Tate conducted another feasibility study, proposing a $75 to $100 million rehabilitation plan which will increase production to 60,000 tons of sugar by 1997. Under the first phase, a new management team was provided and further studies were undertaken. Implementation of the plan entails foreign funding for the large investment and arrangements with regard to the accumulated debts. To facilitate the implementation of the plan, Newsco intends to take over all movable assets from KSL, and to lease the plant and the buildings. This arrangement indicates that KSL is no longer involved in sugar production and that the Government of Tanzania and Sudeco will bear Kagera's accumulated losses.

The Kilombero Sugar estates (KSC)

The Kilombero Sugar estates are located south-east of the Mikumi National Park along the Mikumi-Ifakara road in the Morogoro Region. The Kilombero Sugar Company Limited (KSC) which owns the estates, was formed before independence in 1960, after initial soil suitability investigations for sugar growing had been carried out in the Kilombero valley during the period 1955–1957. Soils in the valley were found suitable for sugar, and climatological conditions were also found favourable. Rainfall averages about 1500–1800 mm per annum. Yet, irrigation was considered desirable to increase yields and to reduce variations in yields from year to year. June to November is the best harvesting period. This gives a period of 180 days with little interference from adverse weather conditions and sufficient time for factory maintenance.

The Netherlands consul in Tanzania in the 1960s, who owned a Tanzanian trading company involved in the import of sugar, played an important role in establishing KSC, and successfully arranged for international financial support. The major private shareholders in KSC were the International Finance Corporation (IFC), an affiliate of the World Bank, the Commonwealth Development Corporation (CDC), and the Netherlands Overseas Financing Corporation (NOF). The company started its activities in 1962. Management was put in the hands of the Vereenigde Klatensche Cultuurmaatschappij, a Dutch company with experience in sugar cultivation in Indonesia. The KSC experienced considerable problems during the first years of its operations. Inadequate management by the Vereenigde Klatensche Cultuurmaatschappij was seen as one of the major reasons for these

Figure 6. Location of Kilombero Sugar estate and outgrower areas



poor results. In 1965 therefore, management responsibility was transferred to the Handelsvereeniging Amsterdam (HVA).

In 1969, the Tanzanian government negotiated with the investors and bought all the shares, so taking over the company. In 1972, these shares were entrusted to NAFCO, and later to Sudeco, when it was formed in 1974. Early in 1970 the capacity of the factory was raised from 20,000 tons of sugar per annum to 36,000 tons. Subsequently, in 1974–76, a second sugar estate, Kilombero II was developed in the Ruembe valley, adjacent to the existing one, which was now called Kilombero I.

The expansion of Kilombero was undertaken for the following reasons: the rapid increase of domestic sugar consumption, the high world market price for sugar, the advanced infrastructure in the area, the tradition of cane-growing by local farmers, favourable agro-ecological conditions, and employment for 2,500 workers. An HVA conducted feasibility study planned a nucleus estate of 1,400 ha of irrigated cane and 2,040 ha of rain-fed cane, while outgrowers were expected to cultivate 1,840 ha. This would lead to an annual output of 45,000 tons of sugar. Yield levels were estimated at 107 tons per ha for irrigated and 82 tons per ha for rain-fed production. Outgrowers were expected to achieve yield levels of 45 tons per ha. The substantial contribution of the outgrowers—about one-third of the total cane supply to the Ruembe factory—was based on the expected considerable assistance from the KSC including land clearing and planting for the first crop, and revolving loans for cost-of-living expenditure during the first few years and for cane transport, mechanical field work, the supply of seed cane, and extension services. In spite of this, the relationship between the estate and farmers in the area came under strain at the very beginning. The expansion of Kilombero in the Ruembe valley required the removal of a number of local farmers to areas with less fertile soils and against little compensation. The Kilombero II estate came into operation in 1976, when the new factory was officially opened.

The total investment for the expansion programme was Tshs 48 million. It was financed by the Netherlands and Danish governments (47 percent), the World Bank (27 percent) and Tanzania (28 percent). The financial rate of return of 14.5 percent over 28 years on the basis of an import substitution price of Tshs 1,460 per ton was an important consideration.

In 1975, i.e. before the new factory had even opened, the Tanzanian government was no longer able to pay for the HVA management contract, and this contract was then brought under Netherlands development assistance. In the late 1970s, the management positions were handed over gradually to Tanzanians, and the number of expatriates was reduced. From 1980 onwards, however, Tanzania requested a renewal of management assistance by HVA, following a dramatic drop in production in 1979 and 1980. According to a World Bank completion report (1984), the main factors responsible for bringing down the production levels were:

(i) the rapidly deteriorating general economic situation, with a severe overall shortage of foreign exchange

(ii) poor ex-factory prices, which prevented the generation of funds with which to buy spares and replacements for original KSC equipment
(iii) the deterioration in management following localisation in 1977, which was further aggravated by the total lack of labour discipline.

During the 1980s, Kilombero received substantial assistance from the Netherlands mainly in the form of import support, and technical assistance. Since 1990 the management of the KSC has been in the hands of Tanzanian nationals. In early 1992 the last expatriate technical advisors left.

The total area under cane at Kilombero I and Kilombero II during the 1980s was on average 8,000 ha, of which 2,000 ha were cultivated by outgrowers. About two thirds of the cane production in the estate area is under irrigation. At KSC, about 10,000 people are employed approximately 6,000 of whom are seasonal labourers.

The average quantity of harvested cane during the period 1980–1989 amounted to approximately 475,000 tons per annum, of which 20 percent was delivered by outgrowers. Since 1980 the contribution of outgrowers to the total cane supply has declined by about two thirds from 158,000 tons in 1980 to 55,000 tons in 1989. Both the area under outgrowers' cane and productivity per hectare have decreased considerably. Previously cultivated cane areas have turned into paddy farms, while on the remaining cane areas many fields mainly consisted of very old ratoons with a low productivity per unit area. However, in recent years (1990–92), there has been a spectacular increase in outgrowers cane supply from 61,000 to 97,000 tons. An attractive price and improved support services by the company appear to be the main reasons for this achievement (see table 3.4 and Appendix III, table 2).

Table 3.4 Sugar cane production and factory performance, Kilombero

		1980[1]	81	82	83	84	85	86	87	88	89	90	91	92
Cane crushed														
(.000 tons)		521	508	430	602	482	463	436	483	427	418	438	551	574
Cane yield														
(tons/ha)	KI	51	59	67	83	71	67	63	71	67	58	62	73	78
	KII	63	73	74	90	66	61	65	71	63	62	70	71	77
Sugar production														
(.000 tons)		48	50	40	55	46	46	41	45	43	39	42	54	56
Factory yield														
(% sucrose)	KI	9.5	10.2	9.5	9.5	9.5	10.2	9.5	9.5	10.0	9.2	9.7	9.8	9.7
	KII	9.4	9.6	9.2	8.9	9.8	10.1	9.4	9.3	10.2	9.5	9.8	9.8	9.7
Capacity utilisation														
(%) (35,000)	KI	57	57	43	69	60	60	54	60	60	45	53	65	75
(%) (40,000)	KII	73	75	63	78	63	63	59	61	55	59	61	78	75

[1] Figures refer to crop seasons: 1980 = 1980/81.

Source: Sudeco.

The main problems experienced during the 1980s in the production and processing of sugar cane at KSC were: deterioration of the irrigation systems; scarcity of tractors for maintenance of fields; late arrival of certain inputs (e.g. fertilisers) increase in the incidence of diseases; collapse of the weir structure across the Ruaha river; and inadequate maintenance of the factory causing regular breakdowns. In addition, the Kilombero I factory is rather old (1962) and needs rehabilitation. Furthermore, the low motivation of staff due to low salary levels was a serious problem.

However, the main reasons behind these problems have been the general economic decline in Tanzania during the late 1970s and early 1980s and the low ex-factory price. The recent increase in output at KSC (550,000 tons of cane in 1991–92) was primarily the result of improved access to foreign exchange, changes in the price structure, an incentive package to employees, and a higher cane supply by outgrowers.

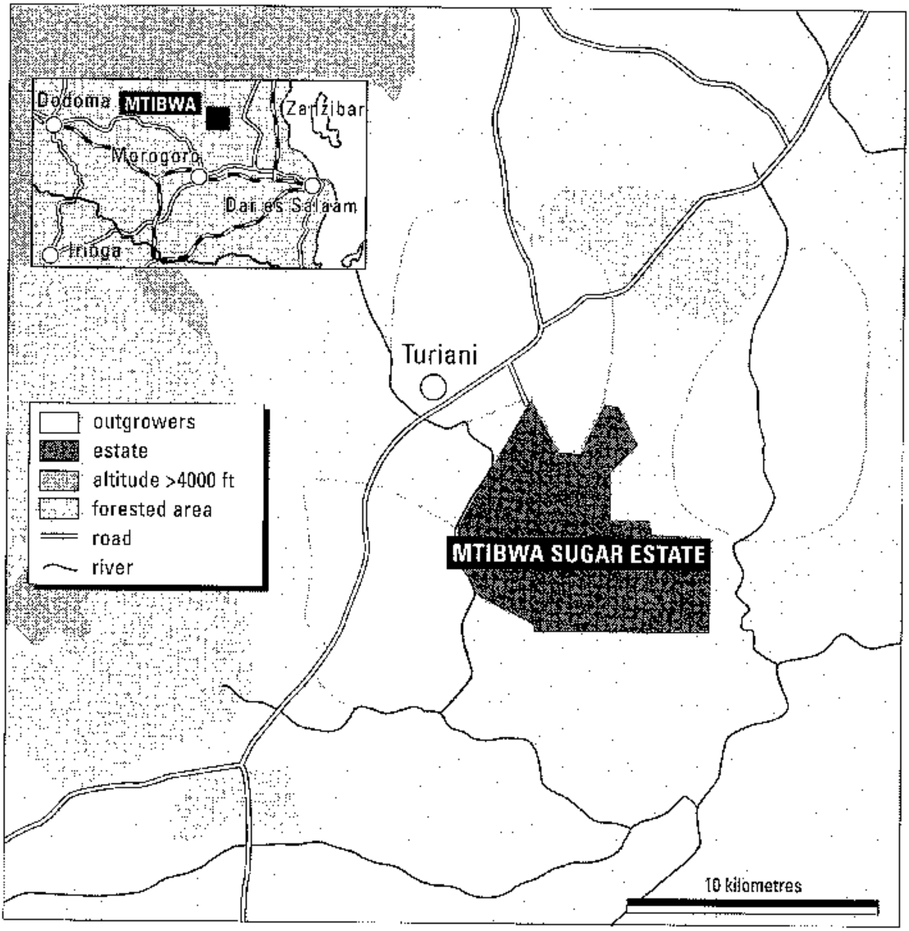
Mtibwa Sugar Estate (MSE)

The Mtibwa Sugar Estate is located east of the Nguru Mountains near the village of Turiani in the Morogoro region. The agro-ecological conditions are marginally suitable for cane cultivation. The average annual rainfall amounts to 1200 mm per annum with variations from 800 mm to 2000 mm. The rainfall pattern is bi-modal, with a 6-month dry season between May and October. The mean annual precipitation is marginal for cane growing under rain-fed conditions, taking account of the annual distribution pattern and the year-to-year variation. The prolonged dry season which is beneficial for harvest operations, unfavourably affects yield levels. To minimise variations in cane supply and to achieve maximum utilisation of factory capacity, at least part of the cane must be grown under irrigation.

The Mtibwa estate area consists of an alluvial plain of heterogenous soil composition. The area is dominated by class 2 soils with estimated cane yields of 43 tons/ha on rain-fed land and 93 tons/ha on irrigated land. Recorded information about the soils of the estate was very meagre at the time of the Tate & Lyle/Booker survey (1975/76), but soils have been mapped later one. This survey report called for a selective application of fertilisers on the basis of field trials, which were carried out during the 1980s.

Mtibwa was incorporated in 1961, after having been converted from a sisal estate which was initially set up in 1939. Sugar production started in 1963, with a second-hand factory. In 1967, the Madhvani Group of Companies of Uganda through EMCO (T) Ltd. acquired controlling shares, and in 1969 Mtibwa became a joint venture between EMCO (T) Ltd. and NAFCO with each holding a fifty percent share. The two partners decided to build a completely new factory with a capacity of 1500 tcd. The factory was constructed in 1973 on a turn-key basis by Fletcher and

Figure 7. Location of Mtibwa Sugar Estate and outgrowers areas



Stewart Ltd. (UK) and was of a standard design. When, in 1975, Sudeco acquired the full ownership of Mtibwa, it contracted HVA as the management consultants to manage the estate and supervise the rehabilitation of the factory. With commercial loans the factory was rehabilitated and expanded to the earlier planned 1,500 tons capacity and with Danish aid, an irrigation system was constructed. The estate was extended from 2,350 to 3,200 ha. However, Mtibwa continued to incur heavy losses, for which three reasons were given: under-utilisation of the factory's cane crushing capacity, insufficiency of funds for spare parts, and serious transportation problems during the rainy season (Chambua, 1990).

The financial position of the Mtibwa estate gradually improved after 1978 and in 1981/82 the company registered its first profits. The factory capacity was further increased in 1984/85 to 2000 tons, and the area under cane expanded to 3800–4000 ha, largely with Netherlands development aid. During the 1980s, Mtibwa also received substantial Netherlands assistance in the form of management support and commodity import support. Technical assistance to Mtibwa was stopped in 1991, when management was fully localised.

In Mtibwa approximately 4,000 people are employed, one quarter of whom are casual labourers. Since the milling season in Mtibwa lasts only 180 days on average, the estate has to rely on seasonal workers. Every year it is a problem to obtain a sufficient number of cane cutters in good time. Most cane cutters use to come from other regions (chiefly Mbeya and Iringa regions) and return to their own lands when agricultural activities there have to be carried out.

At present, Mtibwa has an estate cane area of 4,747 ha, made up of 1,800 ha of irrigated land and 2,947 ha of rain-fed land (SKIL, 1990). Initially, it was anticipated that outgrowers production would constitute 50 percent of total cane output, but this target has never been achieved. The highest proportion in the last decade has been 20 percent. Outgrowers' production therefore constituted a problem for Mtibwa. The cane supply is irregular and costly. An additional problem is the fact that many outgrowers are also personnel of the estate or factory at Mtibwa (see for more details para 3.3 on outgrowers).

Production at Mtibwa shows sharp fluctuations, with a generally increasing trend from 2,500–3,000 tons of sugar in the 1960s to 15,000 tons at the end of the 1970s. Subsequently, the output went up sharply to record levels of 26,000 and 27,000 tons but declined again during the early 1980s mainly because of a sharp decrease in cane yields (see table 3.5 and Appendix III, table 2). Disappointing cane yields have especially been encountered for irrigated cane. At Mtibwa the difference in yields between irrigated and rain-fed cane cultivation is 57 as against 54 tons per ha (NEI, 1991). Apart from drainage problems, this small difference can also be ascribed to the poorer soils on which irrigated cane is cultivated. Other factors which have affected cane yields include the deficient availability of inputs and equipment for land preparation, cultivation and harvesting. Finally, low and decreasing real salaries have been a demotivating factor for nearly all levels of employees and are therefore an important bottleneck for proper management.

It appears that, whereas the major obstacles during the first half of the 1980s were with the manufacture of cane (shortage of capacity and regular factory breakdowns), in the second half of the 1980s, the supply of sufficient cane became the major constraint. During the first half of the 1980s, investments for Mtibwa, including aid assistance were used for the rehabilitation and expansion of the factory in particular. Improvements in cane growing were more or less neglected during that period. In the rehabilitation plan for Mtibwa, it is estimated that about two thirds of the required investment costs will be needed for agricultural production.

Table 3.5 Sugar cane production and factory performance, Mtibwa

	1980[1]	81	82	83	84	85	86	87	88	89	90	91	92
Cane crushed (.000 tons)	297	281	256	299	244	150	203	231	222	233	258	279	307
Yield (tons/ha)	108	85	83	112	84	90	79	59	53	61	60	56	61
Sugar production (.000 tons)	26	27	23	26	21	13	18	20	19	23	25	26	29
Factory yields (% sucrose)	8.7	9.7	9.1	8.5	8.5	9.0	8.9	8.8	8.6	9.6	9.6	9.2	9.3
Capacity utilisation (%) (up to 1985: 27,000 thereafter 35,000)	96	100	85	93	78	37	51	57	54	64	70	74	82

[1]Figures refer to crop seasons: 1980 = 1980/81. *Source: Sudeco.*

Over the last two cropping seasons output shows a remarkable recovery to approximately 25,000 tons. The increase in output is to a large extent the result of the doubling of production by outgrowers from an average of 37,500 tons in the period 1987–1989 to 55,000 and 77,000 in 1990 and 1991 respectively. The sharp rise in outgrowers' production has primarily been caused by a substantial increase in the price of cane; it tripled between 1988 and 1990.

3.3 Outgrowers production

Although sugar is primarily an estate crop in Tanzania, relatively small-scale producers initiated sugar cultivation. In the 1930s, commercial sugar cultivation on private farms was started in the Kilombero area by Asian and Arab entrepreneurs. They processed the cane in local jaggeries. Since the beginning of estate sugar production, outgrowers have also produced a—sometimes sizeable—proportion of the country's total output. Other favourable factors have been the improved services by the estate and the introduction of credit facilities to outgrowers guaranteed by the estate, which arranges for the repayments of the loans.

The beginning of estate production at the Kilombero and Mtibwa estates during the early 1960s stimulated outgrower production. At present, outgrower production is insignificant around Kagera and non-existent around the fully irrigated TPC estate.

Around the two Kilombero estates, outgrowers' cane production increased from an average of 15 to 20,000 tons of cane during the early 1960s to some 80 to 100,000 tons during the 1980s. However, production time series show sharp fluctuations in hectarage, number of outgrowers, and total output during the thirty-year period.

In general, production by outgrowers increased during the 1960s, and decreased during the early and mid-1970s, after which levels went up again from 1977 to 1983.

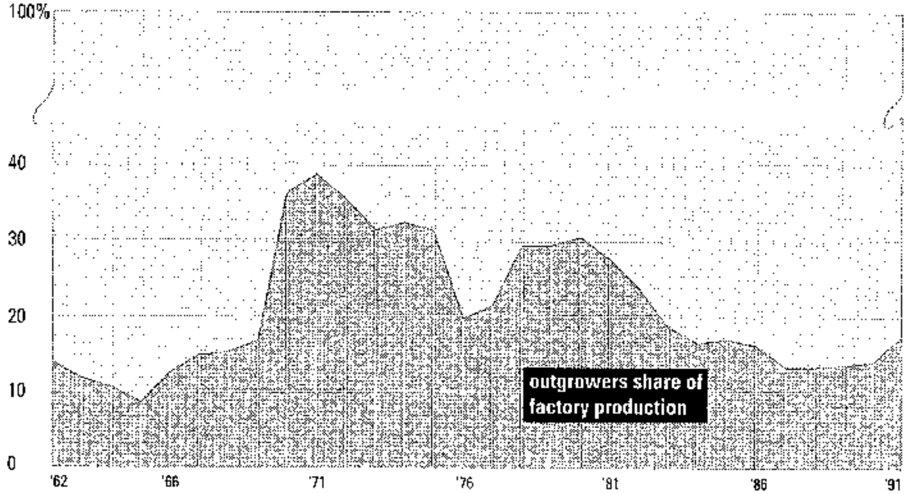
Mumias outgrowers scheme, Kenya

A well known example of a nucleus estate with a high proportion of outgrowers' production is the Mumias Sugar Scheme in Kenya. In the late 1960s, feasibility studies for introducing sugar were carried out in new areas of Kenya by Brooker McConnell. They found a rather densely populated area in Western Province, north of Lake Victoria, which was ecologically suited for sugar production, and suggested quite a new organisational structure of production, namely the combination of smallholder contract farmers, a nucleus estate, a factory and an agricultural bureau to secure the productivity of smallholders. Initially, the government preferred a structure based on cooperative societies which would supervise production and take charge of transport to the factory. However, Brooker McConnell and the donor organisations had doubts about the farmers' capacity to deliver a constant and sufficient quantity of cane to the factory, and therefore demanded a nucleus estate to be run by the factory. Soon after the start of the Mumias project, it was clear that the nucleus estate with outgrowers was much more efficient in terms of tons of refined sugar per hectare of cane than the smallholder schemes organised by cooperative societies. As it was then Kenyan policy to become self-sufficient in sugar by 1980, it was decided that more such schemes should be designed and old sugar schemes be restructured on the same lines as Mumias.

The Mumias Sugar company started production in 1975 and by 1980, was producing 164,000 tons of milled white sugar annually, or about half of Kenya's total production. The number of smallholders involved in sugar production gradually increased to about 23,000 farmers. They supply approximately 90 percent of the cane delivered to the factory. In purely economic terms, the Mumias estate-cum-outgrowers combination has been a success. In slightly more than a decade, 30,000 hectares have been put under cultivation, of which 27,000 by outgrowers, with a total production of 140,000 tons of sugar in 1985. The nucleus estate has given employment to 4,500 permanent and 8,000 seasonal workers. Sugar production provided substantial direct revenue to the government's coffers from excise on sugar and income tax. However, in wider rural development terms, the project has caused serious social distortions. The newly created cash economy has had a disruptive impact on family life and on the food economy, and has not resulted in more diversified area development (Williams, 1985).

Since then, output has declined sharply up to 1991; since 1991 output goes up spectacularly. This trend broadly coincides with the production at the Kilombero estate, but fluctuations differ in degree. Consequently, the share of outgrower production in Kilombero's total output also varies from one year to another (see figure 8 and Appendix III, table 3).

Figure 8. Outgrowers production of sugarcane, Kilombero area 1962–1992* (percentage of total factory production)



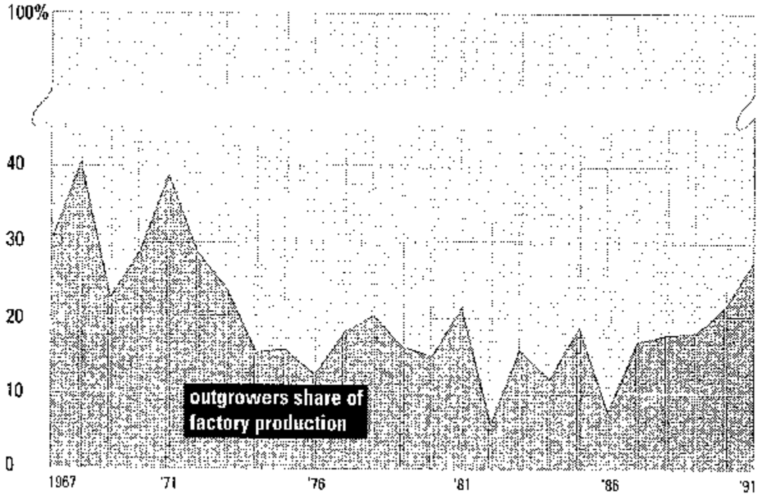
Source: Sudeco

*) Figures refer to crop seasons:1962 - 1962/'63

Around Mtibwa estate, outgrower's cane production fluctuated heavily from year to year. Broadly, four periods may be distinguished in total production. From the late 1960s until the late 1970s figures fluctuated at around 15–25,000 tons of harvested cane per annum. Between 1977 and 1982, output went up to some 30–45,000 tons, after which it decreased again to the level of the initial period. Many of the original outgrowers fields were seriously neglected or had even returned to bush. Since 1987, outgrowers' production increased sharply, reaching the highest mark over the past 25 years at 77,000 tons in 1991 and over 100,000 tons in 1992. The share of outgrowers in total factory output at Mtibwa has shown sharp differences over time, with extremes of 40 percent in 1968 and 6 percent in 1982.

Fluctuations in outgrowers' production are strongly related to weather conditions, as outgrowers do not use irrigation facilities. Yet, the long-term trends cannot be explained by droughts or excessive rains. The increase in production in the Kilombero area during the 1960s was related to area expansion, especially that of the large private farms which were responsible for about 80 percent of outgrowers production during this period. The sharp reduction in output during the 1970s was primarily caused by the socialist policy—discouraging for these producers—which included the nationalisation of a large farm with the highest production figures in 1978. The brief period of increase in the late 1970s followed the campaign for higher sugar production conducted by the Tanzanian government and financially supported by the World Bank. The number of small-scale cane growers doubled

Figure 9. Outgrowers production of sugar cane, Mtibwa area 1968–1992* (Percentage of total factory production)



Source: Sudeco
*) Figures refer to crop seasons: 1967= 1967/'68

over a relatively short period to about 1,000 around Kilombero alone. Yet, the revival lasted briefly and many farmers discontinued cane production after 1983, because of unattractive real producer prices and the poor quality of supporting services (Sprenger, 1989; Maganya et al., 1989). For Mtibwa, information about factors explaining trends in production is scarce. Some general factors observed at Kilombero also apply to the Mtibwa outgrowers, such as discouraging price levels and deficiencies in input supply and extension services. However, a crucial factor in Mtibwa was factory efficiency and capacity. Breakdowns in processing machinery and the priority given to estate cane over outgrowers cane were important determinants for the quantity of outgrowers cane processed. The expansion of outgrowers' production since the late 1970s was the result of deliberate government policy and substantial pressure on local farmers who feared food shortages if too large an acreage was put under cane (Werkhoven, 1978). In the past, outgrowers constituted a problem for Mtibwa. Cane was cultivated on small and isolated plots, some of which were located in inaccessible areas. This not only has led to costly haulage operations, but at times also resulted in a total failure to harvest the crop. Substantial increases in the prices paid to outgrowers has resulted in a sharp increase in the area under cane and in output.

The cultivation practices of outgrowers differ considerably from those of the estates. As mentioned already, estates irrigate a sizeable proportion of their cane, and if properly carried out, are in a position to offset drought conditions.

Outgrowers only produce under rain-fed conditions. In addition, outgrowers apply a much longer production cycle of the cane. In contrast to the estates, where cane is uprooted after three to four ratoons, outgrowers may continue ratooning for six to ten years and even more. The rationale of this practice is the considerably lower input of labour required for a ratoon crop. In spite of the lower yield levels, the ratoon crop results in a higher net income for the farmer. During the 1980s, more than 90 percent of the outgrowers did not apply fertilisers and only some 20 percent used weed killers. In other words, the use of chemical inputs was very limited indeed (Maganya et al 1989).

Under these conditions it is not surprising that yield levels lagged considerably behind those of the estates, despite the less than optimal yield levels achieved there. Apart from the wide fluctuations in outgrower yield levels from one year to the next, they also showed a declining trend. For example, in the Kilombero area, yield levels fluctuated around 40–50 tons per ha in the period 1979–1984 and decreased to 25–30 tons per ha in 1984–1990. For Mtibwa yield data indicate an upward trend from 45 tons per ha in 1987 to 53 tons in 1992.

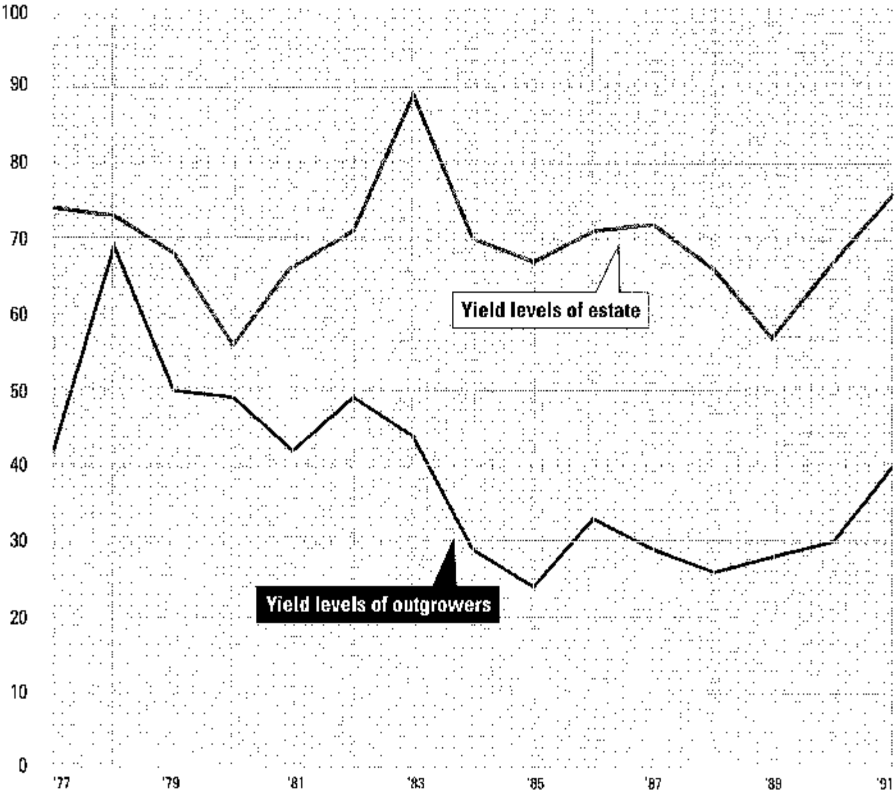
It has been mentioned already that outgrowers do not constitute a homogeneous group. Studies on Kilombero distinguishes five types of outgrowers production units, namely private estates, *ujamaa* villages, smallholders organised in associations, individual smallholders, and a parastatal company (Werkhoven, 1978; Sprenger, 1989).

The ten private estates are large scale units virtually all of which are owned by Tanzanians of Asian and Arab origin. They employ a substantial number of labourers, are largely self-supporting in mechanical farm operations, and have had their own means of transport to bring the harvested cane to the estate factories after they were ordered to discontinue jaggery processing. In spite of their reduced importance since the 1970s, they still take care of almost 40 percent of all outgrowers' production.

The eight *ujamaa* villages used to produce cane on collective farms. These villages also included three settlement schemes established during the 1950s and transformed into *ujamaa* villages during the 1970s. With ample financial, technical and organisational support, the population of these villages was stimulated to cultivate sugar cane. The villages were equipped with machinery and means of transport. In 1978, they produced some 30 percent of outgrowers' cane, but preference for individual farming and disagreement about the distribution of returns from collective farming led to a complete breakdown, leaving an accumulated debt of some Tshs 10 million (or 90 percent of total outgrowers debts).

Small-scale cane farmers who maintain contacts with the Kilombero estate as a group or association are numerically the most important category. With a total of 500 producers (of whom fewer than 10 percent were women) they produced some 35–40 percent of outgrowers' cane in 1986. Services are provided by the estate through the associations, and some associations have their own machinery

Figure 10. Yield levels outgrowers in comparison to estate yields at Kilombero 1977–1991* (in tons per ha)



Source: Sudeco

*) Figures refer to crop seasons:1977= 1977/'78

and means of transport. Most of these small-scale producers are full-time farmers who combine cane cultivation with food crop farming. The biggest part of the work on the cane fields is left to labourers, apart from activities carried out by the estate for fixed sums deducted after the delivery of the cane. Household labour is chiefly used for the cultivation of food crops. Apart from the few female cane growers, women are not involved in cane cultivation. The sexual division of labour assigns to women the primary responsibility for food crops.

Individual cane growers, i.e. farmers individually registered at the estate and maintaining direct links with estate staff are relatively small in number in the Kilombero area. A survey among these individual cane growers has revealed that many of them are also involved in other economic activities including commercial food crop farming. Their cane plots may vary substantially in size (from less than one to more than 40 hectares in 1986), half of the farmers use fertilisers and herbicides, and yields are much higher than for the other categories. An important subcategory among these cane growers are the estate staff who supplement their relatively low incomes in this way. This is a recent phenomenon, encouraged by the Kilombero estate management to compensate for the sharp decline in real incomes of the estate staff since the second half of the 1980s.

The parastatal Kilosa Development Corporation (Kilodeco) established in 1973 designed ambitious plans for a multi-sectoral development project in Kilosa. In 1987, the corporation cultivated 100 hectares of cane of which less than 25 percent was harvested. The remaining three-quarters reportedly 'had turned into an unrecognizable wilderness' (Sprenger 1989, p.3) whereas Kilodeco had accumulated large debts with the Tanzania Investment Bank. Further details on outgrowers in the Kilombero area are provided in table 3.6.

Table 3.6 Typology of sugar outgrowers—Kilombero area, 1986–1990

Type of growers	no. of units	no. of households	average size unit (ha)	yields/ha (tons) 1986	yields/ha (tons) 1990	% of area	% of production 1986	% of production 1990
Private estates	10	10	83.3	32.5	25.9	37.0	38.5	25.5
Ujamaa villages	8	?	30.4	21.3	14.5	11.0	7.5	2.0
Association smallholders	13	500	1.6	32.6	30.8	37.0	37.5	49.0
Individual smallholders	30	30	7.4	40.6	39.1	11.0	13.0	23.5
Parastatal[1]	1	–	92.6	25.0	–	4.0	3.5	–

[1] The parastatal was no longer existing in 1990. *Source: Sprenger 1989; 1991.*

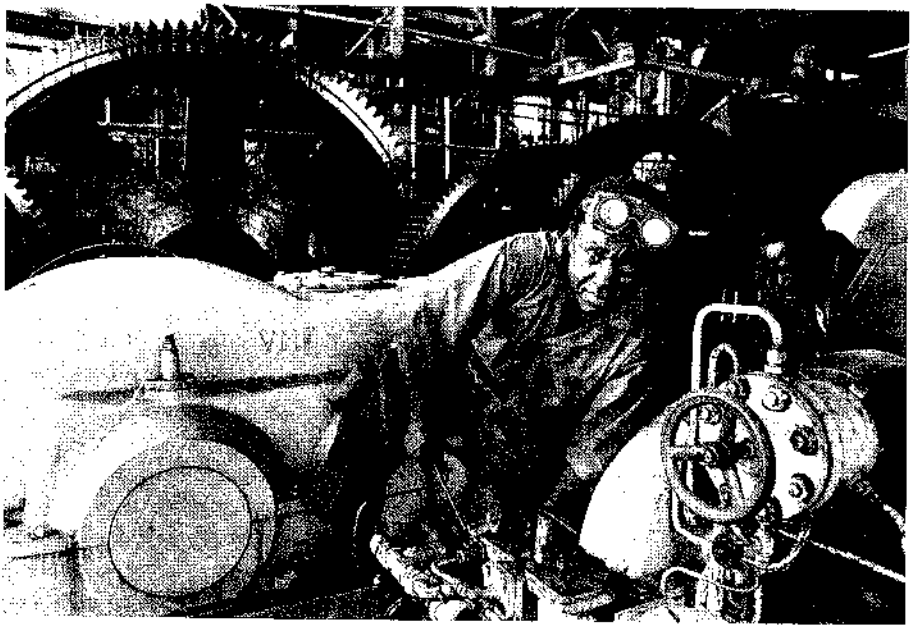
A comparison between the 1986 and 1990 figures indicates a decreasing share of private estates and *ujamaa* villages in total outgrowers production. During the four year period, the number of *ujamaa* villages fell to three. These changes indicates that outgrower cane cultivation has become largely a smallholder crop, as they take now care of three quarters of total production.

In the Mtibwa area, outgrowers cultivated relatively small cane plots in the past. Recently, large cane farms of up to some 30 hectares have been developed, chiefly by estate managers. So, in contrast to Kilombero, many outgrowers, and especially the larger ones, combine cane cultivation with employment on the estate. This combination may put these employee-outgrowers in a preferential position with respect to access to services. However, also in Mtibwa the vast majority of the outgrowers cultivate cane plots of relatively small size. Of the 688 registered outgrowers over 400 had less than one hectare of cane and 540 had less than three hectares (57 and 20 percent respectively). Only 5 percent of the outgrowers have more than 10 hectares under cane.

The yield levels of outgrowers in the Mtibwa area have remained substantially below the optimal ones for a long period of time, because of the reported haphazard land preparation techniques and poor planting, the use of mixed cane varieties multiplied from unselected seed cane, the absence of timely replanting, the lack of disease control and fertiliser use, and the absence of extension services (NEI, 1986). Recent figures show a sharp increase in total output and in yield levels for outgrowers around Mtibwa.

The growing interest of farmers and estate staff to cultivate cane is a result of considerably increased prices, improved services provided by the estate, and the creation of credit facilities to growers guaranteed by the estate. Expansion of outgrowers cane is gaining momentum to such an extent, that the capacity of the factory may soon be insufficient to cope with supplies. Yet, under the present conditions, small farmers have difficulty to get access to the credit facilities and may find themselves obliged to sell some of their land to raise part of the Tshs 60,000 investment costs per hectare.

Part II. NETHERLANDS ASSISTANCE



4. Aid policy

This chapter focuses on Netherlands assistance to the sugar sector. However, before dealing with Netherlands aid to this sector, a brief overview will be given of the development cooperation programme between Tanzania and the Netherlands (see section 4.1). This overview provides background information about the policy objectives of the bilateral programme, the volume and nature of the aid flows, and the main trends in the aid approach. In an assessment of aid to the sugar sector, these objectives, priorities and trends have to be taken into consideration.

A historical review of Netherlands assistance to the sugar industry indicates that Netherlands involvement in the sugar sector dates back to the 1960s (section 4.2). In this period, Netherlands participation was financed through commercial loans. Development assistance started in the 1970s. In the Netherlands aid approach to the sugar sector, three periods can be distinguished: a period in which aid was used for the expansion of the production capacity i.e. the 1970s; a period in which emphasis was primarily put on an improvement of the capacity utilisation, i.e. the 1980s; and the period in which the rehabilitation of the sector in order to establish a self-reliant industry is the central focus, i.e. the 1990s.

4.1 Bilateral policy framework

Although over the past few decades, a large number of changes have been introduced to the aid programme, the general objectives of the Netherlands development cooperation programme have not significantly altered. The two main objectives remain the improvement of living standards among the poor and more economic self-reliance. While the programme's major policy orientation has not fundamentally altered, the Netherlands government has taken a number of policy initiatives, introducing some new priorities to their aid programme during the 1980s. One of the main changes was the enhancement of two new priority themes, namely women in development and environment. Together with poverty alleviation, these three issues are the main criteria for the appraisal of project proposals in the 1990s.

The Netherlands development cooperation programme with Tanzania dates back to the 1960s. During that decade, Netherlands aid was provided on an ad hoc basis in the form of loans for the procurement of capital goods and grants for technical assistance. Tanzania was selected as one of the priority countries when in 1969 the policy was introduced to concentrate Netherlands aid on a limited number of countries. Consequently, during the 1970s, the level of regular bilateral Netherlands aid to Tanzania rose significantly. Whereas at the beginning of the 1970s annual commitments were Dfl 15 million, in the mid-1970s they were as high as Dfl 50 million, and they amounted to almost Dfl 100 million by the end of the decade. In this way, Tanzania became the largest recipient of Netherlands aid in Africa, and the third largest one worldwide. The reasons for the rapid increase in Netherlands aid were twofold. Tanzania's socio-economic policy showed a high degree of correspondence with Netherlands development aid objectives of self-reliance and target group orientation. In addition, Tanzania belonged to the group of least developed countries and, at the beginning of the 1970s, the country was hit by deteriorating terms of trade for a number of reasons including the oil crisis. During the 1980s, the annual allocation level remained quite stable at about Dfl 100 million. However, disbursement levels showed significant variations. These fluctuations were the result of growing disagreement between Tanzania and the Netherlands about economic reform measures.

In addition, the terms on which the Netherlands provided bilateral aid had undergone considerable changes in the 1970s. In the period 1970–75, about two thirds of the aid consisted of loans. Since 1977, all aid to Tanzania was made available as grants. In 1978, moreover, all debts and interest arrears were cancelled.

Apart from the regular bilateral assistance, Tanzania received substantial amounts of aid through other budget categories. On average, the ratio between the regular and non-regular aid flow to Tanzania during the 1980s was 2 to 1. More than 40 percent of the non-regular aid flow consisted of balance of payments support, 30 percent was provided through various sectoral programmes, 15 percent was made available in the form of technical assistance, and 15 percent through NGOs. Aid to the sugar sector was almost exclusively supported through funds from the regular bilateral programme.

Table 4.1 Disbursement levels of Netherlands aid by budget category, 1980–1991 (in million Dfl)

	80–82	83–85	86–88	89–91
Regular bilateral programme	90	70	100	105
Other budget categories	75	50	60	50
Total	165	120	160	155

One of the most significant changes in the aid programme with Tanzania during the 1980s, compared with the 1970s, was the shift from project aid to programme aid. This shift was not unique to Tanzania but could be noticed in almost all Netherlands aid programmes in Sub-Sahara Africa. It was the result of a deliberate policy outlined in a policy document for this region in 1984. Then, the Netherlands decided to provide half of its regular bilateral aid to this region in the form of programme aid. Important reasons for the sharp increase in programme aid were the growing balance of payments problems of African countries and their diminished capacity to absorb project aid. The economic crisis in the 1980s exacerbated these problems. Programme aid was intended in principle to finance current imports in order to improve the utilisation of existing production capacity. Although before 1983 no conditionality was linked to programme aid with regard to economic reform measures, the Netherlands government became more and more convinced that it would be impossible to revive the Tanzanian economy without structural adjustment measures. In 1983, the willingness to continue programme aid was related to an economic reform programme agreed upon with the IMF and the World Bank. From 1984, and especially since 1986, when agreement was reached between the Tanzanian government and the IMF/World Bank on the implementation of a number of structural adjustment measures, new programme aid was made available. During the second half of the 1980s, approximately 70 percent of Netherlands aid to Tanzania consisted of programme aid. The shift to programme aid also caused a significant change in the sectoral distribution of Netherlands assistance to Tanzania during the 1980s. The proportion of aid to the manufacturing sector almost doubled from 25 percent to 45 percent from 1980–1990, whereas that to agriculture in this period was reduced from almost 30 percent to 15 percent.

Another striking change in the Netherlands assistance programme to Tanzania was the focus on sector aid. Arguments in favour of sector aid were the possibility to enter into a sector-specific policy dialogue, the comprehensive approach to addressing constraints, and the potential it provided for rapid disbursement when applying a combination of aid modalities to a single sector. Increased attention for sector aid in future Netherlands development cooperation has been announced in the recent policy document 'A world of difference' (DGIS, 1991). This document proposes to link import support from the country programme more closely to longer term growth and distribution objectives through, for example, the rehabilitation of given sectors of the economy. This implies that in the near future, bilateral aid will again be more investment-oriented and project-related.

In the early 1980s, the Netherlands started to provide this type of aid to the sugar and cotton sectors in Tanzania. Initially, about 15 percent of the regular bilateral assistance programme went to the sugar sector. This proportion gradually decreased to 5 percent by the end of the decade. In the 1990s, an increase to around 10 percent may be expected, chiefly because of the Netherlands contribution to the rehabilitation of the Mtibwa, TPC and Kilombero estates.

4.2 Sector policy

The period of expansion: the 1970s

Netherlands involvement in the development of the Tanzanian sugar industry dates back to the early 1960s with concessional loans for the establishment of a sugar plant in the Kilombero area. Financial support was provided through the newly-established Netherlands Overseas Financing Corporation (NOF). The NOF was an institution which supported Netherlands private companies in investing in developing countries, and could be considered the predecessor of the Netherlands Development Finance Company (FMO). The NOF was founded to assist Netherlands companies whose property had been nationalised in the 1950s in Indonesia. The responsibility for this programme rested with the Ministry of Economic Affairs and the Ministry of Finance. Total investments in the new sugar plant were estimated at about US $ 15 million. About two thirds of these investments were provided by the International Finance Company (IFC), an affiliate of the World Bank, and the Commonwealth Development Corporation (CDC). The NOF loan amounted about US $ 2 million. Netherlands firms had a substantial share in establishing Kilombero. The factory was built by Stork/VMF and, in 1962, when the company started its activities, management was put in the hands of the Vereenigde Klatensche Cultuurmaatschappij. In 1965, management responsibility was transferred to the Handelsvereeniging Amsterdam (HVA).

The first Netherlands aid contribution to Kilombero dates back to 1965. In that year, approximately Dfl 1 million, was made available to conduct a reconnaissance study of the Kilombero valley. The main objective of the study was to find out whether the area could be further developed for agricultural purposes. The study was carried out by a Netherlands consulting firm, ILACO, and lasted two years. In general, the final report was rather negative with regard to the agricultural potential of the area. However, proposals were included for the expansion of sugar cane production in the lower Ruembe valley and the Msolwa valley. To increase the profitability of the project, emphasis was put on expansion of the share of outgrowers in total production. In addition, from a macro-economic point of view, sugar cane production in the Kilombero area was considered a marginal activity because of the relatively short milling season. Therefore, alternative regions were suggested with a longer dry season than this area, allowing an extension of the milling season, which would favourably influence the feasibility of the project. The area where sugar could be produced most economically was, according to the report, in the north of Tanzania.

The actual Netherlands development assistance to the sugar sector in Tanzanian started in earnest in the beginning of the 1970s. To investigate the possible expansion of sugar cane production in the north of Tanzania, the Netherlands government was requested to carry out a feasibility study of Kagera in the Bukoba area. The selection of the area was based on the favourable climatic conditions allowing for a long milling season and the ample availability of land and water. The study was conducted by HVA. The findings of the feasibility study (1972) were not very favourable. Constraints were expected with the availability of both skilled and unskilled manpower. Therefore, the Tanzanian government requested the Netherlands government for an additional study to review the manpower situation and to set up a local training programme. Because of the security situation in the West Lake Region, a consultancy mission (1972), consisting of experts from two Netherlands consulting firms (HVA and BMB), was unable to visit that area. The scope of the study was subsequently extended to a review of the manpower situation in the entire sugar industry. The study recommended the establishment of a national training institution for the sugar industry. Aid assistance for the development of Kagera was not considered opportune for the time being. The fact that alternative investment projects were available (Kilombero II) and Tanzania was eager to expand production on short term probably has also influenced this decision.

The rapidly increasing world sugar prices after 1972 accelerated Tanzania's expansion plans and led to requests to donors to assist in a series of feasibility studies. At the beginning of 1973, Tanzania requested HVA to prepare a feasibility study for the expansion of Kilombero and the construction of a second factory. The conclusion of the study was very positive with regard to financial viability. The profitability was estimated at about 15 percent. As Tanzania was anxious to start the project before the end of the year, a rapid appraisal procedure was applied, resulting in a Netherlands commitment of a loan of Dfl 36 million by mid-1973. In addition, preparatory studies including the drafting of tender documents by HVA, were financed by the Netherlands (HVA, 1973).

Gradually, Netherlands involvement in the sugar sector continued to grow as aid funds were made available for co-financing the expansion of the Mtibwa (1976) and Kagera estate (1976) and the rehabilitation of Kilombero I (1976). The main arguments in favour of these investment activities were the sharply increasing sugar consumption in Tanzania, the inability of the existing factories to cope with the increased demand, and the comparative advantage of local production to imports at current world market prices.

From the mid-1970s onwards, a new type of assistance was provided to Tanzania when the commercial management contracts between Sudeco and HVA were turned into technical assistance/secondment contracts financed from the Netherlands aid budget. The main reason for this request was the increasing difficulties the estates experienced in obtaining foreign exchange for payment of management fees. This new type of contract gradually changed the role of the management agency from being directly responsible for the operations of the company to being advisors of the local Tanzanian staff.

It may be concluded that Netherlands assistance to the sugar sector was a sequel to commercial cooperation between Tanzania and the Netherlands at the Kilombero sugar estate and the management assistance contracts awarded to HVA, since 1965 initially by the private investors and after the nationalisation by the Tanzanian government. When Tanzania began to experience serious problems by the mid-1970s, it more or less naturally turned to countries already involved in the sugar sector on a commercial basis to provide development assistance. It was expected that these commercial interests would make it easier to acquire such assistance. The fact that aid was almost completely tied in these days also played an important role.

Aid was primarily made available for the expansion of sugar production. About two thirds of Netherlands aid in this period was provided for the extension of the production capacity at Mtibwa, Kagera and Kilombero.

Netherlands aid to the Tanzanian sugar industry during the 1970s was not based on a coherent policy plan. During that period, bilateral negotiations between the two countries had a clear project orientation. Decisions about Netherlands assistance to the sector were based chiefly on agro-technical reports and feasibility studies carried out by HVA, which was already involved in the implementation of a number of projects. The fact that the consultant had vested interest in project implementation in the sugar industry may have contributed to their optimistic views about project results. In addition, a generally positive attitude towards Tanzania's development strategy and its policy of self-reliance had a favourable impact on the decision to assist the sugar sector. Explicit policy objectives had not been formulated for the sector as such by the Netherlands and a large-scale approach to the expansion of the sugar industry had not been subject to discussion.

The period of consolidation: the 1980s

In 1980, the Netherlands began to specify policy conditions for its development assistance to Tanzania. These conditions corresponded to those of the World Bank and other donors and to Tanzania's development needs. They applied to the allocation of funds for the essential requirements of on-going projects only, for productive projects which were feasible from the outset, and for removing existing bottlenecks, including the financing of essential imports to keep key economic sectors running at a fair level. For the first time, the agreed minutes of the bilateral consultations make mention of this type of policy discussion. These conditions also apply to the sugar sector, of course, but no special attention was paid to this sector in the agreed minutes. They only mentioned the type of activities the Netherlands allocated financial support to. The conditions soon became an issue for discussion, as in 1981 the three main donors for the sugar sector (the World Bank, Denmark and the Netherlands) produced a joint aide-mémoire addressed to Sudeco. The aide-mémoire mentioned the issues on which all parties should agree before appraisal of individual components brought up for financing. The issues dealt with were the pricing policy, the availability of foreign exchange, the financial restructuring of the sugar companies, the management of the estates, and the role of future Sudeco investments.

With regard to pricing, the aide mémoire stated that prices received by individual estates should be linked directly to world market prices averaged out over a number of years, rather than being calculated on a cost-plus basis. The principle was that the estates were to receive the full value of their production, as by that time even the position of the well-managed estates was precarious. In addition, an increase of the outgrowers' price was considered necessary to provide them with adequate incentives.

In addition, the aide-mémoire emphasized the need for secure access to foreign exchange to be provided by the Bank of Tanzania. Only when a reasonable amount of foreign exchange had been made available in time for the purchase of materials and spare parts might the estates be run efficiently.

Moreover, the financial restructuring of the estates was to be appraised in order to remove the accumulated debts which partially resulted from low producer prices. The aide mémoire suggested the conversion of part of the debts in equity capital.

Furthermore, management improvement, which meant running the estates as commercial entities, was considered a necessity. This had to be achieved through substantial expatriate in-line management, and the autonomy of management within the general laws of Tanzania to determine staffing levels, the salary and incentive structure, and to hire and fire. The relationship between Sudeco and the estates had to be clarified in such a way that Sudeco did not involve itself any longer in the day-to-day management of the estates.

Finally, the donors wished to be assured that Sudeco would not invest in the expansion of the sugar industry outside the existing estates. This meant no investments to expand Kilombero, Mtibwa or TPC, and no investments in an irrigation system for Kagera before the donors were satisfied that the proposed rehabilitation programme would lead to a viable addition to the sugar industry, and no investments outside the four existing estates.

The aide-mémoire led to an intensive policy discussion between Tanzania and the donors. Tanzania accepted a price increase for the companies but rejected the idea of linking its price to world market prices. It also accepted financial restructuring, and a forex contribution to the rehabilitation. It further agreed to a substantial expatriate in-line management role but did not accept autonomy in labour policy. However, the main issue in the discussion became the possibility of future Sudeco investments outside the four existing estates and the continuation of irrigation improvements at Kagera. After long discussions, Tanzania ultimately accepted that any new estate or factory investments would be undertaken only in agreement with the external financing agencies involved in sugar rehabilitation and only after establishing the economic and financial viability of the proposals in the broadest terms.

Netherlands assistance to the sugar sector became an issue of discussion again during the bilateral talks of 1984. The Netherlands expressed the need to review medium-term planning for the sector because of the diminished prospects of World Bank financing for the rehabilitation of Kilombero and the Danish decision not to continue financial assistance to TPC. Both these donors withdrew their support to the sugar sector out of disappointments about the implementation of the measures agreed upon in 1981 and more in general, the pace of economic policy changes in the country. Additional arguments for the World Bank were the low rate of return on investments in sugar compared with other crops, and for the Danish, the nationalisation of the TPC estate without adequate compensation. The Netherlands had now become the only donor for the sugar industry. It was prepared to continue its assistance to the Tanzanian sugar industry but it still considered that the aide mémoire provided useful elements for the necessary medium-term planning. Therefore, the requested plan was to form the basis for the type and level of further Netherlands assistance to the sugar sector, and more especially to Kilombero and Mtibwa, on which the Netherlands wanted to concentrate its aid in this sector. No further assistance to Kagera was foreseen, as the NEI study raised serious doubts about the viability of this estate. Therefore, the management assistance was no longer continued after the expiry of the contracts in 1984 and a re-allocation to Mtibwa and Kilombero was proposed for the Dfl 10 million originally allocated for irrigation improvement at Kagera.

The 1985–1988 development plan for the sugar sector then became the basis of further Netherlands assistance. In its policy, as expressed during the bilateral talks and the newly introduced mid-term reviews, the Netherlands continued to put high value on the self-reliant position of the Tanzanian sugar industry. It emphasised the phasing out of management assistance by the end of the plan period (1988), and it criticised the Bank of Tanzania's use of retention money from sugar exports for other purposes than the input requirements of the sugar estates. This policy of encouraging estates to operate effectively was also evident from the Netherlands proposal to distribute its commodity import support (CIS) to the estates according to average production levels over the preceding three years. However, Tanzania was reluctant to accept this criterion and preferred the existing distribution according to submitted requirements. Both partners then agreed to prepare an analysis of differences in the allocation of Netherlands CIS under each method.

The preceding review indicates that Netherlands policy on the sugar sector has been fairly consistent during the 1980s. The principles of that policy were formulated in the 1981 aide-mémoire presented to the Tanzanian government jointly with the World Bank and Denmark. The rationale of Netherlands support was primarily based on the argument that it was economically and financially more viable for Tanzania to produce sugar locally than to import it.

The general objective of Netherlands development assistance to the Tanzanian sugar industry during the 1980s was twofold: to maintain and make effective use of existing domestic production capacity; and to contribute to the localisation of management in the sugar sector. This objective differs from that of the 1970s as can be gathered from most activities during that period, which focused on the expansion of sugar production both for domestic consumption and for exports. In 1980–1991, the emphasis was on management support to two of the four estates, and the supply of spare parts and inputs through CIS.

In some other respects, 1980 was a turning point in Netherlands assistance to the sugar sector. From that year onwards, the Netherlands, in cooperation with Sudeco, commissioned a series of studies covering various aspects of the sugar sector as a whole, with the aim of obtaining a deeper understanding of the general problems of the sector, providing assistance for Tanzanian policy formulation, and identifying the various options for Netherlands support. This deviates from the agro-technical studies concerning the individual estates carried out in the 1970s. The latter aim became particularly important after the withdrawal of the two other major donors to the sector. The various sector studies—chiefly undertaken by the Netherlands Economic Institute (NEI) with occasional support from other consulting engineers—led to a more concrete formulation of policy objectives and policy conditions on the part of the Netherlands. This stricter Netherlands position complicated the bilateral talks, but also intensified the dialogue between the two countries. It also caused delay in the implementation of activities in the sector as Tanzania obviously needed time to find sufficient domestic political support for the required policy changes.

The period of rehabilitation: the 1990s

General developments in the industry were appraised by means of a Sugar Production Feasibility study carried out by the NEI in the second half of the 1980s. The rationale for the study was the stagnation in sugar production in spite of the expansion of production capacity, and a considerable increase in domestic demand for sugar. The study was meant to form a basis for discussion on various strategic options for the sugar sector and the Netherlands position with regard to assistance to this sector. It resulted in a feasibility study of a Development Plan for the Sugar Industry in Tanzania (NEI, 1988) which was updated again in 1989, especially with regard to foreign exchange requirements. In addition, the 1989 report analysed the actual policies of the Government of Tanzania with regard to the sugar sector and the financial implications of the 1988 development plan.

The study contained a five-year rehabilitation programme for the sugar industry at an estimated cost of almost US $ 120 million. During the 1988 bilateral talks, the Netherlands expressed its willingness to contribute US $ 39 million or almost one third of the total expenditure over the five year period. Conditions for continued

Netherlands assistance were a policy plan for the future of the sugar industry, with special attention for the bottlenecks referred to in the study, and an indication as to the financing of the remaining US $ 78 million.

The main issues in the discussions continued to be the increase in the ex-factory price of sugar to achieve cost coverage, the channelling of export retention money to the estates to finance part of their import requirements, the reduction of Sudeco's intervention in the day-to-day management of the estates, and the availability of other donor contributions to the sugar sector. Most of these issues had already been included in the 1981 aide-mémoire, and apparently had not yet been dealt with satisfactory.

The policy plan was presented at the 1990 bilateral talks and included a financing plan for the three estates over 1990–95. The Netherlands reaction to the plan was presented at the 1990 mid-term review. Its position may be summarised as follows:

After a thorough check of the feasibility study by three more consultants, it concludes that rehabilitation appears to be economically feasible, but a further analysis of the costs of rehabilitation is needed to arrive at more exact cost figures. The Netherlands is prepared, in principle, to contribute to the rehabilitation but phasing of the rehabilitation, and privatisation of the sugar industry after rehabilitation, are desirable. The final decision about the contribution would be subject to the outcome of the discussions on these two aspects.

In the next round of official negotiations at the 1991 bilateral talks on development cooperation between the two countries, they agreed on a basic principle: that long-term continuity should be guaranteed by allowing the industry to operate on commercial lines. The Netherlands interpretation of this joint stand is that continuity requires privatisation after rehabilitation. Tanzania is also keeping other options open to arrive at operations on a commercial basis. A carefully worded compromise created room for the continuation of Netherlands assistance to the sector. The following paragraph is included in the agreed minutes of the 1990 bilateral talks.

> The Government of Tanzania will strive for maximising efficiency in running the sugar estates that have been rehabilitated with Netherlands Government assistance after the rehabilitation. In pursuit of this goal the Tanzanian Government will aim at incorporating private participation, including majority shareholding. No modes of private participation will be excluded. The actual degree of private participation will be dependent on the possibilities and realities of Tanzania at that time, in particular with respect to experiences with privatization in general. None of the actual options chosen will impinge on the agreed principle of operation of the industry on fully commercial terms, a principle that both Governments wholeheartedly subscribed to as the only viable road to long-term continuity of the industry.

This carefully worded text was to be added to the officially presented position paper on the rehabilitation of the sugar industry. The agreed principle of fully commercial terms for the industry was sufficient for the Netherlands to embark upon financial assistance to a phased rehabilitation.

5. Implementation

In this chapter an overview is given of the total aid flow to the sugar sector. In the first paragraph the main characteristics are presented, such as type of beneficiaries, degree of regional concentration and forms of aid. Subsequently, the four main types of activities are described: (1) investment and rehabilitation projects; (2) training activities; (3) management assistance; and (4) commodity import support.

5.1 Characteristics of aid flow

The total Netherlands support to the sugar industry since the late 1960s was approximately Dfl 260 million. In addition, in 1988 an amount of Dfl 75 million was committed for the rehabilitation of a number of estates. The eventual Dutch contribution to the sector will therefore be around Dfl 335 million over a period of more than 30 years.

Table 5.1 Netherlands assistance to the sugar sector by type of recipient (in million guilders)

	1970–1979	1980–1991	Total
Kilombero	60.6	57.4	118.0
Kagera	17.5	27.1	44.6
Mtibwa	6.9	37.3	44.2
TPC	–	14.3	14.3
NSI	19.8	9.1	28.9
Sudeco	2.1	6.9	9.0
Total	106.9	152.1	259.0

In table 5.1 an overview is given of the main recipients of Netherlands aid. This breakdown of Netherlands aid points at the heavy emphasis on the Kilombero estates i.e. the estate co-financed with Netherlands export credit and managed by HVA since the mid-1960s. Almost 60 percent of total Netherlands expenditure was made available to Kilombero during the 1970s. In that decade other main beneficiaries of Netherlands assistance were the National Sugar Institute for the construction of a new training centre, and Kagera for the expansion of the estate.

During the 1980s the vast majority of the funds were channelled to the estates, i.e. almost 90 percent of the total. Compared with the previous period, the distribution over the estates was however more evenly. For the first time also TPC was included in the Netherlands aid programme. Support to Kagera only covered the period till 1985. After that year Netherlands assistance was discontinued. About two thirds of the Netherlands aid to the sugar industry was provided to Kilombero and Mtibwa. Other major recipients were NSI and Sudeco.

In general Netherlands aid to the Tanzanian sugar industry can be grouped under three broad categories: institutional support, including management assistance and training; commodity import support and investment activities. The distribution of funds over the three categories is given in table 5.2.

Table 5.2 Composition of Netherlands assistance to the sugar sector (in million guilders)

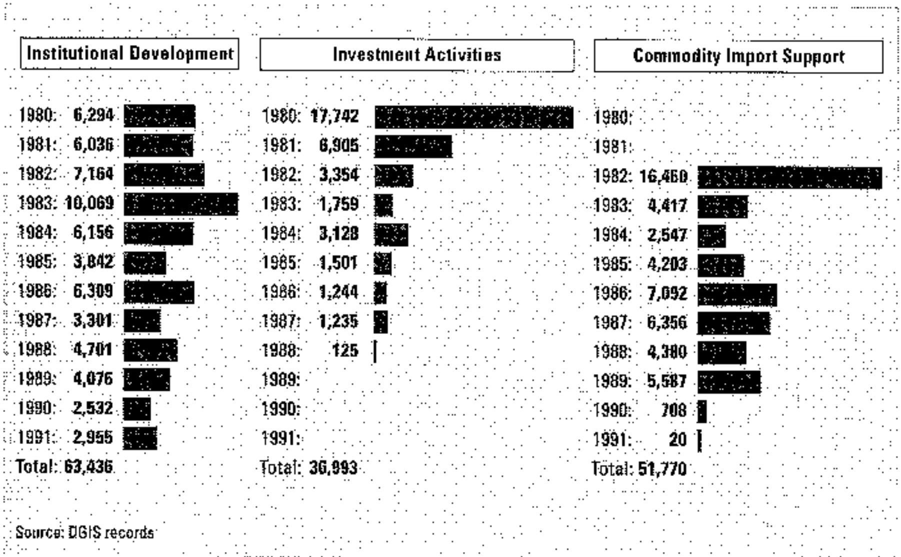
	1970–1979	1980–1991	Total
Institutional Support	42.1	63.4	105.5
Commodity import	–	51.7	51.7
Investments	64.8	37.0	101.8
Total	106.9	152.1	259.0

This table illustrates the policy reorientation which was introduced in the beginning of the 1980s and whereby emphasis was put on improvement of the utilisation of the existing production capacity above expansion. In the period before 1980, about 60 percent of all Netherlands aid was used for factory and estate expansion. During the 1980s, the share of this type of investments decreased to about 25 percent. The fact that, also during the latter decade, still a significant proportion has been used for investment purposes, indicates that this shift was a gradual and not an abrupt one. During the early 1980s, investment-cum-rehabilitation was still an important expenditure category due to the continuation of construction-engineering type of works at Kagera and to a lesser extent at Kilombero.

During both periods institutional development played on important role in Netherlands development aid. In the 1970s, the two main components of this type of assistance were the establishment of a National Sugar Institute, and the management support to Mtibwa and Kilombero with roughly equal shares in total aid under this category. In addition a number of feasibility studies were financed by the Netherlands to investigate the potential for expansion of the sugar industry.

During the 1980s, institutional development support primarily consisted of management assistance to Mtibwa and Kilombero. About two thirds was used for this purpose. For the NSI technical assistance was made available for management and training (course design and actual training); for Sudeco technical assistance comprised the topping-up of Indian middle-level personnel at the estates, the posting of a training coordinator at Sudeco headquarters and funds for training of Tanzanian staff abroad.

Figure 11 Composition of Netherlands assistance to the sugar sector 1980–91 (in Dfl million)



5.2 Investment projects

The following investment activities with regard to the expansion of the production have been supported by the Netherlands over the period 1974–1986.

Period	Estate	Commitments	Type of activity
1974–1976	Kilombero II	36.0	Construction new factory
1977–1980	Kilombero I	18.5	Overhaul factory, rehabilitation Msolwa irrigation scheme; and construction weir
1977–1984	Kagera	37.0	Development sugar estate including irrigation system
1982–1986	Mtibwa	8.3	Expansion factory capacity

The first project supported by Netherlands development aid in the sugar sector was the expansion of Kilombero II. This project consisted of two parts: the construction of a factory with a capacity of 2,400 tons of cane per day, and the development of a sugar estate of approximately 5,000 ha of which 3,000 ha under irrigation.

The project costs were estimated at US $ 55 million and the financing was to be shared as follows between Tanzania and the donors: World Bank US $ 18 million primarily for the development of the sugar estate, non-factory ancillaries and training; Denmark US $ 17 million and the Netherlands US $ 11 million for the construction of the new factory; and Tanzania US $ 9 million equally divided over estate development and factory construction.

The implementation of the project started in 1974. A fixed price turnkey contract was awarded to a Dutch firm (Stork/VMF) covering the factory building, milling machinery, cane intake, steam and power generation plants. The construction was supervised by KSC's managing agents (HVA) under a separate contract and also financed by the Netherlands.

The factory buildings and the machinery installation were completed by July 1976. During the first year (1976–1977) numerous operating problems came to light some of which were attributed to shortcomings in the design, others to faulty installation. At the start of the second season, these problems were largely overcome. Contrary to the construction of the factory the development of the sugar estate was not carried out on a turnkey basis. To save on costs, the implementation of the irrigation system (supply of materials and installation of the system) was split up which caused serious problems at a later stage. Materials were supplied by a large number of international firms. The installation was awarded to the local branch of a Danish construction firm (Jensen). In its completion report (1984) the World Bank concludes that the possibility of a turnkey contract for the irrigation works should have been given more serious consideration. The World Bank report summed up the problems of the K II irrigation installation work as stemming from poor coordination between the suppliers/contractors involved, unplanned shipments resulting in materials arriving in the wrong order of use, and poor consultancy input. With increased usage, other problems manifested themselves, such as a lack of spares, an inadequate number of pipes, lack of repair facilities and lack of transport for supervision. The result of all these delays and misfortunes is that K II's irrigated area has never received the full benefit of irrigation (capacity utilisation has been estimated at 60 percent) which has had a negative effect on yields.

In the second half of the 1980s, several commitments have been made for the rehabilitation of Kilombero I. In total an amount of Dfl 18.5 million was allocated for the overhaul of the factory (Dfl 3.5 million) and the rehabilitation of the Msolwa irrigation scheme (Dfl 8.0). The latter project was contracted out to the same local contractor, which installed the irrigation system at Ruembe/KII. Netherlands funds were mainly used for the procurement of Stork pumps, engines, and electrical equipment. Because of numerous operational problems, similar to those listed under the K II system, the irrigation could only be used to 50 percent of its capacity during most part of the 1980s.

At the end of the 1970s, funds were made available for the construction of a weir in the Ruaha river. In total about Dfl 7.0 million was committed for this project.

The need for such a weir became necessary as the water in the Ruaha river had dropped to such a level that the pump intakes were actually clear of the water. These problems were caused by the construction of the Kidatu hydroelectric dam, which could not be foreseen at the time of the preparation and design of K II. As a matter of fact, the Kidatu reservoir acted as a silt and sand trap lowering the river's normal load of sediment resulting in scouring and degrading of the river bed adjacent to the new K II pumphouse. KSC built a temporary weir which broke down on several occasions. Consequently, consultants' advice was sought and a permanent weir was constructed together with the reinforcing of the river's bank. The design and supervision of the construction was contracted out to a Netherlands consultancy firm (Bish and Partners), whereas the building of the dam was undertaken by the local contractor, which had installed the irrigation system (Jensen). The weir was completed in 1979. Annually, during the rainy season, minor damage occurred to the weir through floods washing away some of the large rocks. Further damage was caused through the scouring of the river bed. Every year, repairs were carried out after the heavy rains by replacing large boulders on the weir structure. However, in January 1989, the large boulders were washed away and the weir structure collapsed. As repairs were considered only a temporary solution to the problem, the Netherlands financed a study of a Netherlands consulting engineers firm (DHV) for a more permanent solution guaranteeing a secure supply of water to the Kilombero estates. A positive decision about Netherlands financial assistance to the construction of a new weir has been made by the middle of 1992.

Netherlands involvement in the development of Kagera started in the early 1970s. In 1972, a feasibility study was carried out by HVA, which was financed by the Netherlands government. The findings of this study were not very positive. Profitability was assessed at six percent, which was considered too low. In addition, problems were foreseen with the location, resulting in high transport costs because of the long distances to be covered. Moreover, constraints were expected with regard to the availability of both skilled and unskilled manpower. When a follow-up mission to review the manpower situation was not able to visit the area because of security problems, commitments were withdrawn.

In 1976 a new feasibility study was conducted by Bookers about the expansion of the Kagera sugar estate. In this report, it was advised to reduce the size of the factory and to leave out the distillery. This significantly increased the rate of return to 12.4 percent. Loans for the implementation of the project were made available by India, Abu-Dhabi-Bank and the Netherlands (Dfl 27 million). The total costs of the project were initially estimated at US $ 40 million. The supply of the factory (Walchandnagar industries) was financed by India (80 percent) and the East African Development Bank (20 percent). The Abu-Dhabi loan was used for the procurement of agricultural equipment. With the Netherlands aid contribution the insurance and transport costs, the civil works and installation, and the agricultural consultancy would be financed. The estate expansion part of the contract was awarded to HVA.

From the beginning of the project discussions were held about the need for and profitability of irrigation. Rainfed cane would fill only half of the capacity of the factory but the economic and financial advantages of irrigation were considered to be marginal. After various studies, it was concluded, that irrigation for 100 percent of the area (6,500 ha) was to be preferred over rain-fed cane cultivation. Therefore, the Netherlands allocated an extra amount of Dfl 10 million for an irrigation scheme in 1981.

Implementation of the project started in 1977 but came to a standstill when the war with Uganda broke out in 1979. The execution was continued again after the war in 1980 and in 1982 the factory was completed.

In 1981 a NEI review mission raised serious doubts about the viability of the whole Kagera project. The mission concluded, that the project should never have been started if it was meant to be a commercial undertaking. On the basis of this conclusion, the Netherlands reservation of Dfl 10 million was re-allocated to commodity import support for the sugar sector. Although Sudeco initially disagreed with the conclusions in the NEI report, the Netherlands decided to withdraw further assistance to Kagera in 1984.

Investment and rehabilitation funds for the Mtibwa estate were spent on the expansion of the factory capacity from 1,500 to 2,000 tcd. The main arguments in favour of the expansion were:
- the increase in cane production as a result of the commissioning of the irrigation system, so that cane production exceeded factory capacity;
- the availability of agricultural equipment and machinery for the higher cane production;
- the relatively minor additions and modifications needed to achieve the higher capacity level;
- the gap between sugar demand and supply in Tanzania.

The expansion of the factory was carried out at a cost of Dfl 8.25 million and funds were mainly used for the purchase of machinery and equipment and for design and engineering. The Tanzanian contribution covered the civil works, including the construction of the building. The execution of the project took place between 1982 and 1986.

5.3 Training activities

Netherlands support for the training of local staff in the sugar industry took three distinct forms: the support for the National Sugar Institute, the provision of scholarships for overseas training, and on-the-job training on the estates.

Support to the National Sugar Institute started in the early 1970s following a study of the manpower situation in the sugar industry by IIVA and BMB in 1972. The justification for Netherlands assistance was based on four arguments:

- the high demand for training in the sugar sector;
- the expected increase in sugar production and concomitant decrease in imports;
- Tanzania's priority for the project, apparent from the high local contribution (25 percent of the capital costs and 100 percent of the running costs); and
- the possibility of also using the NSI for technical training, for other industries in the country.

Preparations for the establishment of the NSI began in 1974. The actual construction started much later than planned because of different views about the design. The design had to be revised several times by the consultant (Bish and Partners). The contract for the construction which started in 1976 was awarded to a local contractor (Biasci). The construction lasted much longer and the cost were much higher than planned. Most of the buildings were completed in April 1979.

The construction activities comprised an administration block, eight teaching rooms and a laboratory, a block with eight separate workshops, two student hostels with a capacity of 216 trainees, and 140 dwelling units of different types. Netherlands aid was made available for both the construction of the buildings and the purchase of teaching equipment and amounted to Dfl 15 million. About half of this aid was for local cost financing.

In addition to aid for the physical infrastructure, assistance was also provided for the management of the institute. Pending the studies, design and financing deliberations leading to the construction and completion of the physical facilities of the NSI, a provisional training facility was set-up at the Msolwa factory site at Kilombero. Since 1975 technical assistance was given, consisting of a team of consultants from BMB and SNV volunteers. Netherlands experts numbered a total of maximal seven staff members during the early 1980s. In addition, five SNV volunteers were attached to the NSI from 1975 onwards. But this number was gradually reduced after 1980, and their assistance was discontinued in 1983. In 1984 the management support project came to an end, with the exception of the work of a training-coordinator at Sudeco headquarters for whom assistance continued up to 1988. The total amount for technical assistance was approximately Dfl 15 million.

Netherlands contribution to the establishment of the NSI was evaluated in 1979 by the Operations Review Unit (IOV). Its report is rather critical about the manner in which the project has been handled by the Netherlands: unclear decision-making procedures leading to overspending; shortcomings in construction, water supply, and electrical installation; and the initial lack of appropriate expertise on the part of the managing consultant resulting in frictions with counterparts and raising doubts about the quality of the training of some experts (IOV, 1981).

Although the NSI had a broader package of functions, in practice it focused its activities on training staff for the sugar industry. During the period 1981–1991, a total of 1439 persons were trained at the NSI, which implies a capacity utilisation of some 70 percent. A 1986 evaluation report on training and localisation arrived at a considerably lower utilisation rate; setting the capacity at 2000 man-months per year it calculated the rate to be 50 percent for the period 1981–86. The figures indicate a gradual increase of the utilisation rate, probably through better coordination with the estates who contribute to the running costs of the NSI. This resulted among other things in the setting-up of shorter courses held outside the peak periods of the sugar cane production campaigns. From 1983 onwards the NSI also trains staff of other parastatals and government departments. Since then a total of 197 persons of other organisations have been trained, which equals about 15 percent of total output.

The NSI has paid little attention to its two other tasks i.e. the assessment of the manpower needs for the sugar industry and studies about work performance. Only recently the institute started to work with the estates on establishing manpower plans, also with the aim to increase capacity utilisation. Studies in relation to work performance have not been produced as yet.

The second form of training to contribute to the localisation of staff was the provision of scholarships for overseas training. Between 1983 and the middle of 1986, 79 traineeships were financed by the Netherlands, most of which were in the technical field (sugar engineering and sugar processing). Management was another important focus of attention. Assistance was continued up to 1989 with an average number of 18 trainees per annum. This meant that a total of some 130 local staffmembers were trained, chiefly on 3–6 months courses. Institutes in Mauritius, Swaziland and the United Kingdom were the main destinations for the trainees. The 1986 evaluation report observed that good progress was made in the initial period in replacing expatriates by local staff. However, at the same time the poor salary structure and the need to live in rural areas were mentioned as reasons for trained staff to leave the sugar estates for urban-based technical functions (CCC/Sudeco, 1986).

Finally, training of estate staff who had completed their formal training was also included in the HVA management assistance contract, although formal responsibility rested with Sudeco's Manpower Development Unit (MDU). The 1986 evaluation mission on training and localisation is rather critical of the approach to and results of the on-the-job training and considers the poor performance of Sudeco/MDU and the lack of sufficient interest on the part of management and expatriate personnel as main factors responsible for the disappointing results.

5.4 Management assistance

Since the mid-1970s, management assistance is provided under Netherlands aid to three of the four estates. Initially, this type of assistance was only given to Mtibwa (1975) and Kilombero (1977). Later on, it was also provided to Kagera (1979). In table 5.3 an overview is given of the management assistance per estate.

Table 5.3 Overview management assistance per estate

Estate	Period	Contractor	Disbursements (in million Dfl.)
Mtibwa	1975–1992	HVA	22
Kilombero	1977–1992	HVA	38
Kagera	1979–1984	HVA	12

Before the mid-1970s, management contracts were financed by Tanzania. When Tanzania began to experience serious foreign exchange problems, it more or less naturally turned to countries already involved in the sugar sector on a commercial basis, to provide financial support. Netherlands consultancy agencies had been already involved in the management of Kilombero since the early 1960s. Under this contract with KSC, the consultants were managing the company by seconding their staff directly to the estate, by recruiting additional expatriates who were directly employed by the company, and by providing all back-up technical service requirements for the operation of the company. In the fee for the managing consultant, incentives were included in the form of profit fees and production fees. For Mtibwa and Kagera the contracts were slightly different. In 1975 the Sugar Development Corporation acquired the ownership of Mtibwa and contracted HVA as the management consultant to run and manage the estate. In the secondment contract with Kagera the central tasks of the HVA management team were the planning and supervision of the rehabilitation and expansion of the estate.

The secondment contracts financed from the aid programme differed on three points with the commercial contracts: 1) no incentive payments were included, such as profit fees and production fees; 2) more emphasis was put on training and less on production output; these contracts were therefore also called management advisory agreements; 3) the contracts only covered the staff directly seconded by the management agency i.e. excluding those expatriates which were recruited by the consultant on behalf of the estate.

In addition to the provision of the experts stationed in Tanzania, the managing consultant arranged for the backstopping services and supporting services from headquarters. Backstopping and supporting services were gradually reduced. In the beginning the total number of mandays for backstopping for example for KSC were 500 days per contract agreement. In the 1980s, both the number of mandays and the modality (automatically) of the backstopping services were drastically

HVA

HVA-International b.v. provides services in the field of consultancy, management and technical assistance, as well as consulting engineering for agricultural and agro-industrial projects. The experience record of HVA in activities related to the sugar industry dates back to the late 1880s when large-scale sugar cane cultivation and processing were started on the Indonesian island of Java. Here, HVA owned and managed a great many sugar estates. HVA's plantation ownership involvement in sugar in Indonesia came to an end in 1955 when its plantations were nationalised.

In the early 1950s, HVA started to pioneer the sugar industry in Ethiopia. Under its own ownership and management, the sugar estates/factories of Wanji, Shoa and Metahara were established in 1954, 1960 and 1968 respectively. Their combined milling capacity amounted to 6,000 t.c.d. with a total area under cane of 13,000 ha. In 1974 the sugar industry in Ethiopia was nationalised but HVA continued its activities in the form of management support to the state-owned companies until 1979.

In 1959, after HVA had to withdraw from Indonesia, HVA-International b.v. was founded. Backed by the availability of experienced personnel involved in the management of estates, it started to undertake consultancy and management projects in developing countries. Since then, the company carried out consultancy and management assistance activities in a large number of countries, including various countries in Sub-Sahara Africa (Ghana, Sudan, Nigeria, Ivory Coast, and Burundi). One of the first management contracts concluded by HVA was with the Kilombero Sugar Company.

In 1986 HVA co-founded the Agricultural Investment Company whose objective is to provide venture capital to promising agricultural projects in Third World countries with the ultimate aim to sell the acquired participation to local individuals and groups.

changed. The number of mandays was roughly halved and backstopping services were only provided on request. The main reason for this change was the lack of transparency of the type of services provided by the consultant under the contract.

Initially, the agreements covered a period of two years but after 1988, these periods were reduced to one year and even to six months as a consequence of the differences of opinion between Tanzania and the Netherlands about the required changes in sugar policy to enhance the effectiveness of Netherlands support. In 1990, after the Netherlands decided to continue its support to the sector, the period of the management contracts was extended again to 16 months.

Table 5.4 gives an indication of the total staff involved under the management assistance specified per estate. It should, however, be taken into account that the numbers included in the secondment contracts do not indicate the total number of expatriates employed by the estates. A substantial number of expatriate management staff was employed directly by the company. For Kilombero, for example, the number was estimated at about 25 expatriates in 1975. This group decreased sharply in the second half of the 1970s.

Table 5.4 Management assistance to sugar estates 1975–1991 (man years)

Period	Mtibwa	Kilombero	Kagera	Total
1975–1977	6	5*	–	11
1977–1979	6	3	–	9
1979–1980	7	2	8	17
1980–1981	7	–	–	7
1982–1984	6	7	10	23
1984–1986	4	7	–	11
1986–1988	4	6	–	10
1988–1991	4	5	–	9

*Under a commercial contract.

Another category of foreigners was the middle-level, Indian staff—chiefly factory engineers—who were also directly employed by the various estates, and received a local salary. For this group, a supplementary salary was paid by Netherlands development assistance. The total number involved amounted to some 40 persons in the late 1970s, and gradually decreased to 10 by 1985 and four by 1990.

The total number of experts seconded to the estates and financed by Netherlands aid fluctuated considerably over time. This was partly related to the number of estates involved, partly by other factors. The fluctuation was strongly influenced by the expansion of the Kagera estate during the period 1979–1984. The decrease of the expatriate staff to the Kilombero estate during the second half of the 1970s had primarily a political background. In 1977 the managing agents had been working at KSC for more than 15 years, qualified Tanzanian staff were becoming available, and the Tanzanian government therefore felt that it was opportune to localise KSC's management. The original expatriate general manager and the agricultural manager provided by the consultants left and their posts were filled by their Tanzanian deputies. This was not a success; and as local top management failed, it was replaced by expatriates. From 1982 onwards, KSC was again run by a large expatriate staff from HVA.

Apart from the fluctuation in number, also the type of expertise provided under the contracts changed over time. In the initial period (1975–1979) all staff took up management functions: general manager, agricultural manager, factory manager, tractor workshop engineer and financial controller. In the period 1980–83, the seconded staff was expanded with field and workshop experts: irrigation/drainage and mechanisation engineers, and tractor workshop engineers. From the middle of the 1980s onwards, experts in agricultural field operations were withdrawn and replaced by local staff. After 1988, the seconded staff was limited to the factory and workshop. Their positions were changed to advisory ones, and on-the-job training became an important component of the work.

HVA management support to the Tanzanian sugar industry has never been subject to external evaluation by the donor organisation, but during the 1970s Sudeco requested Tate & Lyle to comment upon HVA's activities. In fact, management contracts have been extended, in all cases except one, without tendering procedures on the argument that Tanzania explicitly requested HVA assistance, that the fees corresponded to the DGIS consultancy fee regulations, and that visits by project officers had left a favourable impression of HVA management services. In 1986, an international tender also led to the contract going to HVA, in spite of a slightly higher price than a Danish firm. However, arguments of continuity and Tanzania's preference for HVA weighed strongly in favour of the Dutch consultants.

The main criticism of HVA's management assistance relates to in-service training as a necessary step to localisation. This criticism was ventured in the 1984 World Bank project completion report and in a 1986 evaluation report on training and localisation. Remarks in the reports refer to the many expatriate staff still employed after ten years of high expenditure on training and the lack of a systematic approach to posting and the guidance of trainees, cases of not putting of people in jobs corresponding to training, the priority given to production targets, and the need for estate management and expatriates to adopt a more positive attitude with regard to training. The criticism led to a further specification of the job descriptions of expatriate personnel, and an explicit mentioning of training activities. However, training has also been hampered by delays in the estates making counterparts available to HVA staff. In addition, the World Bank report criticises the weaknesses in management at Kilombero including the expatriate advisors with regard to the failure to improve the irrigation and drainage systems, the use of unsuitable and costly cultivation practices, and the toleration of poor husbandry standards.

The heavy emphasis on management assistance and institutional support is related to the nature of Netherlands development assistance to the sugar sector during the past decade. The priority of a more effective use of existing production capacity was the justification for this type of support. In addition, management assistance must be considered in relation to training, which was the second main objective of Netherlands aid to the sugar sector.

5.5 Commodity import support

Commodity import support for the sugar sector was made available from 1981 onwards when the Netherlands contributed Dfl 22 million to the Agricultural Export Rehabilitation Programme earmarked for the import requirements of the four estates. The bulk of this import support was spent in 1982 (Dfl 16 million), after which Netherlands CIS to the sugar sector fluctuated at around Dfl 5 million per annum. In 1990, CIS to the sugar sector came to an almost complete standstill when foreign exchange became available via the Open General License facility, while retention monies from the sugar export were also used by the estates to meet part of their import requirements.

The distribution of Netherlands CIS to the sugar estates is shown in table 5.5.

Table 5.5 Distribution of Netherlands CIS to sugar estates in relation to sugar production, 1982–1990

	TPC	KSL	KSC	MSE	Total
Total production (tons sugar)	315,923	38,279	398,516	185,417	938,135
Average production/ year	35,103	4,253	44,280	20,602	104,238
Share in total production (%)	33.7	4.1	42.5	19.7	100.0
Total Netherlands CIS (000 Dfl.)	14,347	3,097	22,185	11,964	51,593
% of Netherlands CIS	27.8	6.0	43.0	23.2	100.0
Deviation CIS/ production (%)	–5.9	+1.9	+0.5	+3.5	0.0

Source: Estate production records

The table indicates that the distribution of Netherlands CIS over the estates corresponds broadly to their share in total sugar production. There is a slight under-supply to TPC and a small over-supply to Mtibwa in particular.

The concentration of Netherlands CIS on three of the four estates during the second half of the 1980s led to a shift of retention monies to Kagera, to one-third of the total retention monies in 1986 (NEI, 1988). In this way, the Kagera estate, which was functioning poorly, was supported by retention monies earned by the other estates through Sudeco's coordinating role in the import of commodities for the sugar industry. The Netherlands subsequently added further conditions to the provision of its CIS which resulted in a distribution of retention monies in accordance to share in production.

The volume of foreign exchange made available by the two sources mentioned (Netherlands CIS US $ 2 million and retention monies US $ 4 million) covered

50–60 percent of the sugar industry's total requirements (US $ 11 million) at the 1986 production level (NEI, 1988). This is limited to the direct foreign exchange requirements of the estates, and excludes the foreign exchange involved in domestic purchases of imported goods such as fertilisers, lubricants and agricultural chemicals.

Netherlands CIS was mainly spent on the purchase of machines, spare parts, transport equipment and agricultural inputs. Sudeco was responsible for procurement, but it was advised by the HVA management team at the estate level on the identification of required commodities and the procurement procedures. Stockbuilding and competition with local producers did not appear to be a problem in the supply of CIS to the sugar sector. Instead of stockbuilding, there was a backlog in replacement and maintenance. This was related to the shortage of foreign exchange for the estates and the regulation that the cash cover in local currency had to be paid in advance to the Bank of Tanzania. This regulation put a heavy financial burden on the sugar estates.

Initially, Netherlands CIS was completely untied, mainly because machinery and equipment largely originated from Britain and Denmark. This was gradually reduced to 70 percent for the years 1985–87, and 50 percent for 1988–89. This decrease in flexibility did not lead to a substantial increase in purchases from Netherlands firms. Fewer than 10 percent of total supplies under Netherlands CIS originated from the Netherlands, with fluctuations between 3.4 and 16.4 percent between the various years. No less than 90 percent of the supplies for the sugar sector originated from other OECD countries.

The Netherlands CIS to the sugar sector has not been subject to evaluation studies. In the regular evaluation of Netherlands import support, the sugar sector was omitted intentionally. Therefore, there is little information about the efficiency and effectiveness of Netherlands CIS. Yet, available reports indicate that this type of aid has been vital in maintaining the operations of the sugar factories.

Part III. EVALUATION FINDINGS

6. Performance

During the second half of the 1970s, Tanzania devised ambitious plans for the expansion of sugar production in order to meet a growing domestic demand and provide an engine for development in certain rural areas. The demand was estimated at 160,000 tons in 1977/78, and was expected to increase to 470,000 tons in 1989/90. Environmental factors, such as land and water availability for irrigation, were not considered constraints, and only the shortage of skilled human resources was seen as a serious limiting factor to the attainment of the required level of production. The considerable growth of production was to be achieved by the extension of existing estates and by the establishment of new ones.

The plans were scaled down during the early 1980s since Tanzania was unable to fund such an enormous expansion, and donors were not prepared to finance the development of new estates before efficient production had been achieved at the existing ones. In 1982, a World Bank study proposed a production target of 210,000 tons per annum. As the foreign exchange costs were considered extremely high and the Tanzanian economy had run into serious problems, Sudeco came up with new proposals based on 'a holding operation with a minimum necessary degree of rehabilitation in order to prevent further deterioration and to maintain production levels' (NEI, 1988). The subsequent Sudeco plans aimed at total sugar output of 155,000–180,000 tons.

Actual production levels during the 1980s were substantially lower than the estimated demand, the planned levels of output, and lower than potential output in terms of the installed processing capacity. Therefore, assessing the performance of the Tanzanian sugar industry during the 1980s means asking the question: why did the actual production levels remain behind planned cane output and available factory capacity, and what were the consequences for the financial and economic performance of the industry?

6.1 Cane production

To identify the main factors which influenced the level of cane production, the estates and the outgrowers must be considered separately. In addition, two main aspects of the suboptimal production have to be dealt with, namely the area under cultivation and productivity in terms of yield levels.

Sugar Estates

The inadequate utilisation of the available estate area has been an important factor responsible for the suboptimal output levels. However, there is quite a big difference in this regard between the three main estates (see table 6.1). Kilombero shows the highest rate of utilisation, followed by TPC. Achievements at Mtibwa were considerably lower, with the harvested area on average below 50 per cent of the total estate area during the first half of the 1980s. This percentage went up to 75 during the second half of the decade. At Mtibwa, the problem was not only a question of planting part of the available area, but also of not harvesting the planted area. For Kagera, there are no exact figures but on this estate, only a fraction of the area available was planted and harvested. To sum up, the partial realisation of planned levels of output was partly due to the non-utilisation of the available estate area.

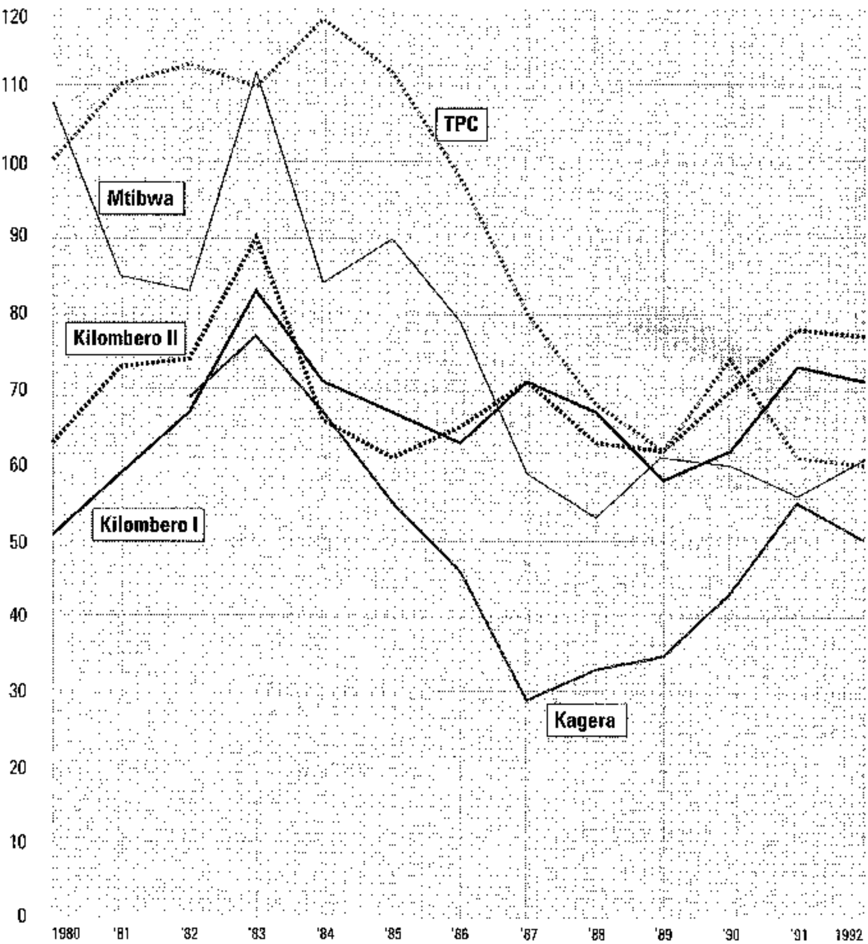
Table 6.1 Area harvested in relation to estate area (%), 1980–1991

Year	TPC	Kilombero	Mtibwa
1980	99	100	50
1981	88	92	55
1982	72	77	62
1983	79	92	49
1984	67	64	55
1985	71	96	29
1986	74	86	51
1987	81	97	66
1988	94	94	73
1989	94	100	65
1990	99	94	73
1991	n.a.	99	75
Total area (ha)	5500	6000	4750

Source: Sudeco.

A second explanatory factor for the disappointing output during the 1980s was the low yield levels. The yield levels of the various estates show strong fluctuations from one year to the next and a generally declining trend during the 1980s, especially after 1984. This declining trend has affected all the estates. For the early 1980s, the average levels were generally higher for TPC, with almost the whole area under irrigation, but there was hardly any difference between Kilombero and Mtibwa, although the proportion of irrigated cane was substantially higher at Kilombero. Yield levels compare unfavourably with other eastern and southern African countries, if account is taken of the proportion of land under irrigated cane—which is around two-thirds in Tanzania. The decreasing trend in yields in Tanzania during the 1980s also deviates from the almost worldwide increase in yield levels as a result of more intensive cultivation and an overall improvement in agronomic practices (Abbott, 1990). Furthermore, field trials in Tanzania indicated that the output per hectare might be increased considerably as yields were on average only 60 percent of trial yields.

Figure 12 Yields per estate 1980–1991* (in tons per ha)



Source: Sudeco
*) Figures refer to crop seasons: 1980= 1980/'81

In general, yield levels have been influenced unfavourably by three main factors: First, shortcomings in the irrigation system which result in negligible differences between irrigated and rain-fed cane, although this is also influenced by the differences in soil fertility between rain-fed and irrigated areas. In general, irrigation is applied to the sandy soils and consequently it also functions as a safeguard against crop failures in dry period. Second, the non-availability or shortage of inputs and equipment, especially those which had to be imported; this is related to Tanzania's problematic foreign exchange position and the inadequacies of the mechanisms for channelling foreign exchange to the sugar estates. Third, the salary structure and lack of incentives for estate staff, leading to deficiencies in management.

More detailed information about factors influencing cane yields is available for Kilombero and Mtibwa from a variety of sources (World Bank, 1984; NEI 1988 Vol. III). The information points to the following common causes for sub-optimal yield levels:

First, low soil fertility and shortcomings in fertilizer application. Fertilizers were applied at the wrong time and were of the wrong type. Not enough soil analyses have been made to identify nutrient deficiency in the soils and serve as a basis for an effective fertiliser application policy.

Second, poor land preparation (ploughing and levelling) leading to drainage problems during heavy rains. For Kilombero, it was reported that about 75 percent of the existing area was poorly or inadequately drained. For Mtibwa, too, the shortcomings in field operations aggravated the already serious drainage problems. Drainage canals were poorly maintained, and soils in certain parts have become so saline that they may now be unsuitable for sugar cultivation.

Third, an ineffective irrigation system. Cane yields for irrigated and non-irrigated fields show an insignificant difference of a few tons per hectare. The main problems were the wrong irrigation cycles, the wrong spacing of equipment, an inadequate number of sprinklers, and the large amount of idle equipment. During the early 1980s, this was partly caused by poor quality equipment, related to low standards of maintenance. In spite of purchases of new equipment poor irrigation remains a problem, which is also related to irrigation being considered by workers an inferior job, and to drainage problems due to shortcomings in management.

Fourth, mechanical planting and long crop cycles appear to lead to huge planting gaps—in certain years 20–25 percent of the area at Kilombero—which was chiefly due to irregular feeding of the planters. In addition, fields were replanted after too many ratoon crops.

Fifth, serious weed infestation and incidence of pests increased with time at Kilombero, and in 1989 areas completely covered with weed were reported. The estates' agronomy department designed weed control strategies for 1989/90. Furthermore, the use of pest and disease prone varieties, especially at Mtibwa, led to an unnecessary incidence of pests, smut infections in particular.

Sixth, shortcomings in management. Several reports mention the non-timely execution of operations and the low standard of operations. These form one of the main underlying causes of the technical shortcomings, mentioned above. Consultancy reports give examples of a relaxed attitude on the part of the management, leading to low productivity levels and delays in planting, and of fields which were mechanically weeded although they did not need weeding. These examples also point to deficiencies in supervision of field operations. In addition, lack of labour discipline has been mentioned as a cause of the poor quality of field operations. The parastatals' personnel policy with its lack of incentives and the generally decreasing real salary levels was a crucial factor behind these shortcomings in management.

Besides these structural problems, incidental factors had an unfavourable impact on yield levels in specific years: weather conditions (either excessive rains or periods of droughts), a cholera epidemic, and labour conflicts.

Outgrowers' production

In the initial plans for the expansion of the sugar industry, an important role was reserved for the outgrowers. In line with Tanzania's rural development policy in the early 1970s, the outgrowers' contribution was organised chiefly through collective forms of production, namely the *ujamaa* villages. Participation of the outgrowers was planned around three of the four estates: Kagera, Kilombero and Mtibwa. For the fully irrigated TPC estate, no combination with outgrower production was planned. For Kagera, a total of 3,700 hectares of outgrowers cane was foreseen, producing some 40 per cent of the total cane supply to the factory. For Kilombero, 35–40 percent of total planned output had to originate from outgrowers, whereas for Mtibwa, a contribution of 50 percent to total production was foreseen.

The actual contribution to Tanzania's total output was considerably lower for at least three reasons. First, the area planned was never realised, partly because the focus on outgrowers was scaled down substantially at a later stage, especially at Kagera. Second, the area under cane declined at Mtibwa and stagnated at Kilombero during most of the 1980s. This is strongly related to the failure of the collective production units, but also to the low prices paid to growers, and to the lack of supporting services, both government extension services and reliable services provided by the estates. Producer prices were especially low compared to returns for other crops such as cassava, maize, sorghum and paddy. If these crops were sold on the parallel market, returns to labour were two to four times higher in 1985/86 (NEI, 1988). Third, the yield levels among outgrowers fluctuated sharply but in general remained below the estates' yields because of their exclusive cultivation of rain-fed cane, the longer ratoon cycle, and the rather poor crop husbandry practices such as the non-application of fertilisers, and inadequate weeding. To sum up, outgrowers never fulfilled the role in sugar production initially assigned to them. They realised the planned percentage of production only occasionally.

Since 1990, the situation has been changing for the better. There has been a considerable price rise for sugar cane, which exceeded the increase in production costs, so that gross margins have gone up. Moreover, communications between company management and outgrowers have improved considerably. Furthermore, in both the Kilombero and Mtibwa area, the outgrowers have made preparations for establishing associations, to encompass and represent all outgrowers in the area, irrespective of the size of the cane farm. Results of these changes are noticeable already: an increase in the number of outgrowers and in the area under cane, new plantings of cane, and an improvement of estate services to the smallholders. In addition, a substantial growth in cane production has taken place in both the Kilombero and Mtibwa areas since 1990. Production increases are the result of both area expansion and higher yields. Better prices and improved services have begun to lead to higher yield levels at Kilombero, but more so around Mtibwa where outgrowers achieved yields of some 55 tons per hectare in the 1990/91 season which almost equals the yields on the estate. The main reasons behind the high level of outgrowers' yields at Mtibwa are the high quality of the soils compared to those on the estate, and improvements in crop husbandry stimulated by the price increases.

6.2 Factory capacity utilisation

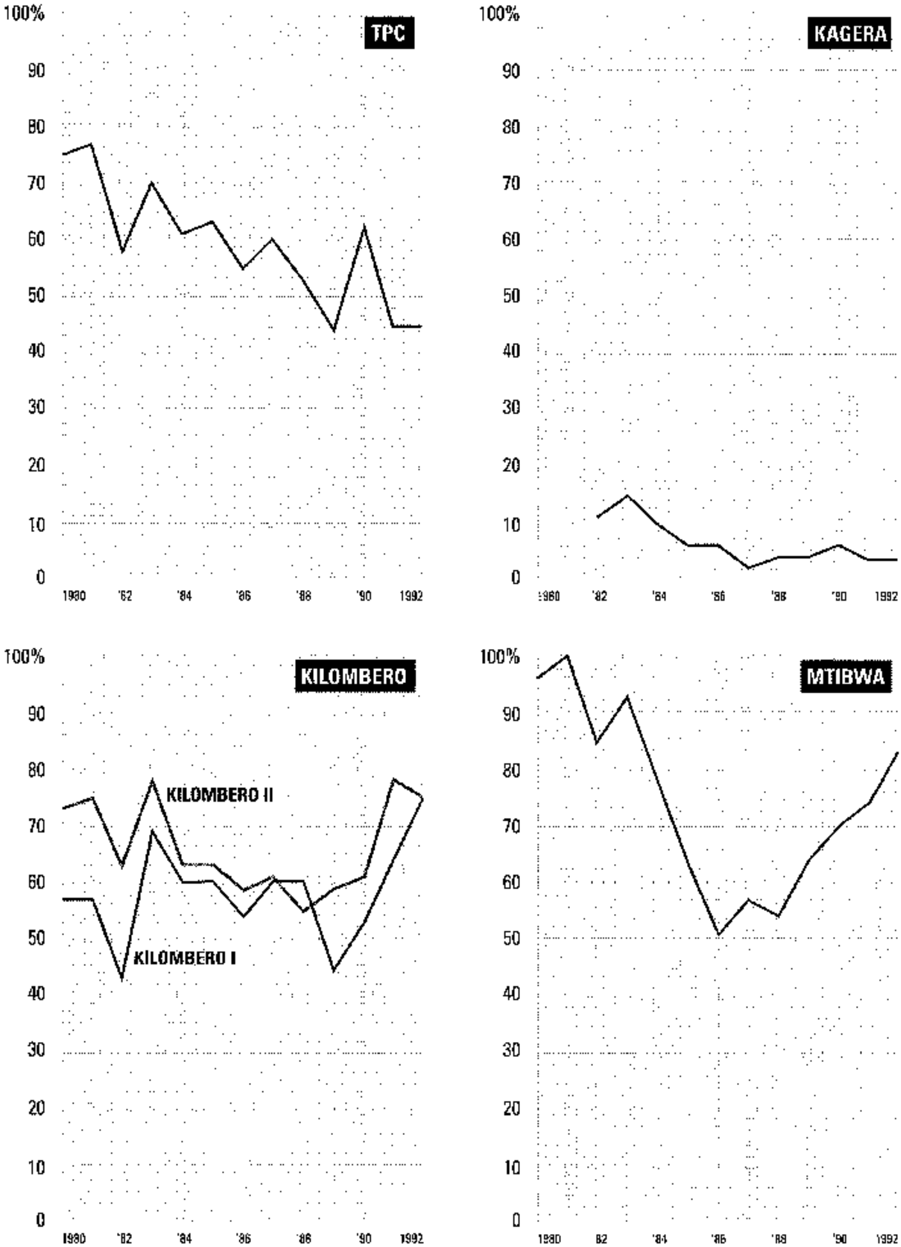
This factor was thoroughly analysed in a recent NEI report (NEI, 1991), which makes the following observations.

All the factories were open for crushing for a number of calendar days close to the potential operating period. This period is determined by the length of the cane cutting season and amounts to 270 days for TPC and 180 days for the other estates. Operating at full capacity would mean that factories would process cane for 20–22 hours per day during the season, with short interruptions of 10–12 hours once every 2–3 weeks for cleaning.

All factories suffered considerable interruptions of the production process. The percentage of hours lost at the individual factories varied from 40–45 percent at TPC and Mtibwa to 20–35 percent at Kilombero. On average, the relatively new Kilombero II factory showed the lowest percentage of hours lost. Even more important than the number of hours lost was the frequency of stoppages as a cost-increasing factor in sugar processing.

The main causes of the suboptimal use of the available capacity were threefold: mechanical breakdowns, the maintenance of machinery, and lack of cane. For Mtibwa and TPC, mechanical breakdowns and maintenance requirements were responsible for at least three quarters of the hours lost. This means that the crucial factors here in low capacity utilisation on these estates was the inadequate supply of spare parts, in relation to both problematic access to sufficient foreign exchange and lack of finance. At Kilombero, problems with cane supply played a much more important role, especially at the relatively new Kilombero II factory (see table 6.2). The reasons behind the irregular supply of cane may have been the mechanical

Figure 13 Factory capacity utilisation per sugar estate, 1980–1992* (in percentages)



Source:Sudeco

*) Figures refer to crop seasons: 1980= 1980/'81

problems with transport equipment, poor weather conditions, and the inadequate planning of cane deliveries.

Factory downtime fluctuated sharply over time at individual factories during the second half of the 1980s. In other words, there was no tendency towards a gradual improvement of factory performance. Only during the 1990/91 milling season did all four factories reduce factory downtime and three of them increased the sugar extraction rates. The recent improvement in performance was closely related to the strengthening of the companies financial position, which in turn was a result of higher ex-factory prices and better access to foreign exchange. This enabled the companies to acquire spare parts and to improve maintenance. In spite of this, downtime still varied between 16 percent at Kilombero II to 40 percent at TPC. Further details are given in table 6.2.

6.3 Financial performance

The preceding analysis presents a rather gloomy picture of the performance of the Tanzanian sugar industry during the 1980s: total production and yield levels substantially below potential ones and a processing utilisation rate at 50–60 percent of installed capacity. This raises questions concerning the financial performance of the sugar industry. Information with regard to the level and composition of production costs, the margin between production costs and ex-factory prices, and the consequences for the estates' financial position in the period 1981–1985, may be obtained from various NEI sector studies.

The structure of production costs is available for 1990/91 and points to cultivation costs making up a substantial part of total costs, varying from 50–60 percent. Field costs are lowest at Mtibwa, whereas factory costs show far less variation between the three estates. TPC has relatively high costs for power, fuel and chemicals. The latter is caused by the persistent pests (white grub) which require the intensive application of pesticides. The higher relative costs for fuel and power reflect the larger area under irrigation at this estate.

The high field costs at Kilombero are related to the considerable wage costs reflecting over-employment and relatively low labour productivity. At Kilombero, the higher costs of production are due to the relatively poor performance at Kilombero I estate and factory (NEI, 1991). Transportation costs also vary considerably among the three estates: from 17 percent of total costs at TPC to almost one-third at Mtibwa. These figures refer to one year only and, in fact, should be analysed over longer periods of time to identify trends. If this were done, the differences in level and composition of the total costs of production would indicate more accurately the possibilities for effectively reducing these costs. The management information system now introduced is an important instrument for identifying problems early on and addressing them efficiently.

Table 6.2 Indicators of factory milling performance, 1986/87–1990/91

	1986/87	1987/88	1988/89	1989/90	1990/91
TPC					
Factory yield	8.3	9.3	9.0	8.3	9.2
Hours lost (%)	45.2	40.6	44.4	45.8	40.7
–mechanical/ maintenance	33.9	30.4	33.3	33.9	33.3
–cane shortage	11.3	10.2	11.1	11.9	7.4
Tons cane per hour	101.8	98.4	92.8	94.1	111.9
Factory time efficiency	73.8	78.2	75.1	71.1	73.5
MTIBWA					
Factory yield	8.9	8.8	8.6	9.6	9.6
Hours lost (%)	38.9	34.6	41.8	49.0	29.0
–mechanical/ maintenance	27.9	31.4	36.6	33.6	20.5
–cane shortage	11.0	3.2	5.2	15.4	8.5
Tons cane per hour	70.7	83.7	88.9	90.4	92.4
Factory time efficiency	70.7	68.2	61.7	62.3	77.7
KILOMBERO I					
Factory yield	9.5	9.4	9.8	9.2	9.7
Hours lost (%)	34.6	32.0	27.1	35.0	27.3
–mechanical/ maintenance	19.6	16.1	16.2	17.8	14.4
–cane shortage	15.0	15.9	10.9	17.2	12.9
Tons cane per hour	77.0	74.3	77.1	77.2	79.6
Factory time efficiency	77.0	80.8	81.8	78.5	83.5
KILOMBERO II					
Factory yield	9.4	9.3	10.1	9.5	9.8
Hours lost (%)	26.2	35.1	38.9	18.8	16.2
–mechanical/ maintenance	9.3	5.3	4.3	6.7	9.2
–cane shortage	16.9	29.8	34.6	12.1	7.0
Tons cane per hour	91.3	92.8	87.7	92.1	95.1
Factory time efficiency	88.8	92.7	93.1	92.3	90.1

Source: NEI, 1991.

The picture presented above changes slightly if recurrent costs are related to the levels of production expressed per ton of sugar and if administration costs are included (see table 6.3). Total recurrent costs per ton are some 10 percent higher at Kilombero, due to relatively high cultivation costs and administration costs. Mtibwa is also burdened with high administration and garage costs per ton, which offset its relatively low field costs.

Table 6.3 Structure of expected production costs by activity 1990/91 (in Tshs per ton and %)

	TPC	%	Mtibwa	%	Kilombero	%
Field costs	25,881	46.4	18,747	34.1	25,765	42.5
Factory costs	15,335	27.6	13,978	25.4	18,676	30.8
Garage costs	2,538	4.6	5,179	9.4	–	–
Total production costs	43,754	78.6	37,904	68.9	44,441	73.3
Administration	11,870	21.4	17,093	31.1	16,179	26.7
Total recurrent costs/ton	55,624	100.0	54,997	100.0	60,620	100.0

Source: adapted from NEI, 1991.

The preceding figures refer to recurrent costs only. In addition to these, account must be taken of depreciation and other fixed costs. Available figures point to depreciation in the order of Tshs 14,000–18,000 per ton. Throughout the worldwide sugar industry, fixed annual costs tend to form a high proportion of the costs of sugar production. Substantial gains from economies of scale have yet to be obtained in Tanzania (SKIL, 1991).

Table 6.4 Average cost price and ex-factory price, 1981–1990 (in Tshs per ton)

Year	Average recurrent costs	Ex-factory price	Gains/losses	
1981	4,123	4,731	+	608
1982	5,521	4,750	–	771
1983	5,351	5,360	+	9
1984	7,674	7,154	–	500
1985	8,264	7,531	–	733
1986*	13,125	12,235	–	890
1987*	16,459	23,127	+	6,668
1988*	22,087	29,996	+	7,909
1989*	38,087	61,000	+	22,913
1990	57,000	98,624	+	41,624

*Average cost price figures for 1986–1989 refer to Kilombero only.

Sources: NEI 1986; NEI 1991; KSC records.

Although in principle the ex-factory price is based on the average cost price plus a certain margin, the price fixed in some years resulted in ex-factory prices below the actual cost price in several years during the 1980s. In addition, the average cost price does not properly reflect the real costs as depreciation is based on historic values and expenditures for equipment, spares and maintenance have often been lower than required (NEI, 1988). Total average production costs for the period 1980–91 are estimated at US $ 430 per ton including recurrent costs of US $ 350 and depreciation of US $ 80. For this period the ex-factory price is estimated at US $ 390 per ton, indicating that total production costs were not fully covered. Since 1989 the profit margins have been improved substantially. In 1991/92 an ex-factory price of almost US $ 450 per ton had been approved whereas total production costs in that year amounted to slightly less than US $ 400 per ton.

With relatively high costs of production and ex-factory prices fixed artificially below the actual cost of production, the estates experienced considerable losses for many years during the 1980s. At the end of the 1984/1985 financial year, the total accumulated losses for the three main factories amounted to Tshs 132 million (Mtibwa 54.9; Kilombero 53.8; and TPC 23.5). If Kagera were included, the total amount would increase considerably as the losses at this estate amounted to Tshs 118.2 million for 1984/85 alone. The situation deteriorated considerably during 1985/86 when another Tshs 181 million was added, bringing the total accumulated losses at the four estates to Tshs 431.5 million.

During the second half of the 1980s, the situation improved drastically as a result of the increase of the ex-factory price.

All companies except Kagera made profits in 1988/89 and 1989/90 (357 million Tshs and 981 million Tshs respectively after deduction of tax), which, in spite of the considerable losses of Kagera, resulted in net profits of Sudeco in these years. Yet, Sudeco's working capital position continued to deteriorate to almost 700 million Tshs negative as of June 1990. This is largely attributed to the current maturity of the loans taken for Kagera.

The 1991 NEI report provides some further information about the financial performance of the estates over the period 1980–1991. It appears that the financial performance of the three companies (the report excludes Kagera) varied considerably in spite of the common situation they had been facing, i.e. if no account is taken of the differences in development aid funds the companies received. It is clear that the under-utilisation of installed capacity in fact meant an ineffective use of available resources which had an unfavourable impact on financial performance. Both the return on total assets and the return on capital remained well below the current interest rate of 30 percent, in spite of recent improvements in the profit margins on sales and in the return on capital. These improvements were principally the results of higher ex-factory prices. This also makes clear that the low profitability in the past, which inhibited the building up of reserves for replacement investment, were a direct consequence of the artificially low prices set by the Tanzanian government.

Financial performance cannot be limited to the estate level. Estates are subsidiary companies of Sudeco, and profits and losses are reflected in the Sudeco accounts. The main source of Sudeco's income is the margin between the sales price and the ex-factory price. Other sources of income comprise development fund revenues, a certain percentage on exports, and exchange rate gains. The former income source is meant to cover the costs of distribution, i.e. transport, storage, finance charges and administrative costs related to marketing. The latter source is for meeting the costs of non-marketing activities such as planning and development, supervision of subsidiary companies, general management, secretarial, services, training and manpower development. Sudeco's exchange rate gains provided windfall profits on exports to EC which in fact belong to the sugar companies in correspondence with the share of each company in total exports.

In the late 1970s, Sudeco accumulated substantial T-shilling balances under the then favourable domestic pricing policies. It decided to invest these monies in the construction of a high-quality office building at a top location in the centre of Dar es Salaam rather than in the expansion or rehabilitation of the estates. The intention was to let the building to tenants who could pay in foreign currency, in this way obtaining additional foreign exchange. Construction of the building stagnated due to the deterioration of the Tanzanian economy, the restrictive pricing policies, and the cash cover requirements for obtaining foreign exchange when the local currency was rapidly depreciating. At present, the building is nearly completed, but tenancy contracts have not yet been concluded.

During the first half of the 1980s, Sudeco operated at a loss, and net losses accumulated to Tshs 235 million in 1986. Thereafter, the situation gradually improved. Recent Sudeco accounts show substantial profits of Tshs 676 million in 1989/90, an increase in the profit percentage on turnover from three to eight percent, and an improvement in Sudeco's liquidity position. However, its present financial situation is heavily burdened by its participation in the development of Kagera. Sudeco's participation in Kagera in the form of investment and loans amounted to Tshs 2.7 billion which equals about 45 percent of its total assets. The recent arrangements with Newsco about the exploitation of Kagera might imply that Sudeco will have to bear part of the accumulated losses of Kagera. Consumers contribute to make up for the Kagera losses by means of a special levy included in the sugar price and this is one of the factors causing the domestic price to exceed the price of imported sugar (NEI, 1991).

The assessment of Sudeco's performance included in the 1988 NEI report is rather critical. The report observed that Sudeco seemed to have had little influence with regard to the important question of price setting and had not been in a position to solve day-to-day operational problems on the estates. The estates complained about the lack of knowledge of their problems on the part of the Sudeco staff as they seldom appeared on the estates, and about the additional complications and amount of paper work created by Sudeco's services in obtaining import licenses. The report is also quite negative about Sudeco's role in the promotion and development of new projects and illustrated this by referring to the poor performance of the Kagera estate, and the limited focus on small-scale sugar production. Finally, critical remarks were made about the limited effectiveness of the Manpower Development Unit in the follow-up to manpower training, and about the unequal distribution of sugar over the country, resulting in high real prices paid by consumers in the rural areas who had to buy on the parallel market.

During the late 1980s, Sudeco's performance improved considerably and so did the relationship with the estates. The actual role of Sudeco in a more market-oriented production environment is still under discussion.

6.4 Economic performance

The economic analysis of the sugar industry evaluates the importance of the sector to the overall economy of Tanzania. Because of the substantial distortions in the economy during the 1980s, prices used in the financial analysis often did not reflect the real scarcity of production factors, goods and services. In the economic analyses, distortions are dealt with and financial prices are multiplied by conversion factors.

In so doing, goods first have to be divided into traded and non-traded goods. Economic prices for traded goods are based on 'border prices'. For sugar, the c.i.f. import price is its border price. Non-traded goods have to be broken down into their different imported and local components, each with a different conversion factor. In general, locally produced goods are given in economic prices by means of a standard conversion factor. This standard conversion factor is used to compare domestic goods correctly with international goods. Under normal conditions, the official exchange rate could be used for this comparison. If the official exchange rate is overvalued, a shadow exchange rate has to be applied, which more accurately reflects the value of the currency. During the 1970s and 1980s, Tanzania had an overvalued exchange rate mainly because of a much higher domestic inflation rate than that in other countries (NEI, 1988).

For an economic analysis of the sugar industry, a standard conversion factor of 0.5 over the period 1980–1991 has been applied to local costs, while imported items have been corrected for import duties and the opportunity cost of capital has been assumed to be 10 percent. Under these conditions the economic costs of production amounted to US $ 320 per ton over the period 1980–91. Table 6.5 below provides the details of the calculation.

As sugar production in Tanzania is an import substitution type of industry, the economic benefits of domestic sugar production can be measured by comparing the

Table 6.5 Economic and financial cost per ton sugar (US $, 1980–1991)

	Economic cost			Financial cost		
	Foreign exchange	Local	Total	Foreign exchange	Local	Total
Recurrent	150	100	250	150	200	350
Capital	60	10	70	60	20	80
Total	210	110	320	210	220	430

Sources: NEI, 1988 and 1991.

economic costs of production with the import parity price of sugar. The average world market price of sugar was US $ 250 per ton over the period 1980–1991, which equalled a c.i.f price Dar es Salaam of US $ 335. This means that during the 1980s the costs of production of the sugar industry were only marginally covered by economic benefits.

The use of the world market price for an assessment of the economic benefits of sugar production is complicated by the volatility of the sugar market, which results in sharp price fluctuations over time. For example, during the 1980s, the world market price was below the US $ 250 mark for seven out of ten years. In 1990, the world market price had gone up to US $ 277 per ton, which corresponds with a c.i.f. Dar es Salaam price of US $ 375. This means that in 1990 the economic costs of production estimated at US $ 400 per ton (NEI, 1991) were not completely covered by economic benefits. It is clear that both the financial and economic rates of return were substantially lower than expected at the time the expansion of the sugar industry was planned during the 1970s. Then, the economic rate of return was estimated at 10–15 percent. For example, the economic rate of return of the Kilombero factory was appraised at 13 percent, whereas the World Bank completion report (1984) arrived at an ERR of 4 percent at a border price of US $ 529 per ton. As the actual border price has been substantially lower than US $ 529 during the second half of the 1980s, the ERR becomes even negative. Estimates of the overall profitability of the investments in Kilombero II indicate that investments in this factory have not been recuperated. The low productivity of the land in terms of yields per hectare and the under-utilisation of available processing capacity were major causes of the disappointing rates of return for investments in the sugar industry.

7. Efficiency

The central question with regard to the efficiency of Netherlands aid is whether alternative means would have achieved the objectives more adequately. This question concerns the choice of the sugar sector and the choice of technology. A second question concerns the way Netherlands aid has been organised and managed. This touches on issues of the approach to aid and the quality of aid management. To assess efficiency, the following aspects will therefore be investigated:

1) choice of sector. The prime objective to invest in the sugar sector was to earn foreign exchange. To assess this aspect, the sugar sector has to be compared with other potential foreign exchange earners in the agricultural sector.
2) choice of technology. The Netherlands supported a large-scale, modern mode of agricultural production. This raises the question: was the choice of modern, capital-intensive technology appropriate to the economic and social conditions of the recipient?
3) aid management. This aspect focuses on the way in which assistance has been handled during the various phases of the project cycle. The following elements of the project cycle are reviewed: project design, appraisal, implementation and evaluation.

7.1 Choice of sector

In their feasibility study of a development plan for the sugar industry in Tanzania, the NEI (1988) makes a comparison of the main crops which earn foreign exchange. The following crops were considered: coffee, cotton, tea, tobacco, sisal, cashew nuts, sugar, maize, rice and wheat. The production costs of these crops in economic terms (i.e. with shadow price inputs) were compared with their economic benefits measured in border prices (i.e. f.o.b. export prices or c.i.f. import prices including port handling costs). Table 7.1 shows the results of this study.

On the basis of the economic cost-benefit ratios, the ranking of crop priorities within the agricultural sector is as follows: coffee, tea, cotton, rice, cashew, and sugar. All these crops have economic cost ratios higher than 1.00 and are considered economically attractive for Tanzania. Maize, tobacco and sisal have ratios around 1.00, whereas wheat appears unattractive for Tanzania in economic

Table 7.1 Economic cost-benefit ratios per crop

Export crops						Food crops			
coffee	cotton	tea	tobacco	sisal	cashew	sugar	maize	rice	wheat
3.10	2.50	2.60	0.95	0.93	1.80	1.12	1.01	1.83	0.66

Source: NEI, 1988.

terms. The NEI conclusion on the basis of the above calculations was that sugar could be considered economically beneficial for Tanzania. It also contributes favourably to the country's balance of payments situation. Continuing Netherlands support to the sector was therefore justified.

On the other hand, the World Bank rated sugar as a low priority crop in economic terms in its 1983 Agricultural Sector report. This low priority was based on the following arguments. It is an import substitution crop as opposed to a foreign exchange earner (except for molasses and the Lome Convention quota), and to keep it in a healthy state, it requires a large slice of Tanzania's limited foreign exchange resources. The industry also demands considerable management and technical skills which were not available in Tanzania. For these reasons, the World Bank discontinued its support to the sugar sector in the early 1980s (World Bank, 1984).

One of the main reasons for the considerably lower economic rate of return on investments in the sugar sector compared to the first half of the 1970s was the fall in the world market price of sugar. In the early 1970s, when most donors, including the World Bank and the Netherlands, decided to enter this sector, world market prices were very high, and consequently, economic rates of return very favourably. However, compared to other agricultural products, sugar seems to be one of the most unstable commodity markets. It would have been more realistic if the appraisal had taken account of the cyclical nature of the world market price.

However, some people argue that it is incorrect to compare local production costs with international market prices. The world sugar market is considered a dump market. Most countries sell their sugar surpluses on the world market at a loss. According to a recent OECD publication (Goldin, 1992) agricultural trade liberalisation would increase the world sugar market price by about 10 percent in case of a partial liberalisation scenario and by more than 50 percent assuming full removal of all distortions.

Official reports comparing the cost-price ratio for sugar production in different countries hardly exist. In general, it is assumed that the average production costs for beet sugar are about 20 percent higher than those for cane sugar (SOMO, 1987). In the EC, for example, the minimum guaranteed ex-factory price amounted to more than US $ 500 per ton during the 1980s. In the NEI feasibility study (1988), the average world economic cost price was estimated at US $ 300 per ton. An example of a low-cost industry is that in Malawi, with an average production cost of US $ 200 per ton. As the average economic costs of production in Tanzania over the period 1980–1991 were slightly higher than US $ 300, this indicates that the Tanzanian sugar industry can be qualified as a 'normal' cost industry, and even a low-cost industry compared to the European beet sugar production. More efficient production methods could reduce the average cost price in Tanzania to about US $ 250 per ton (NEI, 1988).

Apart from economic factors, the Netherlands Government's decision to continue its support to the sugar sector was also heavily influenced by the limited possibilities of alternative investments, the prospects for future improvements in the sugar sector, and the know-how and expertise built up in fields relevant to the sector.

All in all, it may be concluded that from an efficiency point of view, it was justified to commence and continue support to this sector.

7.2 Choice of technology

In principle, three types of technology are available for cane sugar production: jaggery, *khandsari* or the open-pan sulphitation (OPS) system, and the modern vacuum-pan sulphitation (VPS) system.

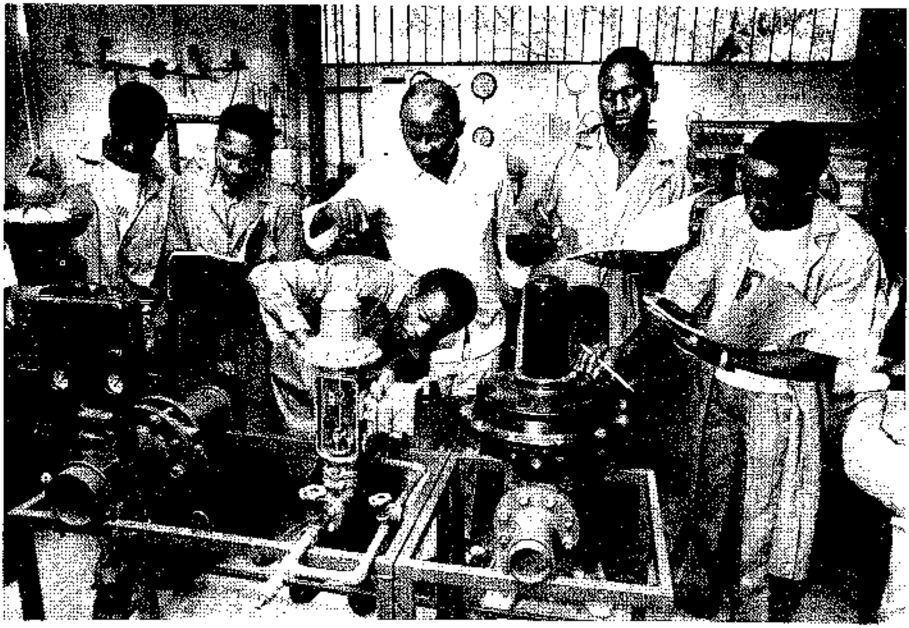
In Tanzania, the jaggery method was introduced at the beginning of the century; by the middle of the 1980s, an estimated 30 jaggeries were still in operation in the Arusha region. There are no figures available for other parts of the country, but the number is considered negligible. There is only one *khandsari* plant operating in Tanzania, in Wami prison, which has a social rather than an economic purpose. Almost the entire Tanzanian sugar output is produced by the modern VPS system.

Tanzania's choice of this large-scale production system with modern technology was based on the following considerations:

- the higher economic efficiency of the VPS systems vis-a-vis the other systems (NEI, 1980);
- the required short time between cane cutting and processing puts a high demand on the organisation of production. A shift further than 50 percent dependence on outgrowers supply is therefore not welcomed by management (Coulson, 1979).

Furthermore, the Tanzanian government had a strong preference for modern, large-scale production systems. This preference Tanzania shared with many developing countries during the 1960s and the 1970s.

Finally, Tanzania was dependent on donor assistance for the realisation of its expansion plans for the sugar industry in the early 1970s. The bias towards import-intensive technology was also caused by financial conditions set by donors tying supplies to source countries.



The choice of modern, import-dependent processing technology and Netherlands support for sugar production based only on this type of technology was an issue for debate at regular intervals during the 1980s. At least four different points of view may be distinguished.

First, jaggery production of sugar offers attractive possibilities, as jaggery making is a straight-forward process, and the technology has been known in Tanzania for a long time. It has low economic costs compared to sugar and/or *khandsari* production, it contributes to meeting the existing excess demand for sweeteners, and it can be undertaken successfully in remote areas with serious transport problems. Although the demand for jaggery is not known, a step-by-step approach would gradually expose such demand (KIT, 1981).

Second, *khandsari* factories are a viable alternative for the VPS system. The *khandsari* factories could have been based on the jaggeries, and during the early 1970s, no fewer than 50 *khandsari* factories could have been built for the price of one modern VPS factory. The introduction of VPS technology was not undertaken in the interest of Tanzania, but was the result of pressure by Netherlands commercial interests (Hoebink, 1988).

Third, there is a potential for developing small-scale white sugar production through private sector investment, although detailed feasibility studies are required to establish the most effective OPS (=*khandsari*) configuration. This type of technology is likely to result in a lower foreign exchange requirement per ton of sugar, although, at the margin, minimum rehabilitation of existing mill capacity could be more efficient in the use of foreign exchange. Small-scale production offers good opportunities for smallholder production, but expatriate supervision would be necessary during project start ups (Intermediate Technology Development Group, 1988).

Fourth, the modern VPS system is the most suitable and economically most feasible for Tanzania. Jaggery is not an alternative since, although it produces a type of fondant for local brews, it is unsuitable as a substitute for sugar in tea and coffee because of its strong taste of molasses. In addition, it has a high fuel consumption which could lead to more deforestation problems. *Khandsari* production not only requires special technical skills, but also has relatively high investment and operating costs per ton. Production costs are around 40 percent higher than for large-scale sugar factories. Mini-sugar plants (small-scale VPS systems) are unfeasible because of the relatively high investment costs per ton of sugar (NEI, 1988 and SKIL, 1990).

Various explanations for the choice of technology have been given. The simplest one is that the sugar development strategy has been donor-driven and commercial companies in donor countries have had a vested interest in modern, large-scale technology. Because of this interest, the alternatives have not been assessed, and no donor support has been given to other capital-intensive and more labour-intensive types of technology (Hoebink, 1988). This explanation is incorrect in that HVA—the main Netherlands commercial interest in the sugar industry—has produced studies for the DGIS outlining the various types of technology and their pro and cons. In addition, the Netherlands commissioned a pre-identification study into small-scale sugar cane processing in 1980, and included an assessment of alternative technologies in the 1988 NEI sector study. Furthermore, in 1970, it supplied two OPS plants to the Small-scale Industries Development Organisation.

Another study relates the choice of technology of the Tanzanian sugar industry to the operation of two forces: the interest of aid donors and machine suppliers and the interest of those who control the state in Tanzania. State control in Tanzania's centralised economy was exercised to a large extent through parastatals, in the case of the sugar industry through Sudeco. In the implementation of its tasks, Sudeco was advised by expatriate consultants, whereby it depended heavily upon donor assistance. In Tanzania's development policy from the late 1960s onwards, there was a clear preference for large-scale establishments which employed modern technology. So, state capital and centralised control reinforced the selection of large-scale, capital intensive production processes. This bias resulted in a heavy reliance on imports and expatriate consultants, in a loss of foreign exchange and limited spread effects to other sectors, and thus perpetuated external dependence (Chambua, 1990).

It must be concluded that in economic and financial terms, there hardly appears to be an alternative for the modern VPS technology to achieve a rapid expansion of Tanzanian sugar production. VPS technology is applied to 90 percent of the world's cane sugar production. This technology is cheaper in terms of investment and production costs. Alternative technologies may create environmental problems due to higher fuel requirements and a higher demand on scarce land because of lower sugar extraction percentages. If a VPS factory crushes for 22 hours per day, not only will no additional fuel be required, but there will be a surplus of electrical power generated for domestic use. Therefore, better management with higher operating efficiency means that no firewood or expensive fuel oil is required for the sugar factories.

Alternative technologies are not exclusively related to small-scale cane cultivation as outgrower production can also be arranged effectively through nucleus estates with modern processing technology. This modern technology is strongly dependent upon imports although the input component can be reduced by local production of spare parts, and particularly transport equipment, and by a high standard of maintenance. Modern technology also puts a high demand on technical and management expertise.

Netherlands assistance to the sugar sector in Tanzania has combined the supply of modern equipment with management support and various forms of training. The advice requested at various times did not indicate good opportunities for alternative technologies, which, moreover, were not a priority for Tanzania.

7.3 Aid management

Efficiency aspects of the implementation of Netherlands assistance will be assessed for the main phases of the project cycle: project design, appraisal, implementation, and monitoring and evaluation. However, before dealing with these aspects, the aid approach will briefly be discussed.

Aid approach

Aid can be provided in many forms. One of the main distinctions is between projects and programme (also called non-project) aid. For years the bulk of aid was in project form. Project aid makes a specific capital asset or piece of technical assistance available, often to specific beneficiaries. Programme aid makes a cash sum available for the benefit of the entire recipient economy or a sector of it, and is normally accompanied by policy discussions. But the distinction is not always clear cut. The emergence of the hybrid known as sector aid reflects this (Cassen, 1986). Sector aid is designed to address in a coherent way a number of interrelated development constraints in a sub-system of the economy (Rose, 1985). The form it takes is usually a combination of project aid, programme aid and technical assistance.

During the 1970s aid to the sugar sector was mainly provided in the form of project aid to expand the production capacity of the sugar industry. In addition technical assistance was provided to improve management and to train local staff. In the second half of the 1970s most donors were of the opinion that external assistance through the traditional project mechanism was neither the most useful nor the most appropriate form of aid because of problems with capacity utilisation, maintenance and management. A consensus emerged that, in principle, a greater proportion of aid should be given in non-project form, namely as balance of payments and budgetary support, or as commodity aid to make assets more productive instead of creating new assets. This was also the view of the Netherlands government. In the beginning of the 1980s almost half of the bilateral aid to Tanzania was made available as commodity import support. With this change from project to programme aid, the focal point in the policy dialogue shifted from project characteristics to macro-economic issues. Initially, no conditionality was linked to programme aid with regard to economic reform measures. In 1982, the willingness to continue programme aid was related to an economic reform programme agreed upon with IMF and World Bank. As a result of differences in opinion about Tanzania's macro-economic policy, the volume and share of programme aid dropped to about 25 percent in 1983 and 1984. Because the Netherlands government wished to continue its aid relationship without a further reduction in the financial allocations, new forms of aid had to be found. Project aid was not considered an alternative, given the country's limited absorption capacity. It was decided to shift part of the commodity import support to more sectorally oriented programmes, namely cotton and sugar. The main arguments for this sector aid approach were threefold. Firstly it permitted the Netherlands to enter into an appropriate form and level of policy dialogue where it felt that policy modification or institutional strengthening could be realised. Secondly, it potentially offered some degree of visibility and accountability, absent from more general programme aid, and made it possible to employ the target group concept. Thirdly, the programme forms of sector aid had more potential for rapid disbursement.

Since 1982, the Netherlands aid to the sugar industry followed a sector approach, whereby programme aid, project aid and technical assistance were combined. Under programme aid the required capital goods and spare parts were imported, while technical assistance focused on management support and training. Project aid was only used too a very limited extent, such as, for example, the expansion of the production capacity at Mtibwa. During the 1980s, Netherlands assistance to the sugar sector concentrated therefore primarily on the effective utilisation of the existing production capacity. The sector aid was primarily focused on estate and factory production and little attention was paid to socio-economic problems such as the integration of the sugar industry in the regional environment. In the sector policy dialogue the continuation of assistance was related to general economic reforms, such as liberalisation of price setting and retention of foreign exchange earned through exports. For certain issues, such as privatisation, the policy discussions were based strongly on general structural adjustment concepts and too little on sector-specific constraints.

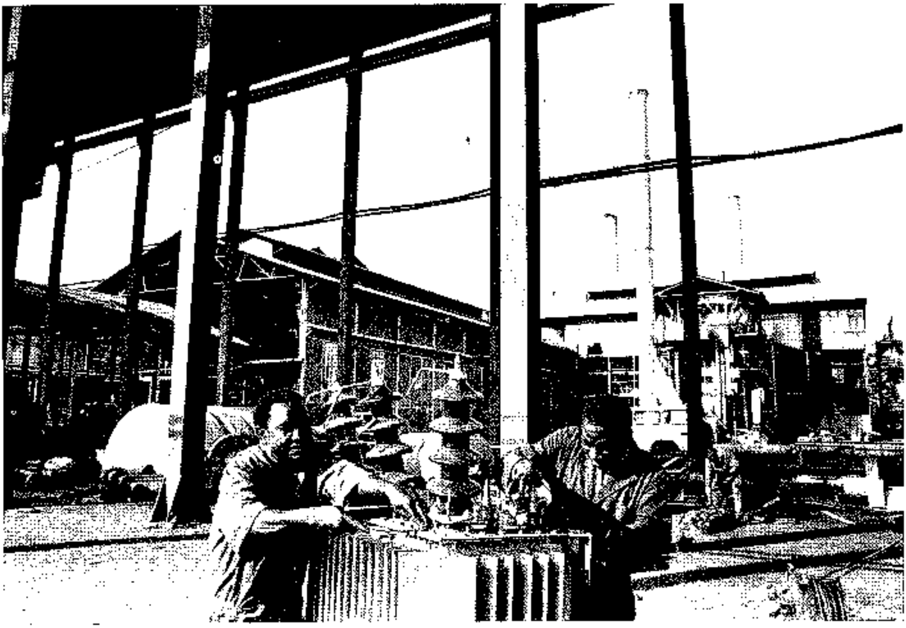
Project design

The identification and formulation of Netherlands support was based heavily on feasibility and sector studies. During the 1980s, these were undertaken chiefly by the Netherlands Economic Institute. These studies played a dual role: the identification of the main problems in the sector, and the appraisal of the sector development plans for 1984–1988 and 1988–1992. The reports also functioned as an instrument to specify Netherlands priorities during the bilateral talks. In the latter phase (i.e. in 1990–91), second opinion reports were requested on the planned rehabilitation, to ascertain the justification of further support. All in all, the commissioning of these studies indicates a cautious and thorough handling of Netherlands assistance during the 1980s with regard to identification and formulation. The studies were carried out by an independent consulting firm not involved in the implementation of the sugar assistance programme. This means a positive change compared to the 1970s, when feasibility studies and project implementation were often combined by the same firm (HVA), although Sudeco tried to operate a system of checks and balances by asking other consultants to comment upon HVA's performance.

Appraisal

Since the early 1980s, the DGIS appraisal procedure has been formalised through a so-called Appraisal Memorandum (BEMO). The BEMO is approved by the regional directorate when the commitment does not exceed Dfl 5 million. Higher commitments have to be referred to a project committee. The number of BEMOs for aid to the sugar sector written since the introduction of the new appraisal procedure amounts to about 30. None of the proposals were rejected and only a small number were returned for additional information. The length of the internal appraisal procedure was on average one to two months, ranging from two weeks to almost three months.

The large number of BEMOs is a result of two factors: first, the wide variety of activities undertaken in the framework of sector aid during the 1980s compared to production-oriented assistance in the 1970s (no less than ten different project



activities were registered at a certain moment); second, the relatively short period for which commitments were made (one to two years) in relation to the dialogue between the two countries concerning the need for sugar policy reforms. These discussions dealt with developments in the sugar sector in general rather than with specific activities for which a commitment was made. The relatively short commitment periods reduced the certainty of continued Netherlands support for Tanzania, especially as the other main donors to the sector had withdrawn their assistance during the first half of the decade.

Implementation

In the implementation of the Netherlands bilateral aid programme, two types of procedure have been applied: technical and financial aid procedures. Assistance to the sugar sector almost entirely followed the financial aid procedure. Under the financial aid procedure the recipient is primarily responsible for the implementation. The recipient plans implementation, invites tenders, awards contracts for the supply of goods and services, and supervises implementation. In the case of the sugar sector, responsibility for the financial aid procedure for implementation was delegated to Sudeco. Under the technical aid procedure, the donor organisation has the prime responsibility for the supply of inputs for the aid activity.

Originally, financial assistance was tied to the purchase of goods and services in the Netherlands. In the mid-1970s, an international agreement on a switch to partial untying was reached. Initially, this applied only to loans granted as part of financial aid. Since the beginning of the 1980s, financial aid grants have also been partially untied. Partially untying means that goods and services may be obtained not only in the Netherlands but also in the recipient country itself or in other developing countries, better known as eligible source countries. Moreover, since the early 1980s, exceptions have regularly been made with respect to the origin of goods and services. In general, 30 percent of the purchases were allowed to originate from countries not on the list of eligible source countries.

Since the late 1970s, all financial aid has been subject to the DAC guidelines for procurement procedures. The general rule is that a tender procedure is followed: invitations for tendering are called publicly and internationally. However, different arrangements may apply in special circumstances such as repeat orders, the need for standardisation, in cases where there is a single supplier for the required commodities, or if the cost of a procurement is below US $ 200,000.

For the three main types of activity (rehabilitation projects, management assistance and commodity import support), the modality of implementation will be reviewed.

Rehabilitation activities and management support were contracted out to Netherlands consulting firms. Apart from the training support to the National Sugar Institute which was contracted out to BMB, all activities were undertaken by HVA. The latter firm not only obtained all management contracts for Mtibwa and Kilombero, it also implemented the field development component at Kagera, it supervised the construction of the Kilombero II factory and the expansion/ rehabilitation of irrigation facilities at Mtibwa and Kilombero. In general, the contracting out of management assistance to HVA took place through direct negotiations, and without applying any form of tender procedures. An exception was the management assistance contract of 1986–1987, when an open tender led to a price reduction on the part of HVA. Although HVA was not the lowest bidder, it was awarded the contract because of the minor price difference and Sudeco's preference for continuity.

For the commodity import support element of assistance to the sugar sector, Sudeco was responsible for procurement, which took place on the basis of priority lists provided by the estates. For Mtibwa and Kilombero, HVA had a management assistance contract, and therefore HVA also adviced on the urgency of commodities needed. Initially, Netherlands CIS was completely untied, mainly because machinery and equipment largely originated from Britain and Denmark. This was gradually reduced to 50 percent. This change did not lead to a substantial increase in purchases from Netherlands firms. Less than 10 percent of total supplies under Netherlands CIS originated from the Netherlands. No less than 90 percent of the supplies to the sugar sector came from other OECD countries, indicating the flexibility with which the tying conditions were applied. Purchases took place on the basis of comparing a limited number of pro-forma invoices, evaluated by the Netherlands Embassy, but orders below Dfl 25,000 did not need prior approval of the Embassy.

In table 7.2 an overview is shown of the origin of goods and services financed as part of Netherlands aid.

Table 7.2 Origin of goods and services to Tanzanian sugar industry (percentages)

	1974–1979	1980–1985	1986–1991
Netherlands	78	58	42
Other developed countries	5	29	48
Tanzania	10	7	2
Other developing countries	7	6	2

On the basis of the above table, it can be concluded that, after 1974–1979, the de facto tying of aid decreased significantly. In particular with regard to CIS funds, the de jure tying conditions have been applied very flexibly. However, in Netherlands assistance to the sugar sector tendering procedures were used only in a limited number of cases. It is difficult to assess what this absence of competition in the awarding of contracts has meant for the efficiency of project implementation. As the 1986 tendering results of management assistance revealed, more competition would probably have had a downward effect on prices.

Monitoring and evaluation

Monitoring and evaluation were a limited part of the management of the programme by the Netherlands. Monitoring took place through the detailed recording of data at the estate level with regard to both field and factory operations. This wide range of data was a crucial input for the NEI sector studies. In addition, monitoring occurred via HVA's progress reports to Sudeco and irregular field visits by Netherlands ministry staff. In addition, the Netherlands Economic Institute acted as an advisory body on an ad-hoc basis. Under these conditions, low priority was given to separate evaluation studies of Netherlands assistance to the sugar sector, or components thereof. In fact, evaluation was limited to a single study of the training component (1986). The various missions sent to evaluate Netherlands import support systematically excluded assistance to the sugar sector. Of course, the various NEI reports provided accurate insight into developments in the sugar sector, and, as has been mentioned already, they were a crucial part of the appraisal of the magnitude and nature of further support. Yet, certain aspects were not covered by these sector studies: the efficiency of management assistance, the efficiency and results of commodity import support, the advantages of combining programme aid and project aid to a single sector, the environmental aspects of Netherlands assistance, and the orientation towards and results of the target groups including the outgrowers.

8. Impact

In this chapter, an assessment is made of the impact of Netherlands assistance to the sugar sector. Attention will be paid to economic self-reliance, poverty alleviation, and sustainability. The first two aspects concern the policy relevance and impact of project activities in terms of Netherlands aid objectives. In recent decades, the two main objectives of Netherlands aid have been economic self-reliance and poverty alleviation. For the sugar sector, economic self-reliance is primarily seen in terms of the effects the project had on the balance of payments position of the recipient country. In addition, the economic impact is assessed with regard to the profitability of Netherlands assistance, and the general spin-off on the Tanzanian economy.

With regard to poverty alleviation, the principle question is: who have been the main beneficiaries of sugar production in Tanzania, and do they belong to the poorest segments of the population? Or in other words, to what extent does sugar production contribute to the improvement of the living standards of the poor.

The third aspect of the assessment deals with the sustainability of aid results. The central question here is: to what extent will the benefits generated by development assistance continue beyond the donor's involvement? Attention will be paid to the financial, technical, institutional and environmental dimensions of sustainability and to the effect of government policies.

8.1 Economic self-reliance

Netherlands assistance to the sugar sector was primarily oriented towards increasing Tanzania's economic self-reliance. Before dealing with the wider economic impact of support to the sugar sector, the performance of the sugar companies which have received Netherlands assistance over recent decades will be summarised.

The performance of the sugar sector, in particular during the 1980s, provides a rather depressing picture. This also applies to the two companies which received ample support from the Netherlands. Neither Kilombero nor Mtibwa showed a clearly upward trend in tons of cane crushed during the 1980s. The yields per hectare for both estates increased during the first half of the decade, but stagnated thereafter, in spite of substantial investments in the improvement of the irrigation systems. Factory yields for the two Kilombero factories and the one in Mtibwa fluctuated over the ten-year period, but hardly showed any long-term improvement. And all three factories have experienced stagnant or decreasing capacity utilisation, especially since 1983.

The conclusion is inevitably that Netherlands assistance to the sugar estates had only limited immediate effects with regard to sugar production. Yields remained far below the potential level and factory utilisation fluctuated around 60 percent of installed capacity. This percentage considerably exceeds the average for Tanzania's manufacturing industries. Considered in the light of its objectives, assistance contributed to maintaining existing production capacity and the localisation of management, but did not lead to an effective use of this capacity. In addition, the results are rather disappointing when compared to the costs of the programme, namely about US$ 75 million during the 1980s, leaving aside the Tanzanian contribution to the sugar industry.

The effects were influenced negatively by Tanzania's highly unfavourable macro-economic situation, its sugar development policy, and in particular by strong state intervention in production conditions and the low ex-factory prices. Taking into consideration the constraints operative in the country, Netherlands development assistance contributed to rehabilitating and maintaining production capacity and to a fairly successful holding operation, which prevented the total collapse of the Tanzanian sugar industry.

The production performance of the sugar estates, especially that of Mtibwa and Kilombero, improved considerably after 1990. The main reasons for this improvement were the policy changes emanating from the economic recovery programme, and in particular the better access to foreign exchange and the strong increase in ex-factory prices. Outgrowers' production, total quantities of cane crushed, and factory capacity utilisation rose sharply during the early 1990s. It may be concluded that Netherlands assistance contributed substantially to the recent expansion of Tanzania's sugar production.

In determining the effects on the country's economy, one yardstick of particular importance is the impact of the sugar sector's development on the balance of payments. From a macro point of view, sugar production in Tanzania was considered primarily as an import substitution activity. The main aim of developing the sugar industry was to reduce dependence on the import of sugar in meeting local demand. It appears that this objective has been achieved fairly successfully. At present, Tanzania imports some 10–20 percent of its consumption compared to 50 percent in the early 1960s. About 10 percent of local output is exported to the EC under the Lomé Convention Agreement. High priority is given to meeting the EC quota because of the very favourable price paid by the Community (about US$ 600 against US$ 400 to import the same quantity in Tanzania).

What were the net effects of these investments for Tanzania in terms of foreign exchange savings? Imported inputs constitute an important part of the production costs of the sugar industry in Tanzania. It has been estimated that the total foreign exchange component in the recurrent costs of production amounts to about US $ 150 per ton of sugar. To this should be added an annual average of US $ 60 per ton to finance replacement investments, making total foreign exchange requirements for the sugar industry US $ 210 per ton. If compared to the import parity price of sugar c&f Dar es Salaam of US $ 335, the total net foreign exchange savings amounted to US $ 125 per ton. It has been estimated that the total foreign exchange savings due to domestic production amounted to about US $ 150 million between 1981–1991. These savings are based on the assumption that lower domestic production would have been compensated for fully by increased imports. Such an increase in imports is doubtful, however, in view of Tanzania's problematic foreign exchange position. As a matter of fact, per capita sugar consumption dropped from approximately 10 kg at the beginning of the 1970s to 5 kg in the early 1990s. This illustrates that imports were not increased to maintain per capita consumption levels.

A second yardstick for measuring the economic impact of Netherlands assistance is its rentability. It is difficult to precisely determine the rentability of Netherlands aid to the sugar sector. That would require information about what would have happened without this aid. However, given certain realistic assumptions, estimates about the order of magnitude can be presented. It is generally accepted that Netherlands aid prevented the Tanzanian sugar sector from totally collapsing in the 1980s. In order to quantify the rentability of the total aid flow, it has been assumed that, without this aid, annual sugar production would have been 50 percent lower. This corresponds to data on capacity utilisation in the sugar industry (50–60 percent) as compared to average overall capacity utilisation in Tanzanian manufacturing industry during the 1980s (25–30 percent). Furthermore, development assistance is considered additional, which means that without this aid, there would have been no support in the form of foreign exchange by other donors and only very little additional support by the Tanzanian government. In view of the withdrawal of the other two major donors to the sugar sector, the World Bank and Denmark, in the early 1980s and Tanzania's increasing scarcity of foreign exchange during the whole period, this assumption can be considered realistic (for complete information on the assumptions that have been made and the data sources, see Appendix IV).

Only Kilombero and Mtibwa have been taken into account in the calculation. Support to Kagera almost stopped after 1986 and TPC only obtained assistance in the form of import support. Assistance to Kilombero and Mtibwa included commodity import support and aid in the form of management assistance and rehabilitation. Table 8.1 below presents a summary of the impact of Netherlands aid on both estates.

Table 8.1 Economic impact of Netherlands assistance to the sugar sector, 1980–1991 (in million Dfl.)

	Kilombero	Mtibwa	Both estates
Total Netherlands aid (Dfl million)	62.8	40.7	103.5
Additional sugar production (.000 tons)	252.5	152.5	405.0
Value of sugar (Dfl million)	199.2	110.3	309.5
Incremental costs (Dfl million)	113.1	62.7	175.8
Net benefits (Dfl million)	23.3	6.9	30.2
Net present values (at 10 %)	8.3	3.7	12.1
Rentability (%)	19	14	17

Total Netherlands assistance to Kilombero and Mtibwa over the period 1980–1991 amounted to Dfl 103.5 million. Given the assumptions mentioned above, this has resulted in 405,000 tons of additional sugar production with a total value of Dfl 309.5 million. The economic effect of this aid flow, which can be considered a continuous investment in the sugar industry, is clearly positive. Net Present Values (at 10 percent opportunity cost of capital) are Dfl 8.3 million for Kilombero and Dfl 3.7 million for Mtibwa. For both industries together, the NPV amounted to Dfl 12.1 million. Rentability rates (defined in terms of net benefits as a percentage of Netherlands aid) are 19 percent for Kilombero, 14 percent for Mtibwa and 17 percent for both factories together. The lower results for Mtibwa stem from the serious breakdown this factory experienced in the middle of the 1980s. It may be concluded that these rates are very satisfactory, as they exceed the opportunity costs of capital.

A third yardstick for assessing the economic impact of Netherlands aid on Tanzania is the spin-off effect on the country's general economic development. This contribution appears from the generation of extra government income through taxes, the improvement of the employment situation, and the regional development effects in the areas surrounding the sugar estates.

The level of sales tax charged to the sugar industry by the government fluctuated significantly during the 1980s and varied between 30 and 70 percent of the ex-factory price. Since the early 1990s, the tax level has gradually been reduced to around 10–20 percent. For the Tanzanian government, income from the sugar industry was substantial and amounted to about 10 percent of total tax revenues for the 1980s. The sugar industry has therefore been an important source of income for the government and for the economic development of the country.

Netherlands aid also contributed to maintaining employment in the sugar industry. Assuming a decrease in capacity utilisation to 30–35 percent without aid to the sector, it means that some 10,000 employees retained their jobs as a result of the above average performance. This number is considerably higher, if it is accepted that Netherlands aid prevented the total collapse of the industry.

The regional development effects of the sugar industry are clearly visible in the areas surrounding the estates. The expansion of the sugar industry has sparked off a process of regional economic development. It has stimulated the cultivation and sale of food crops and other commercial activities in the form of markets and shops. In addition, the local population has obtained the benefits of hospitals, clinics, and basic education facilities. Furthermore, cash incomes in the area have encouraged the construction of better houses. Finally, communications in the area have been extended and improved, and transport services have been provided to neighbouring towns. To sum up, estates such as Kilombero and Mtibwa have become nuclei of development, as originally envisaged by the Tanzanian government.

On the basis of the preceding information, it may be concluded that Netherlands aid to the sugar sector has contributed clearly to Tanzania's economic growth and self-reliance in sugar production.

8.2 Poverty alleviation

In the support to the sugar sector, poverty alleviation was not explicitly mentioned as a major objective of Netherlands assistance. Netherlands aid was not directly oriented towards the poor, but this does not exclude that the poorest segments of the population have benefited indirectly from Netherlands aid.

Three categories of potential beneficiaries of Netherlands assistance to the sugar sector can be distinguished: consumers, estate employees and outgrowers.

With respect to consumers, the nutritional value of sugar must first be assessed. From a nutritionist's point of view, sugar is a non-essential food item. It is a pure energy supplier, and refined sugar does not provide vitamins, proteins, or minerals. In fact, energy can be obtained quite as easily and more cheaply from maize or cassava (FAO, 1965; King et al, 1972; Robinson, 1981). However, in countries with a marginal food package—such as Tanzania—the consumption of sugar can easily be of more importance as a source of energy. For children between 6 and 36 months, sugar may even provide a substantial proportion of their energy requirements (Cameron and Hofvander, 1983).

From a wider consumer's angle, sugar is highly appreciated because of its sweetness, which adds to the palatability of food. It is a product which is in high demand among consumers in almost all the countries of the world. In Tanzania too, where sugar is chiefly used in beverages—tea in particular—and porridge, sugar ranks very high among essential consumer items. This consumer preference was reflected in the country's policy, in terms of the planned expansion of production, and artificially low prices. In the late 1960s, the plan was to raise consumption from the then 10 kg to 20 kg per capita. This objective has not been realised. Because of a decrease in imports and disappointing domestic production, average consumption went down to 5 kg per capita in 1991. As demand exceeded supply, the Tanzanian government introduced a distribution system which was disadvantageous for the rural population as they chiefly had to buy on the parallel market. The Tanzanian policy with regard to sugar clearly indicates the political sensitivity of adequate availability of this commodity for certain segments of the population, in particular those in the urban centres. No less than 50 percent of total sugar production was allocated to Dar es Salaam.

Since the implementation of the economic reform programme, sugar prices have increased drastically. Over a period of five years (1988–92) prices multipled sixfold. Sugar is therefore becoming too expensive for the poorest segments of the population. This suggests that the low-income groups suffered from the economic reforms. In practice, however, the situation did not change significantly. In the past sugar was payable for them against the official prices but not available. At present the availability has improved but sugar has become too expensive for the poorest.

The sugar industry is a major employer, with about 20,000 workers. The number of female workers is rather small. Among the permanent labourers and those in staff and administrative functions, the number of women is fairly insignificant, chiefly because of lower levels of education. For example, Kilombero employed some 500 women on a total of 4600 permanent employees—which equals roughly 10 percent. A similar proportion is employed at Mtibwa. Women are especially employed for weeding. About one-third of the labour force are casual labourers. These seasonal workers are mainly employed in cane cutting; the cane cutters are all men. By far the largest number of casual labourers are employed at Mtibwa and Kilombero. These cane cutters chiefly originate from the Iringa and Mbeya regions and belong to the poorest section of their community. They supplement their income by cutting cane during the slack season in their agricultural calendars, and their employment on the estates is a major source of cash income. The work on the estates hardly interferes with the agricultural activities in their home areas as they return in time to till their fields. Consequently, their work on the sugar estates does not negatively affect food crop production.

The living conditions of cane cutters on the estates gave rise to regular complaints in the past, especially with regard to housing. The financial losses the estates experienced during the 1980s were a serious obstacle to creating better living conditions for the estates' labour force. Since the late 1980s, however, improvements in the estates' financial position have had a favourable effect on employment conditions. For example, the Kilombero estate recently embarked on a programme of expansion and improvement of housing facilities.

Sugar production in Tanzania is organised primarily on an estate basis. The outgrowers' share in total output has fluctuated heavily during the past 20 years with a generally decreasing trend during the 1980s. Outgrowers are chiefly found around the Kilombero and Mtibwa estates, and in these areas, their share in total factory production seldom exceeds 25 percent, apart from a short period during the early 1970s. This contribution to domestic sugar production was considerably below the initial plans which foresaw an average share of some 50 percent.

There is limited information about the socio-economic position of sugar outgrowers. The scarce information available suggests that many sugar outgrowers do not belong to the poorest segments of the population, but rather to the category of middle-income farmers. The recent price increases resulted in an expansion of the number of outgrowers, and substantially improved their incomes. This stimulated investments in land and improvements in housing conditions. It also encouraged small-scale farmers to embark upon sugar cane cultivation. Although in general, areas under cane are rather small (70 percent have less than 3 hectares, and 40 percent less than 1.5 hectares), outgrowers often combine cane cultivation with other farming activities. In addition, an increasing number of estate staff cultivate cane to supplement their salaries.

Especially in the Mtibwa area, these staff members operate relatively large sugar farms. The cultivation of sugar cane by outgrowers has not yet had a negative impact on food supplies because of land scarcity and crop competition. This can partly be explained by the fact that women—being responsible for food crops—have intensified food crop cultivation. Another reason why no negative effects have been noticed up to now is that outgrowers often use hired labour for their cane fields, either through the estates or by employing seasonal workers directly. Changes in land use whereby the fields surrounding the estates are put under cane may increase the walking distance to the food crop fields and consequently may increase the workload of women (Sprenger, 1991).

The conclusion about the contribution of Netherlands assistance to poverty alleviation is somewhat ambiguous. It had an upward effect on the domestic supply of sugar at relatively low prices for consumers. As a result of the quota system in the distribution of the product, it was consumed mainly by urban groups, and it was hard to obtain for the rural poor.

Netherlands aid also contributed to maintaining direct and indirect employment. Many of these employees and those who benefited indirectly belonged to the poorer segments of the Tanzanian population. The improvement of social services in the fields of health and education resulted in better living conditions in the area.

The share of outgrowers in total cane production was considerably lower than planned. Low cane prices were the main reason for this. Recent cane price increases have improved outgrower production and their incomes, including those of small-scale producers. Netherlands assistance has never considered outgrowers as an explicit target group.

To sum up, Netherlands assistance to the sugar sector contributed only marginally to the alleviation of poverty in Tanzania.

8.3 Sustainability

In relation to development projects, sustainability has been defined as a project or programme's ability 'to deliver an appropriate level of benefits for an extended period of time after major financial, managerial and technical assistance from an external donor is terminated' (DAC/OECD, 1989). In assessing a project's sustainability various dimensions or aspects of the concept may play a role, but their relative importance varies according to the type of project. This review of the sustainability of the results of Netherlands assistance to the sugar sector deals with the financial, institutional, technological and environmental dimensions of sustainability, and the role of government policy.

Financial sustainability refers to the extent to which the financing of all present and future expenditure is secured. The main obstacles to financial sustainability have been the unfavourable government policies and Tanzania's balance of payments crisis. The former prevented the companies to accumulate adequate resources for maintenance and rehabilitation, whereas the latter hampered the import of the most essential inputs and capital goods. This bottleneck could not be removed at the project or micro-economic level. Recent policy changes have considerably enhanced the potential financial sustainability of the sugar industry.

The arrangement for the retention moneys means that some two thirds of the foreign currency needs for recurrent costs are now covered by sugar and molasses exports. For the remaining one third the OGL facility is the principal source. For rehabilitation investments the sugar industry remains dependent on foreign aid until Tanzania's foreign exchange position has improved considerably. Aid funds for rehabilitation are passed on to the estates on loan terms. Some companies, such as Mtibwa, will be able to accept loans on close to commercial conditions. Others, such as Kilombero, with enormous debts need to be supported by more concessional credits for the time being.

Institutional sustainability has been pursued through management secondment and various types of training. Initially, management assistance paid little attention to manpower training. The emphasis was solely placed upon the increase of production. An evaluation in 1986 on the manpower situation concluded that job descriptions tended to emphasise the execution of operational tasks and were generally vague on institutionial development. After this critical evaluation report, the in-service training was explicitly included in the consultant's terms of reference and systematically arranged for. Since 1990, the management of all sugar companies has been fully in the hands of Tanzanians. A 1991 NEI report stated that the sugar companies were managed effectively, especially with regard to the organisation of production. Financial management appeared to be quite satisfactory when measured in terms of the timely preparation of accounts (NEI 1991).

The National Sugar Institute (NSI) and the overseas training programme played a crucial role in the improvement of the manpower situation. Since 1985, the NSI has been managed entirely by local personnel, and the institute has a reputation for its high-quality practical training in the technical field. The NSI is not considered an institution which can assist the sugar industry in the development of management skills, and under the present salary conditions there is danger of experienced managerial staff leaving the industry. The estates are trying to curb this threat by fringe benefits such as land and social services. The newly announced government policy for parastatal reform creates better opportunities for effective personnel planning.

The importance of this is also evident from the need for further improvements in management with a view to the rehabilitation of the sugar industry, the need for a more commercial approach on the part of the companies, and the further improvement of efficiency required in field and factory operations.

The choice of modern technology was instrumental in the realisation of Tanzania's policy objectives (i.e. a rapid expansion of domestic sugar production through large-scale production units). The preference for modern technology and the support for this preference through the programme complicated its sustainability. The heavy import dependence of this technology and the high demand on management capacities are crucial factors in this respect. The import requirements can only be covered partly by sugar exports. The extent to which management capacities are adequate in handling the large-scale approach to sugar production must be assessed favourably although indicators are somewhat contradictory. On the one hand, reports state that management is effective in production and financial accounts. On the other hand, low yield levels, and the need for management assistance under rehabilitation conditions point to certain management problems, in spite of substantial achievements in the localisation of manpower.

The environmental dimension of sustainability refers to the sugar estates' adjustment to the physical environment and the environmental effects of sugar processing. Little information is available about the environmental consequences of sugar monocropping, but no serious depletion of soils has been reported either in Tanzania or in areas with a much longer tradition of sugar cane cultivation. Therefore, the environmental sustainability of cane cultivation does not pose a problem. Cane has an extensive root system, which contributes to erosion control and enhances the fertility of the soil. A much more serious environmental problem may arise from bush fire practices in the mountain areas surrounding the Mtibwa and Kilombero estates, which leads to lower water-retaining capacity in these areas. The drainage problems experienced at Mtibwa are partly caused by the deforestation of the surrounding mountains.

Some negative environmental effects may have occurred as a result of the transport and processing of cane, i.e. oil wastes, fuelwood consumption and water pollution. Generally, the handling of oil waste was very unsatisfactory. Oil waste was not collected or disposed of. Fuelwood consumption in sugar processing was limited; only a small quantity was used at the outset of the campaign to start the factory. Most of the fuel for the factories consists of bagasse. No figures are available for the volume of fuelwood involved and its importance as a percentage of total fuel consumption. Yet in conditions of high operational efficiency, no fuelwood is needed; a surplus may even be produced for domestic consumption. Deforestation took place around the estates because of domestic needs, although no serious negative effects have been reported so far. With the increasing scarcity, Kilombero, for example, established special areas for fuelwood production. There is some difference of opinion about the seriousness of water pollution from waste water from the factory and from molasses. Some consider this a serious problem, as the sale of molasses was hampered quite often by transport problems during the 1980s; others see no threat to the aquatic environment unless molasses are disposed of in extremely high concentrations. In any case, water pollution of the rivers around the estates was not measured systematically during the 1980s and concrete figures are not available.

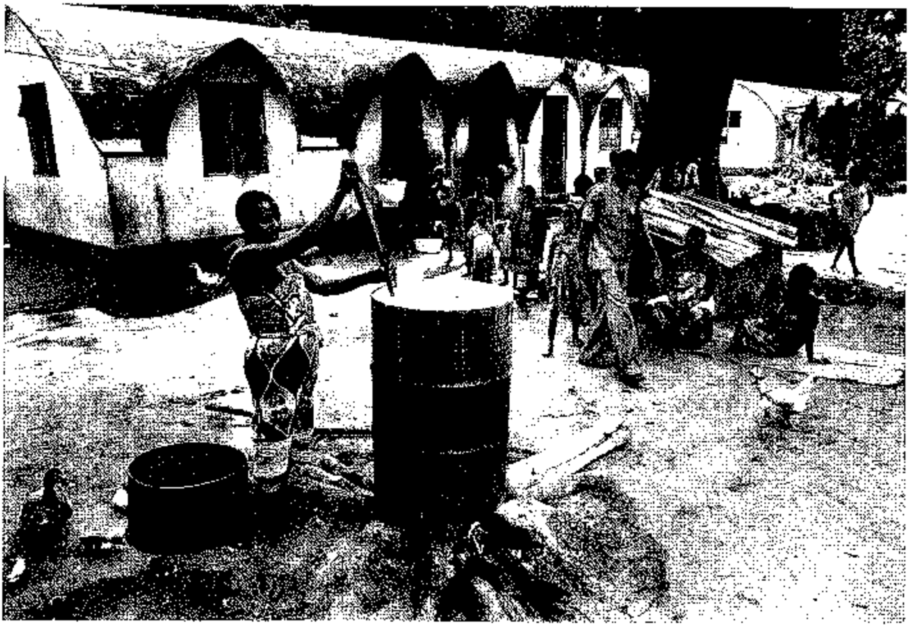
The use of herbicides and insecticides in cane cultivation was limited. Because of the high dependence on a single variety of cane on the estates—almost 90 percent of the planted areas is covered by one variety—there is a growing danger of pests and diseases and consequently of an increased use of chemicals. The introduction of new varieties of cane is hampered by the absence of a research station in Tanzania to carry out locally adapted research into new varieties developed elsewhere. The effective functioning of such a research station therefore requires cooperation with a well-established research station in an area with similar climatic conditions.

Government support to the sugar industry during the past few decades influenced sustainability unfavourably. Low ex-factory prices because of low consumer prices resulted in serious losses for the estates and a lack of financial means to acquire spare parts, equipment and machinery. As a result, the estates were unable to maintain production capacity effectively. Foreign exchange restrictions hampered the timely import of commodities needed, and government employment regulations complicated the estates' personnel policy, and therefore labour discipline and labour productivity. All in all, the unfavourable policy environment was the most important factor hampering the sustainability of Netherlands assistance.

Recent changes in policy have considerably enhanced the potential sustainability of present assistance. Higher ex-factory prices have improved the financial position of the estate, export proceeds are distributed over estates in relation to production levels, and the retention moneys from exports together with OGL funds provide adequate access to foreign exchange needs.

In addition, more flexible personnel policy conditions for parastatals have been announced, and bureaucratic interventions on the part of Sudeco in day-to-day management have been reduced drastically. In general Netherlands assistance has not yet resulted in a financially self-reliant sugar industry. For rehabilitation investments, in particular the foreign currency part, the industry remains dependent on donor sources.

Part IV. CONCLUSIONS AND RECOMMENDATIONS



9. Conclusions

The main conclusions of this sector study will be summarised on the basis of the following key questions.
- was it economically justified to develop a local sugar industry?
- how appropriate was the choice of technology?
- how successful were the aid investments in the sugar sector?
- what were the major constraints on sugar production?
- what was the impact of the structural adjustment programme on the sugar industry?
- how effective was the sector aid approach?

Economic justification

The main argument for investing in the local production of sugar was that it was economically attractive for Tanzania to produce its own sugar instead of importing it. The industry was seen primarily as an import substitution activity saving foreign currency.

The ideas for a large-scale expansion of the industry date back to the late 1960s. The execution of these plans was accelerated when the world market price for sugar increased sharply and reached an all-time record in 1974. This set off a worldwide boom in sugar production.

The feasibility studies carried out for these expansion plans were based on these high world market prices, and indicated very favourable economic rates of return. The objective of expanding capacity was therefore economically sound in relation to the existing world market prices at that time.

One of the most striking characteristics of sugar prices is that they are notoriously volatile Over the past twenty years the price fluctuated between US $ 81 and US $ 654 per ton with an average price of around US $ 250. The appraisal of the economic impact of the expansion plans took these long-term price trends insufficiently into account. When the cyclical nature of the world market is taken into consideration and calculations are based on long-term averages, it is still attractive to produce sugar in Tanzania, although local production costs will be covered only marginally by economic benefits. These marginal economic benefits will only be achieved if the industry is organised efficiently and operates on the lowest possible cost levels.

On the other hand, it may be argued, that the world sugar market is a dump market and, therefore, that it is unfair to compare cost prices in Tanzania with these dump market prices. Most sugar producers, in particular in the developed countries such as for example the Netherlands, have created high import tariff barriers to protect their own sugar industries against these dump prices. The OECD has estimated that in case of full trade liberalisation of the sugar market, the price of sugar would increase with 50 percent.

The conclusion is that it was justified, in economic terms, to develop a local sugar industry in Tanzania. However in crops such as sugar and particularly in countries like Tanzania, where so many operating difficulties abound, it is more realistic to be somewhat conservative in the projection of benefits and implementation schedules and to make appropriate allowance, for likely delays and risks of performance not in accordance with expectations.

Technological appropriateness

In its plans to expand sugar production, the Tanzanian government opted for a system of large-scale estate production with a highly capital-intensive and relatively complex processing technology. The more labour intensive and simpler processing techniques were never seriously considered. Also the role of outgrowers in sugar cane production was limited and never projected for more than 30 to 50 percent of total cane production.

The choice of a large-scale production system with modern technology was primarily based on economic considerations i.e. the more favourable financial rate of return of modern technology because of significantly higher extraction rates.

Arguments for an estate type of production were mainly based on efficiency terms. The required short 'kill-to-mill' time puts a high demand on an efficient organisation of production. Sugar cane must be milled within 48 hours after being cut or it quickly loses its sucrose content. Too large a dependence on outgrowers production may endanger a timely and secure supply of cane. A shift further than 50 percent of total production to outgrowers is therefore usually not welcomed by factory management.

But also a clear political preference by Tanzania for modern, large-scale agricultural production systems has affected the decision-making process. Tanzania was no exception in its preference for large-scale production with modern processing technology: more than 90 percent of world cane output is produced in this way.

The bias towards import-intensive modern technology was furthermore enforced by the financial conditions set by donors. Supplies financed through aid funds were usually tied to the donor's own manufacturing industries.

The conclusion is that the choice of the large-scale production system with modern processing technology was economically justified. However, this choice had important consequences for the economy and for the sugar industry. The selected mode of production increased the country's import requirements in a gradually deteriorating foreign exchange situation. Moreover, this choice raised the need for expatriate technical and managerial skills.

Aid performance

The Netherlands support during the 1970s focused on investments for the expansion of sugar production which were made jointly with other donors. These investments did not lead to the expected effects. The feasibility studies pointed to relatively high economic rates of return (10–15 percent), but the actual ERRs lagged considerably behind predictions.

The most striking example of failure in the sugar sector is the development of the Kagera estate. The factory has never operated at more than ten percent of its capacity, and the company has experienced enormous losses, since the implementation of its expansion plans.

In retrospect Netherlands participation in the Kilombero II factory must also be assessed unfavourably. Largely as a result of the shortfall in sugar production by the mid-1980s, the ERR on project investments was calculated to be about four percent by the World Bank, whereas the anticipated ERR at the time of appraisal was estimated at 13 percent.

A third example of unsatisfactory results is the investment in the Kilombero irrigation system. Yield level differences between rain-fed and irrigated cane fields were insignificant, and costs spent were not recovered. Nor did the heavy reliance on ex-patriate consultants lead to higher yield levels.

In the second half of the 1970s, the Tanzanian government felt that, after almost 15 years of management support, it was opportune to localise Kilombero's management. This was not a success, and as local management failed to run the estate efficiently, it was replaced by expatriates again in the early 1980s. This return to expatriate management indicated that, under the commercial management contracts, training had been systematically neglected and that all attention had been focused on output.

During the 1980s, the Netherlands changed its assistance policy from supporting the expansion of estates and processing capacity to supporting a holding operation aimed at a better utilisation of existing capacity, and from project-type support a more comprehensive sector-aid approach.

This approach has been quite successful. More specifically, factory capacity utilisation has been maintained at levels considerably higher than the national average. The average capacity utilisation in the three estates supported with Netherlands aid was above 60 percent, whereas the national figure for the industrial sector was around 30 percent. During the 1980s, Netherlands support to Kilombero and Mtibwa realised a rate of return of an average 17 percent. Positive results were also achieved in the localisation of manpower through local, in-service and overseas training. In the early 1990s, all expatriates were replaced by Tanzanian staff.

The conclusion is that the investment activities during the 1970s were rather unsuccessful. Netherlands assistance to the sugar sector during the 1980s should be assessed positively. The aid prevented the collapse of the Tanzanian sugar industry and provided a basis for the growth of production in the 1990s, which occurred under full Tanzanian management.

Constraints

The main causes of the disappointing performance of the sugar sector—which also unfavourably influenced the results of Netherlands assistance to this sector—were threefold: the shortage of foreign exchange, the unfavourable pricing policy, and deficiencies in management.

The shortage of foreign exchange was closely related to Tanzania's general economic decline after the mid-1970s. This decline was caused by the deterioration in the country's terms of trade (as a result of declining prices for its main exports and rising prices for its imports). It was also the result of poor general development policies, particularly the overvalued exchange rate. The high foreign exchange component in both operating and replacement costs in the sugar industry made the sector extremely vulnerable to foreign exchange shortages.

Price setting in Tanzania was controlled by the government. As the sugar price was a politically sensitive subject, consumer prices were kept low. Normally, companies had a weak bargaining position, in the price setting negotiations, which resulted in ex-factory prices below production costs. As a result of this, most estates operated at substantial losses for quite a number of years. Low ex-factory prices prevented the industry carrying out proper maintenance, resulting in regular break-downs.

The selected technology required considerable technical and managerial skills, which were insufficiently available in Tanzania. It would take time and thoroughly designed training programmes to improve this situation. Therefore, Tanzania's sugar industry would continue to rely on expatriate management and donor assistance. Furthermore, the state domination of the sugar industry prevented an organisation of production along commercial lines. Rigid employment and personnel policies made it extremely difficult for the management to provide staff incentives and to maintain discipline in the workplace. This seriously limited the performance of the expatriate management personnel.

The conclusion is that the main constraints on healthy development of the sugar sector in Tanzania were the country's ineffective sugar policy and the unfavourable economic environment. The latter was partly caused by external factors, especially the country's deteriorating terms of trade after the mid-1970s.

Structural adjustment

At the end of the 1970s, donors were gradually becoming more critical about the basic causes of Tanzania's economic difficulties. They argued that, however important external causes might have been, defective internal policies and institutional weakness were the main reasons for the economic crisis. For several years, Tanzania rejected the economic reform measures proposed by the donor community. Only after 1985, agreements were signed between Tanzania and the IMF to support the economic recovery programmes (ERP). The ERPs were intended to restore the basis for a market-oriented economy and emphasised a liberalisation of the pricing system, the privatisation of the industrial sector, and a general reduction in state intervention in the economy.

The introduction of the economic recovery programme had important consequences for the sugar sector. Reforms in the sugar sector since the start of ERP include a liberalisation of price-setting, foreign exchange measures, and institutional reforms. The ex-factory price of sugar has increased, more than tenfold between 1986 and 1992. Foreign exchange measures have resulted in improved accessibility for the sugar sector by allowing the industry to retain the foreign exchange earned through exports under the Lomé Convention and by establishing an open general licence facility from which, in principle, every potential importer can purchase foreign currency. The structural adjustment policy also meant drastic changes for the parastatal sector. The position of the parastatal holding company Sudeco is under review, and the companies have obtained greater autonomy, although they remain state-owned. Full privatisation of the sugar industry is still not government policy yet, and sugar production on commercial terms to enhance efficiency is pursued along other lines than privatisation, such as ex-factory price increases, market liberalisation and measures to allow for a more effective personnel policy by the companies.

The effects of structural adjustment in the sugar sector have been manifest since the end of 1980s, when output showed significant growth. In 1991/92, the capacity utilisation rates for Kilombero and Mtibwa averaged 75 percent. Another positive effect of the price increases in relation to structural adjustment has been the sharply rising share of the outgrowers' contribution to total sugar cane production since 1989. Finally, the profits of the sugar companies have gone up distinctly since the increase in ex-factory prices, which allow for reservations for future investments.

The conclusion is that the economic liberalisation accompanying structural adjustment has had a favourable impact on the performance of the sugar sector.

Sector approach

During the 1970s, Netherlands aid consisted mainly of project aid. With one quarter of the total aid flow, the sugar sector was the most important recipient of Netherlands assistance. Because of growing balance of payments problems and a diminishing capacity to absorb project aid, donors, including the Netherlands, gradually shifted to programme aid. The provision of programme aid is subject to the condition that the recipient country is pursuing an effective economic policy. As a result of differences of opinion about macro economic policy in the early 1980s however, the willingness to provide programme aid changed. The Netherlands decided to shift part of the commodity import support to more sectorally oriented programmes, such as the sugar sector. It did so for a number of reasons. Firstly, returning to a project-oriented approach given the extremely limited absorption capacity, was not considered opportune. Secondly, it permitted the Netherlands to continue the policy dialogue which was incompatible with a further reduction in the bilateral aid level. Thirdly it offered some degree of identifiability and accountability absent from more general programme aid; finally sector aid is more flexible than project aid and has more potential for rapid disbursement.

Under the sectoral approach in fact a combination of types of aid is provided: programme aid, project aid and technical assistance. Sector aid means a broad and coherent approach to interrelated development constraints. The Netherlands assistance to the sugar sector consisted mainly of commodity import support, management assistance and support of training of local staff. It was therefore primarily focused on the improvement of the factory and estate production. Little attention was paid to the socio-economic integration of the sugar industry in the regional environment.

Because of the shift to sector aid discussions between Tanzania and the Netherlands about aid to the sugar sector were primarily focused on policy issues. In the policy dialogue, the continuation of assistance was related to general economic reforms, such as liberalisation of price-setting and retention of foreign exchange earned through exports and privatisation of the industry. The fact that during the second half of the 1980s the sugar industry was allowed to retain 100 percent of the foreign exchange earned from exports can largely be seen as the result of the policy dialogue and aid conditions. An effective policy dialogue among the partners involved in sector aid requires a thorough knowledge of the developments in the sector. A regular joint system for monitoring the performance of the sector is indispensable to this. In the case of Netherlands aid to the sugar sector, such a system did nog exist, and discussions were based too much on general structural adjustment concepts and too little on sector specific issues and constraints.

The conclusion is that the sector aid approach during the 1980s made a significant contribution to the reform process in the sugar sector and, consequently to the improvement of the economic performance of the sugar industry. However, the sector approach was narrowly defined and social aspects were neglected.

10. Policy options

In the previous chapters it has been shown that the performance of the sugar sector in the 1980s was not very satisfactory. The stagnation in sugar production was the result of both the government policies with respect to this sector and the general economic problems Tanzania was facing during this period.

In this chapter the main restructuring issues for sustainable development in the sugar sector are considered: rehabilitation investments, privatisation, foreign exchange allocation, institutional reforms, outgrowers' production and deregulation of marketing.

10.1 Rehabilitation investments

The competitiveness of the Tanzanian sugar industry is seriously threatened by very low productivity levels. The rehabilitation of the sugar industry aims at increasing cane production through higher yield levels as well as more effective utilisation of processing capacity. Rehabilitation investments include factory overhaul, changes to and renewal of transport systems, the improvement of irrigation and drainage facilities, management training and technical assistance. For Tanzania, important arguments to give high priority to the rehabilitation of the sugar sector are: the favourable cost-benefit ratio of rehabilitation, the substantial investments in the sector during the past two decades and the high ranking of sugar among consumers as an essential food item.

The sources of financing of the rehabilitation programme are limited under the present conditions, and Sudeco, as the institution representing the sugar companies, approached the Netherlands—as the main donor to the sugar industry over the past two decades—for further financial support. During the 1990 bilateral talks with Tanzania, the Netherlands expressed its willingness to support the rehabilitation plan for the sugar sector. The general long-term objective of assistance was to contribute to the restructuring and economic self-reliance of the Tanzanian sugar industry. The more specific objectives were the rehabilitation of the three main sugar plantations and factories (TPC, Kilombero and Mtibwa), the privatisation of the three companies, which should lead to a more efficient production of cane and processing of sugar, expansion of the production and processing capacity by some 45,000 tons per annum, an increase in the number of outgrowers and their output of cane, and a more commercial distribution system for sugar.

The main considerations for Netherlands support were the recent changes in Tanzania's sugar policy and the consequently improved outlook for the future economic and financial viability of the industry, and the long history of support to the sector which could successfully be completed by the present rehabilitation. A phased implementation of the rehabilitation plan and a gradual privatisation after rehabilitation were crucial pre-conditions for Netherlands assistance.

The plan for the rehabilitation of the sugar industry was based on the NEI sector feasibility study and second-opinion studies of another three consultants. Total foreign exchange costs of the rehabilitation were estimated initially at US $ 103.2 million (1988 dollars), of which about 36 percent on investment and some 64 percent on operating costs. Second-opinion reports commented that project costs were under-estimated considerably as no account was taken of physical contingencies (unexpected requirements for smaller equipment) and financial ones (i.e. the effects of inflation). Revised calculations increased the estimated total project costs to US $ 132 million (1990 US $) of which US $ 57 million could be covered by available foreign exchange of the sugar industry on the basis of arrangements with the Tanzanian government. The remaining US $ 75 million was to be contributed by other partners. The Netherlands contribution to rehabilitation was set at one-third of the initially estimated US $ 103 million with a maximum of US $ 38 million.

The priority setting for the phased rehabilitation was based on the most favourable cost-benefit ratio. The internal financial rates of return for the proposed investments at three estates are: Kilombero 10 percent, TPC 28 percent and Mtibwa 48 percent (NEI, 1989). In one of the second-opinion reports (SKIL) doubts were expressed about whether it is really worth rehabilitating Kilombero at this time. The capital costs of rehabilitation are nearly twice as high and the internal rate of return is significantly lower than those for the other estates. The initially estimated costs at the three estates were as follows (SKIL, 1990): Mtibwa US $ 19.8 million, TPC US $ 27.5 million and Kilombero US $ 55.9 million.

SKIL therefore proposed to split rehabilitation into two stages, with Mtibwa and TPC in the first stage and, provided this stage proved successful, to move on to Kilombero in the second stage. As a compromise it was suggested that a start should be made at Mtibwa and TPC and only the most necessary investments be made at Kilombero in the first stage.

Other options for the rehabilitation of Kilombero are to split up the two estates into independent companies, or at the other extreme, to combine processing facilities in the new Ruembe KII factory with inputs of cane from both Kilombero I and II. Therefore, the implementation of the rehabilitation programme at Kilombero should be preceded by a feasibility study examining the technical, economic and financial aspects of the various options.

On the basis of the internal rates of return, priority has been given to the rehabilitation of Mtibwa. The detailed rehabilitation plan for Mtibwa, as worked out by SKIL, gave a total estimated cost of about US $ 12 million and a Netherlands contribution of 10 million US $, including contingencies and monitoring costs (SKIL, 1991).

The funds made available by the Netherlands are grants. The funds can consequently be passed on to the firms either in the form of equity investments by the government or in loans in local currency. It is unclear what the financing mode for the rehabilitation programme will be. One possibility is that on the basis of the financial position of each company, different modes of financing could be applied, as suggested in the NEI report (1991). Companies with a fairly healthy financial position in terms of liquidity and profitability, such as Mtibwa, may therefore rely more strongly on loans on commercial conditions. If the grants are allocated to the government by foreign donors, as is now the case at Mtibwa, they should be passed on as loans to the company on close to commercial conditions. On the other hand, companies which are hampered by a poor liquidity position arising out of unfavourable operating conditions in the past like TPC and possibly also Kilombero, could be assisted with more concessional credit or equity contributions.

It can be concluded that the arguments in favour of rehabilitation are largely similar for Tanzania and the Netherlands: the previous investments, the favourable cost-benefit ratio and the improved outlook for a self-reliant sugar industry after recent policy changes, the higher ex-factory prices in particular.

It is recommended that the Netherlands completes its long-term assistance to the sugar sector in such a way that a self-reliant sugar industry is established. This means that the phasing of the rehabilitation on the basis of cost-benefit ratios is acceptable, if the priority for Mtibwa and TPC is combined with the most necessary investments at Kilombero. The implementation of an emergency rehabilitation programme at Kilombera should be preceded by a feasibility study examining the various options.

10.2 Privatisation

One of the main current issues in the policy discussions between Tanzania and the Netherlands is the need for privatising of estates as a means or a precondition to managing the companies as commercial enterprises. The issue has a fairly long history.

In the 1980 aide-mémoire, jointly produced by the World Bank, Denmark and The Netherlands, the three donors formulated a number of issues which required general agreement before additional financing would be made available to the sugar sector. One of these issues was the need for greater autonomy of the companies' management in order to run the estates as commercial enterprises. This commercial position would be enhanced by favourable policy conditions such as cost-covering ex-factory prices, adequate foreign exchange allocations, financial restructuring, reduction of external (government and Sudeco) intervention, and autonomy in employment and personnel policy.

During the 1980s, the various policy conditions have been discussed at the bilateral talks between the two countries. Since the mid-1980s, important policy changes have been implemented: ex-factory prices have been increased, the foreign exchange allocations have been improved and related to the individual estates' production levels, and Sudeco intervention has been reduced drastically in practice. In addition, the Government of Tanzania has announced that it will abolish the Standing Committee on Parastatal Organisations and limit the role of parastatal holding companies to the provision of consultancy and management services (Government of Tanzania, 1992).

The Tanzanian request to the Netherlands to contribute to the 1992–1995 rehabilitation revived the discussion about the need for the sugar industry to operate on commercial lines. During the 1990 bilateral talks, this condition of commercialising the operations could best be realised, according to the Netherlands, by privatising the sugar industry. Tanzania rejected the idea of outright privatisation, and argued that crucial steps for the commercial exploitation of the estates had been taken already. The discussion resulted in the formulation of a mutually accepted stand included in the agreed minutes of the bilateral talks and subsequently added to Tanzania's sugar sector development plan. The formula concealed differences of opinion between the two parties, and made it possible to postpone a decision without discontinuing Netherlands assistance to the sector.

In fact, the two parties agreed upon a phased rehabilitation and privatisation after rehabilitation. In practice, this meant that Netherlands financial support would be made available for the rehabilitation of Mtibwa and that progress with the privatisation of Mtibwa would determine further Netherlands assistance to the sugar industry. The temporary way out of the dilemma: privatisation after rehabilitation and the beginning of rehabilitation with Mtibwa has clear disadvantages. Privatisation after rehabilitation means that donor funds are made available indirectly to private enterprise—whether foreign or domestic—and that the investments may not be recovered by Tanzania because of its weak bargaining position. Experiences with the privatisation of the Manawa cotton ginnery are a case in point. The price agreed upon for this ginnery with a foreign company was considerably lower than the cost price for the construction of the ginnery. Privatisation before rehabilitation will require investors with access to substantial financial resources. However, under the present circumstances, there is no private company willing to invest heavily in a sugar industry, mainly producing for the domestic market in a country with severe foreign exchange problems.

The position of the two parties can be specified as follows:

Tanzania accepts the principle of estate management on a commercial basis, and agrees that private participation may contribute to commercial management. It rejects the idea of full privatisation of the entire sugar industry, as the absence of a stock exchange and the lack of capital among large segments of the Tanzanian population would mean foreign ownership and/or purchase of and control over the sugar industry by Tanzanians of Asian origin. As the interests of international firms to invest in Tanzania are in general very limited, and in particular in a sector which produces mainly for the domestic market, the only potential buyers are members of the local Asian business community. This option will meet with strong political resistance. Furthermore, Tanzania holds that privatisation does not mean that all companies are brought under a majority private shareholding, that commercial operations are also possible under a majority shareholding of the government, and that a start has been made with the privatisation of the sugar industry by the Kagera management arrangement.

The Netherlands position is that operations along commercial lines can best be achieved through full privatisation, which implies private majority ownership in individual companies.

On the basis of the available information, it must be concluded that Tanzania understandably has the impression that new conditions have been forced upon it as the privatisation issue was brought up again after major policy changes had been implemented. In addition, the Netherlands did not elaborate its position with regard to the modalities of privatisation and the steps towards achieving the most preferable modality for the sugar sector.

Moreover, the impact of privatisation on Tanzanian society has not been analysed. A clear appraisal of the expected costs and benefits of privatisation has never been made.

The Netherlands position seems to be rather rigid: privatisation is no longer a means to the end of commercial operations, but has become an end in itself. Tanzania has indicated the wider political and social implications, but no dialogue has started yet about the economic, financial and political consequences of privatisation.

During the 1980s, the World Bank was the main advocate for privatisation. A recent report mentions the lessons of experience (World Bank, 1992). The report contains a number of observations which may be considered relevant to the privatisation of the Tanzanian sugar industry: Privatisation—when correctly conceived and implemented—encourages investment and thus new growth and employment. Privatisation should primarily be seen as private ownership; government ownership seldom permits sustained good performance over more than a few years. However, in many instances privatisation will be less important to the growth of the private sector than the emergence of new private businesses.

Most privatisation success stories come from high- or middle-income countries. It is harder to privatise in least-developed settings. Important factors for success in poor countries are an increase in necessary resources and managerial skills by new owners and their direct stake in the performance of the company. In unfavourable country settings where the existing private sector is small, capital markets are thin and the interest of external investors is limited, the sale of enterprises even in competitive sectors may be more difficult. Large new investments for plant modernisation or rehabilitation prior to sale should be avoided. Getting the private sector to finance investment and take the risk is a prime reason for privatisation. There is little evidence that governments recover the costs of physical restructuring in the form of higher sales prices. Private management arrangements are a step in the right direction, and they can facilitate later sale, particularly in low-income countries with weak capital markets and banking institutions, limited investor interest, and weak regulatory capacity.

On the basis of these observations it must be recommended that a continuation of the dialogue between Tanzania and the Netherlands is needed concerning the various options for the commercial operations of the sugar companies. Private management arrangements with incentives to reduce costs and enhance productivity and capacity utilisation may be a viable alternative under the present socio-economic conditions in Tanzania. In this context, it is worthwhile to monitor and evaluate the experiences with the private management arrangements at Kagera.

10.3 Foreign exchange allocation

An important argument in favour of domestic sugar production in Tanzania instead of imports is the saving of foreign exchange. However, the specific mode of production opted for in the development of the Tanzanian sugar industry i.e. large scale estates and modern, imported processing technology has meant that for the domestic production of sugar, considerable amounts of foreign exchange are needed.

In quantitative terms, it has been estimated that foreign exchange expenditure per ton of sugar amounts to US $ 150—roughly equally divided over the replacement of machinery and current inputs. For a sugar production of 110,000 tons per annum, total foreign exchange needs would reach some US $ 16 million (NEI, 1991). This amount includes commodities such as fertilisers and other agricultural inputs, which may be purchased in local currency but which have to be imported and for which the country has to raise the required foreign exchange. Direct needs by the estates may be estimated at some US $ 11 million per annum at the present level of sugar production. There are good possibilities for reducing the foreign exchange component in sugar production: first, of course, by a cautious use and regular maintenance of machinery and equipment; second, by the local production of spare parts and especially transport equipment; and thirdly, by bulk imports of agricultural inputs (fertilisers in particular) and domestic packing in appropriate mixtures and quantities.

A substantial proportion of the foreign exchange requirements can be obtained from the proceeds of the export of sugar to the EC ($ 6.3 million) and the export of molasses ($ 1 million). Since a few years ago, the sugar industry has had the right to use 100 percent of its foreign exchange revenues to finance the import of inputs and capital equipment. These foreign exchange revenues are allocated to the sugar companies proportionately to their share in the total sugar produced in Tanzania. Additional import needs will have to be financed through the OGL facility. The sugar industry's demand on this facility is small; only one to two percent of the US $ 400–450 million presently available on an annual basis under OGL.

Of course, foreign exchange needs fluctuate with the level of sugar production. An increase in sugar production to 150,000 tons after rehabilitation would raise the foreign exchange needs to US $ 15–20 million and enlarge the sugar industry's demand on the OGL facility. However, higher production levels would also lead to a reduction in the foreign exchange costs per ton, namely from $ 125 to an estimated $ 95 (SKJL, 1990)

The sugar industry's access to the OGL poses no serious problems at present. In principle, the OGL provides foreign exchange to importers of raw materials, industrial inputs and spare parts with a minimum of administrative interference. So, items required by the sugar estates are eligible under OGL and licences are supposed to be issued almost automatically after the importer deposits the shilling equivalent of the value of the goods to be imported with the bank.

Up to 1991, the sugar estates made little use of the OGL facility as they received substantial amounts of commodity import support from the Netherlands. Since 1991, i.e. since the Netherlands discontinued the direct CIS to the sugar industry, the companies have used the OGL system to cover their demand for foreign exchange in excess of their export earnings. The sugar industry's main complaints in using the OGL facility is the long delays between ordering goods and receiving them under the conditions of a full cash cover payment at the moment of placing the order. The future availability of foreign exchange to the sugar industry will depend on the existence of foreign exchange windows financing the required inputs against payments in T-shillings, such as—for example—the OGL facility.

It is recommended to investigate the possibilities for reducing the import component in Tanzanian sugar production and to ensure the future availability of an effective foreign exchange window for the sugar industry.

10.4 Institutional reforms

Over the past decades the sugar sector has been characterised by a highly stable institutional setting with the Sugar Development Corporation as a holding corporation and main shareholder in the estates. Sudeco has always been strongly dominated by the Tanzania government on whose behalf it administers the sugar industry. Its wide range of functions includes the marketing and export of sugar, the import of sugar in periods of short supply and in general the promotion of the industry. Its marketing function involved Sudeco operating the quota system with pan-territorial official prices.

The commercial operation of the sugar industry not only means more responsibility for the individual estates; it also means a reduction in Sudeco's role. Under the changed conditions, its main functions are seen as the coordination of the development of the sector, representing the industry with respect to government, and the promotion and financing of research and manpower training for the industry (NEI, 1991a). Recent policy measures meant the abolishing of Sudeco position as a holding parastatal, but it is not clear what its exact future role and tasks will be.

During the 1970s, the shortage of skilled manpower including management expertise was identified as the single most serious problem facing the estates. This situation has been improved substantially over the last 20 years as a result of local and overseas training courses and expatriate management assistance. Management assistance was gradually reduced with the increasing localisation of staff, and terminated by 1992 after full localisation of management had been achieved.

In general, the sugar companies appear to be managed effectively, especially with regard to the organisation of production. The localisation of management has been accompanied recently by an increase in production levels and, for Kilombero and Mtibwa, an upward trend in factory capacity utilisation.

In certain fields, further improvements in management are required, in view of the low yield levels, especially for irrigated cane, and the still under-utilised processing capacity. The present rehabilitation plans are directed towards remedying this situation. In this respect, the ending of expatriate consultancy assistance to the management at Mtibwa and Kilombero is expected to have an adverse effect on the quality of management, as rehabilitation will put extra demand on management capacities (NEI, 1991a, SKIL, 1990).

In a more structural sense, higher demands on management capacities result from the sugar estates operating on commercial loans. This means a stronger commercial and entrepreneurial outlook on the part of management, a strong interest in research and development, strict control over budgets, and a stronger interest in the marketing of the end product. Improved financial management not only involves the timely preparation of accounts, but also the use of financial information for adequate cost calculations and efforts towards cost reductions and increasing the efficiency of operations. The newly introduced management information system and an uniform accounting system for all the estates are important instruments for the effective monitoring of estate performance and for the identification of weaknesses in management. The commercial operations of the estates also have important consequences for the companies' personnel policy, especially with regard to staff training and career development. It means that the overstaffing allowed in the past for social reasons, and absenteeism among workers—especially pressing at Kilombero—must be addressed. Furthermore, it increases management's responsibility for the design of payment scales and incentives schemes in order to raise labour productivity. The increase of the effectiveness of management will meet numerous obstacles when pursued under conditions of long-time government domination and a bureaucratic rather than a commercial approach to sugar production.

It is recommended that further changes in the institutional framework be implemented in order to enhance the companies' operations on commercial lines. In addition, it is advised to establish an institution representing the interests of the various parties involved in the sugar sector, including the sugar-producing companies, the government, the sugar distributors/wholesalers, and domestic consumers. The main duties of the institution could be setting a fair price for the sugar crop, monitoring cane payments and services to outgrowers, and planning the future expansion of the Tanzanian sugar industry.

10.5 Role of outgrowers

In the past, Tanzania's policy towards outgrowers was far from clear in terms of objectives, the relationship with the estates, and expected results in terms of their contribution to domestic production. The ambitious plans of the 1970s attached an important role to the outgrowers; their share in production varied from 35 percent at Kilombero, through 40 percent at Kagera, to 50 percent at Mtibwa's total output. However, these figures were merely rough indications of a desired order of magnitude, and were not worked out in concrete plans of action. In Sudeco and government circles, and among expatriate advisors, hesitance and even reluctance prevailed as the shares stated for outgrowers were considered incompatible with the ambitious time schedules for production increases. The outgrowers' contribution to domestic production was discouraged further by low producer prices and by the government's preference to incorporate small-scale sugar growers into the rigid framework of *ujamaa* villages, especially during the 1970s.

The required services on the part of the estates did not materialise, mainly because of the difficult conditions under which they had to operate and the additional demand on the planning capacities of the estates, whereby individual small-scale producers had to be brought into strict harvesting and transport schedules. In addition, for the estates, the purchase of outgrowers' cane was more costly than the production of estate cane.

Recent experiences with outgrowers' production, especially in the Mtibwa area, point to the enormous potential for small-scale producers. The main factor responsible for the increased attention of outgrowers is the higher price paid to the farmer. Apparently, this price makes it more attractive to grow sugar cane compared to other crops, if account is taken of available marketing facilities.

Tanzania's present socio-economic policy allows for the formation of producer associations on a voluntary basis, representing the real interest of the outgrowers. This association also strengthens their bargaining position vis-a-vis the estates in making arrangements for services needed by the outgrower for efficient production and the fees to be paid for such services.

Another new phenomenon is the growing interest among estate staff in obtaining plots for sugar production. This can lead not only to favouritism by the estate in their services to company employees. It could also create tension with the population surrounding the estates concerning the acquisition of suitable land for private cultivation. These problems may arise soon at Mtibwa, where estate staff are expanding their cane farms vigorously.

Recent experiences demonstrate the favourable conditions for outgrowers' cane cultivation and may lead to new opportunities for donor assistance in line with the Netherlands preference for the privatisation of the sugar industry. These experiences point to the need for a clear and detailed policy towards outgrower cane cultivation. Increasing the share of outgrowers in total cane production, for example, could also be achieved by the transfer of estate land to smallholders. In practice, this would mean a form of privatisation of the sugar industry. Of course, such a transfer could only apply to rain-fed cane, as irrigated cane would put a high demand on cooperation among outgrowers. Moreover, strict crop husbandry conditions are required to maintain and even increase yield levels. Furthermore, the services provided by the estates have to be specified in the form of a contract specifying the rights and obligations of the two parties in order to enhance production levels.

Such a construction is a reminder of the model applied in the Mumias area of neighbouring Kenya. The experiences in Mumias over the past 20 years point to a fairly successful sugar cane expansion programme if measured in economic terms, as it sharply increased output and raised the incomes of the farmers. However, it also led to some negative social effects in terms of the disruption of family life, and food production (Buch-Hansen & Marcussen, 1982; Mulaa, 1981).

To realise the potential advantages of outgrower sugar cultivation in Tanzania, a thorough study, a detailed policy plan and gradual implementation are required. It is recommended that such a policy plan be devised, taking due account of the optimal utilisation of outgrowers' potential, the opportunities for privatising the sugar industry in relation to the expansion of outgrowers' production, and the need to control growing income inequalities and social tension in the sugar producing areas. In the policy plan attention is also required for the effects of sugar cultivation on food crop production, in particular in relation to the position of women.

10.6 Market liberalisation

Worldwide the sugar industry is characterised by a high degree of government intervention through various forms of price control and subsidies because the international market is considered a dump market. Until recently, also in Tanzania the marketing of sugar was subject to a high degree of government control. Sudeco was entrusted with responsibility for sugar distribution and price setting by the government. Under this arrangement, all sugar produced at the factories had to be sold to Sudeco. To supplement home-produced sugar, Sudeco regularly imported sugar. Since 1986, private traders have also been permitted to import sugar; their main problem in the importation of sugar is the mobilisation of foreign exchange. As sugar is on the negative list of the OGL, importers have to provide foreign exchange from their own resources. In spite of this, substantial quantities of sugar have been imported recently.

The price structure of sugar was subject to strict government control. For many years, price controls were primarily meant to provide consumers with access to sugar at a 'fair' price. This pricing policy was one of the main factors contributing to the deteriorating financial position of the industry and stagnating production levels. In the last few years, Sudeco has been able to negotiate much more favourable prices for the producers. Sudeco and the companies have now obtained the authority to determine producers' prices. This is done on the basis of projections of production costs and desired profit margins. Sudeco has also been able to incorporate contributions to special funds in the price structure; these include a general development fund, which is intended to finance the rehabilitation of the sugar industry, and a levy to service Kagera's accumulated debts.

In 1992, the Government of Tanzania decided to deregulate sugar marketing and to abolish the pan-territorial pricing system. Under the present arrangement, private traders can purchase sugar either directly from the estates or from Sudeco's Dar es Salaam-based go-down at a fixed price agreed between Sudeco and the government. With the present price structure, domestic prices exceed the import parity prices, primarily because sales tax and levies exceed import duty, which was reduced from 30 to 20 percent in 1991. As a consequence, it is more attractive for traders to import than to purchase domestically produced sugar. Furthermore, traders gain no advantage in buying directly from the estates, as the ex-factory price is the same as Sudeco's ex-warehouse price in the national capital, which includes the transport costs between the estates and Dar es Salaam.

This has three results: (1) consumer prices in Dar es Salaam and its direct surroundings are below the officially set price of Tshs 185 per kg; (2) the companies, and Kilombero in particular, have large stocks of sugar, which has serious consequences for its liquidity position; and (3) in some parts of the country there is supply shortage.

Basically, there are two possible solutions to the problem: to raise the price of imported sugar or to lower the price of domestically produced sugar. Sudeco proposes to make imported sugar more expensive by increasing import tax or by making importers share in the levy system. This solution would result in an increase in the consumer price. In contrast, the sugar companies would prefer further liberalisation, whereby the ex-factory price would be lowered, Sudeco would become one of the wholesale agents, traders could buy directly from the estates at a price lower than from Sudeco since traders would bear the transport costs, and levies not in the interest of the companies would be abolished. This solution would lead to a lower consumer price.

At present, the Government of Tanzania is looking into the price structure of both imported and local sugar. Various parties with vested interests in the sugar sector, including Sudeco and the sugar companies, are pressing for a rapid solution which will take due account of their interests.

It is recommended that a tax and levy structure be arranged to protect and provide incentives for local producers in the short term, and that a fair price setting be arranged in the long term by establishing a sugar council with representatives from the various interest groups in the sugar sector in Tanzania.

Appendix I. The Operations Review Unit (IOV)

The Operations Review Unit, better known by its Dutch acronym IOV or Inspectie Ontwikkelingssamenwerking te Velde, was established in 1977. The IOV is responsible for conducting external evaluations of Dutch aid policy. Internal evaluations or mid-term evaluations of projects are the responsibility of the operational units, i.e. the country or programme desks.

The IOV is part of the Directorate General for International Cooperation (DGIS) of the Ministry of Foreign Affairs. It is a completely independent unit which reports directly to the Minister through the Director General. The reports are submitted by the Minister of Development Cooperation to Parliament, and discussed with the Permanent Committee for Development Cooperation with respect to follow-up actions.

Initially, the emphasis was on individual project evaluations. From 1977 up to the mid-1980s the reports were primarily intended for the departmental management. The status of these reports was confidential. During this period about 250 evaluation reports were produced. Gradually a need developed for more general conclusions based on these project findings. In the mid-1980s a number of sector reports were prepared, such as on drinking water, animal husbandry, women in agriculture and rural development, hospital-based health care and primary health care. These reports were made available to the public.

Since then, emphasis has shifted from individual project evaluations to thematic studies. These thematic evaluations are comprehensive; they focus on policies and modalities of implementation and cover entire sectors, themes or programmes. They contain a full review of relevant literature. A comparative study of other donors concerning the same subject matter is usually included.

Duration of these thematic evaluations is one to two years. The studies are carried out under the responsibility of the IOV, with outside experts participating in various phases of the research. Field studies are undertaken by a special team of independent external consultants. Increasingly, local institutions or experts are invited to participate in these field missions.

The synthesis report, based on the various field and desk studies, is written by the IOV and published under its responsibility. Three to four such studies are published annually. Examples of recent thematic evaluation studies published by the IOV are: small-scale rural industry, women and industry, support to small-scale projects on the Antilles, regional development in Aceh, Indonesia, and the Western Province, Zambia, contracting-out, import support, export transactions relevant to development and food aid.

A reference group consisting of external experts and DGIS staff is appointed for every study. The reference group has three functions: to advise on methodology and approach, on relevant development theories, and feedback.

Appendix II. Evaluation study work plan

1. Objective and key questions

The evaluation of Netherlands support to the sugar sector is part of a wider evaluation study of Netherlands assistance to Tanzania with emphasis on the 1980s. The objective of the sugar sector study is to evaluate the efficiency and effectiveness of Netherlands support to the sugar industry during the 1980s and to assess the sustainability of the results of this support.

This general objective has been elaborated by means of the following key questions:
1. Which important external factors have influenced the developments in the sugar sector?
2. What has been Tanzanian government policy towards the sugar sector?
3. How has the sugar sector been organised?
4. How efficiently has Netherlands assistance to the sugar sector been organised and managed?
5. What have been the results of Netherlands assistance to the sugar sector?
6. To what extent has Netherlands support to the sugar sector improved production and living conditions among the target groups of Netherlands development assistance?
7. To what extent are the results of Netherlands development assistance sustainable and which factors influence sustainability?

2. Main sources of information

This report is based on four main sources of information: a review of literature; an analysis of files; interviews with respondents involved in the Tanzanian sugar industry and Netherlands assistance to this industry; and field visits to the two estates which received the bulk of the Netherlands support. The research was guided by the Terms of Reference for the evaluation of Netherlands assistance to the sugar sector, drawn up after a preliminary analysis of the main documents and reflected in the above-mentioned key questions.

The review of literature focused on books and articles containing information about the world sugar situation and sugar production in Tanzania. The first aspect was well covered by a highly informative and well-written recent study by A.C.Abbott of the University of Edinburgh.

Some twenty years of Netherlands support to the Tanzanian sugar industry have also resulted in a voluminous set of files at the DGIS. Extensive desk studies have been carried out by research assistants to collect information about the history of the Tanzanian sugar industry, its performance during the 1980s, and activities undertaken as part of Netherlands development assistance. The wide range of studies contained a wealth of information about the sugar industry and Tanzania's sugar development policy. These studies were conducted with regular intervals: 1977, 1980, 1986–88 and 1991–92 and provided insight in the performance and problems of the industry since the mid-1970s up to the present. With regard to Netherlands assistance, the financial records at the DGIS were analysed in order to obtain an accurate picture of expenditure, especially for the period 1980–1991. The available data was also used for a calculation of the profitability of Netherlands assistance to the sugar sector by R.A. Timmer of the Netherlands Economic Institute. The methodology applied in this calculation is outlined in detail in Annex 4.

Interviews with persons involved in the sugar sector and Netherlands assistance to it were a third crucial source of information. Among those interviewed in the Netherlands were HVA officials and HVA former employees who worked in the Tanzanian sugar industry during the 1970s and 1980s, staff of the Netherlands Economic Institute involved in various sector studies, directors of Sugar Knowledge International Limited (SKIL) and DGIS staff involved in Netherlands support to the sector at various moments of time. In Tanzania, interviews were held with staff members of the Kilombero and Mtibwa estates, the main recipients of Netherlands aid, with the General Manager and other staff of the Sugar Development Corporation at Dar es Salaam and with the staff of the National Sugar Institute at Kidatu.

Finally, information was gathered by means of a series of field visits to the Kilombero and Mtibwa estates. These field studies were undertaken by an ISSAS team—which collected data in Tanzania for the sugar and cotton sectors during a one-month visit in January–February 1992—by an IOV team during a one-month mission in February 1992, and on an additional visit to Sudeco and the Kilombero and Mtibwa estates in October 1992. During these missions, interviews were also held with outgrowers in the Kilombero and Mtibwa area.

3. Participants in the IOV sugar sector study

The evaluation study of Netherlands support to the sugar sector was coordinated by Arie van der Wiel (IOV) and Jan Sterkenburg (Department of Geography of Developing Countries, University of Utrecht). The coordinators were responsible for designing the evaluation study, drafting the terms of reference, supervising the desk and field studies, and for writing the final report.

Contributions to the evaluation were made by

Mrs. H.A. de Groot	desk studies
Ms. E. Groenewegen	desk studies
Mr. H. Verolme	desk studies
Dr. A. van de Laar	team leader of field mission (Institute of Social Studies Advisory Services)
Ir. L. Razoux Schultz	member of field mission
Mr. C. Lyamba	resource person of field mission (G.M. Kilombero)
Mr. R.A. Timmer	desk study economic performance (Netherlands Economic Institute)
Mr. M.S. Kibwana	Commissioner for External Finance, Ministry of Finance and liaison officer for the country evaluation study

On the basis of the information gathered from these sources and the ISSAS mission report, a draft report was written on Netherlands assistance to the Tanzanian sugar sector. The draft has been discussed with the various parties involved: the consultants (HVA; NEI; SKIL); the management of the Kilombero and Mtibwa sugar companies, Sudeco and officers of the Treasury; the staff of the Tanzania country desk of the DGIS; the Netherlands Embassy at Dar es Salaam; and finally with the advisory group for the IOV evaluation study of Netherlands development assistance to Tanzania.

The advisory group for the Tanzania country evaluation who commented upon the draft report consists of the following persons:

Dr. D. Bol	Consultant for Development Programmes, Utrecht and Economic Research Bureau, Dar es Salaam
Mrs. Dr. O. van Cranenburg	University of Leyden
Prof. Dr. R.H. Green	Institute of Development Studies, University of Sussex
Prof. Dr. H.A. Luning	International Institute for Aerospace Survey and Earth Sciences, Enschede
Prof. Dr. S. Wangwe	United Nations University, Intech, Maastricht and University of Dar es Salaam
Mr. E. Ader	Head East African Unit of the Directorate General for International Cooperation (DGIS)
Mr. M. van der Gaag	Head of the Tanzania desk (DGIS)
Mrs. H.I. von Metzsch	Head Operations Review Unit (IOV) (chairman)

Appendix III. Supplementary tables

Table 1 World sugar prices 1950–1991 (in US $ per ton)

Year	Price	Year	Price	Year	Price	Year	Price
1950	110	1960	69	1970	81	1980	632
1951	126	1961	60	1971	99	1981	374
1952	92	1962	61	1972	160	1982	186
1953	75	1963	184	1973	208	1983	187
1954	72	1964	127	1974	654	1984	115
1955	71	1965	45	1975	449	1985	90
1956	77	1966	40	1976	255	1986	133
1957	114	1967	42	1977	179	1987	148
1958	77	1968	42	1978	179	1988	225
1959	66	1969	71	1979	213	1989	282
						1990	277
						1991	300*

* Estimate.

Source: FAO production yearbook (various issues).

Table 2 Sugar production in Tanzania, 1963/64–1992/93 (in .000 tons)

Year	TPC	KSC	MSE	KSL	Total
1963/64	29,942	18,129	814	2,917	51,802
1964/65	32,815	20,607	2,116	3,084	58,622
1965/66	33,752	24,430	2,544	3,748	64,474
1966/67	35,095	27,707	3,476	4,821	71,099
1967/68	35,456	31,535	2,807	4,914	74,712
1968/69	38,463	30,292	5,305	5,296	79,346
1969/70	40,697	26,377	3,520	6,044	76,638
1970/71	40,298	37,300	4,869	7,104	89,471
1971/72	48,106	35,621	3,490	6,914	94,214
1972/73	45,998	35,512	4,437	7,679	94,626
1973/74	50,240	40,229	8,416	7,209	106,094
1974/75	48,836	35,718	11,345	5,668	101,567
1975/76	47,780	34,361	11,927	3,606	95,647
1976/77	51,914	46,850	13,476	2,238	114,478
1977/78	42,301	53,612	7,426	1,320	104,659
1978/79	46,149	61,208	14,866	675	122,950
1979/80	43,446	54,568	21,359	–	119,373
1980/81	45,378	48,069	25,700	–	119,147
1981/82	46,071	50,093	27,312	–	123,476
1982/83	35,051	40,106	23,360	6,848	105,365
1983/84	41,557	55,140	25,614	8,823	131,134
1984/85	37,022	46,227	21,053	6,051	110,353
1985/86	37,928	45,507	13,458	3,816	100,709
1986/87	33,499	41,186	18,122	3,385	96,192
1987/88	35,699	45,218	20,376	943	102,236
1988/89	31,712	42,569	19,117	2,335	95,733
1989/90	26,455	39,204	22,501	2,558	90,718
1990/91	39,446	42,333	24,610	3,520	109,909
1991/92	33,000	53,674	25,564	5,000	117,238
1992/93	30,000	56,000	28,570	5,000	119,570

Source: Sudeco, estate records.

Table 3 Outgrowers production of sugar cane, 1962–1992 (in .000 tons)

YEAR	KILOMBERO AREA Total production outgrowers	KILOMBERO AREA % of factory production	MTIBWA AREA Total production outgrowers	MTIBWA AREA % of factory production
1962/63	16,967	13.8	–	–
1963/64	15,763	11.7	–	–
1964/65	19,928	10.4	–	–
1965/66	21,391	8.5	–	–
1966/67	41,423	12.6	–	–
1967/68	47,192	14.8	10,606	30.0
1968/69	42,190	15.2	27,097	40.1
1969/70	56,984	16.7	12,779	22.6
1970/71	123,881	36.3	24,063	28.5
1971/72	135,708	38.6	19,244	38.5
1972/73	126,924	35.5	15,492	28.5
1973/74	119,694	31.2	23,902	23.8
1974/75	112,087	32.2	17,983	15.3
1975/76	91,602	31.2	25,212	15.8
1976/77	89,410	19.9	17,479	12.1
1977/78	103,733	21.4	16,169	17.9
1978/79	184,810	29.2	33,216	20.3
1979/80	164,102	29.2	37,967	16.2
1980/81	158,429	30.4	44,068	14.9
1981/82	139,513	27.5	60,022	21.4
1982/83	102,023	23.7	15,166	5.9
1983/84	111,357	18.5	47,072	15.7
1984/85	78,833	16.4	28,758	11.9
1985/86	75,826	16.9	28,016	18.7
1986/87	70,109	16.1	15,152	7.5
1987/88	63,058	13.1	38,586	16.7
1988/89	56,076	13.1	39,584	17.8
1989/90	56,102	13.4	42,037	18.0
1990/91	61,034	14.0	55,375	21.5
1991/92	97,238	17.6	77,094	27.7
1992/93*	128,000	22.3	109,000	35.5

*Estimate.

Source: Sudeco, estate records.

Appendix IV. The rentability of Netherlands aid to the sugar sector.

The impact of the Netherlands aid over the period 1980–1991 on the sugar sector has only been determined for Kilombero and Mtibwa. The support to Kagera has only been substantial up to 1984 and was stopped completely after 1988. The support to TPC only consisted of import support. No management support or funds for rehabilitation were given to that factory under the Netherlands aid programme. Data on annual support to the sugar sector stem from DGIS sources.

It has been assumed that total Netherlands aid programme to Kilombero and Mtibwa has been responsible for the incremental sugar production during 1980–1991. Thus financial aid, consisting of import support (mainly used for imported recurrent inputs), support for rehabilitation activities (replacements of worn-out equipment and some extension) and management support, and technical aid to the factories, Sudeco and the National Sugar Institute (NSI) were the factors that caused additional sugar production. As far as the support to Sudeco and NSI concerns the aid flows have been imputed to the factories according to the production of each factory over the period, i.e. 19 percent for Mtibwa and 49 percent to Kilombero.

It has been futher assumed that the Netherlands aid has been additional. Without it, there would have been no aid from other donors. This assumption is realistic, if it is considered that the only two other main donors that were active in the sugar sector, the World Bank and Denmark, had withdrawn completely from the sector in the beginning of the 1980s. Furthermore, there was a situation of extreme scarcity of foreign exchange in Tanzania during the 1980s and substantial inputs from the side of the government would have been highly improbable.

It has been assumed also that without the Netherlands aid, total sugar production would have been much lower or that even one or more factories would have had a complete breakdown. For the determination of the impact, it has been assumed that without this aid the production levels both in Kilombero and Mtibwa would have been 50 percent lower. This corresponds with the difference between the average capacity utilisation in the sugar industry (50–60 percent during the 1980s), and the overall capacity utilisation in the whole manufacturing sector (25–30 percent) The latter figure is obtained from the report 'Commodity Import Support of the Netherland to Tanzania', NEI, May 1987.

Border prices of sugar have been determined on the basis of the data on world sugar prices to which US $ 70 per ton has been added for transport, insurance and unloading ('Rehabilitation of the Sugar Industry', NEI, March 1989). Both 1980 and 1981 were years with very high world market prices. In the discounting calculation of the NPV over the period 1980–1991 these years would have weighed too much. For this reason the extra sugar production in each year has been multiplied by the average sugar price for 1980–1991 (Table 1 of this annex) to arrive at the incremental benefits.

Incremental economic (shadowpriced) costs have been estimated at US $ 250 per ton (both the NEI reports 'Rehabilitation of the Sugar Industry', NEI, March 1989 and 'The Sugar Industry In Tanzania', NEI, August 1991 arrive at this figure). This amount has been diminished by US $ 80 per ton to account for the direct foreign exchange costs (see the 1991 NEI report) which is asumed to reflect the part of the Netherlands aid in the cost price. Thus, incremental economic costs have been estimated at US $ 170 per ton.

The profitability of the Netherlands aid has been measured by the NPV and the Profit Rate. For the calculation, economic opportunity cost of capital were assumed to be 10 percent (based on NEI reports). Because the Netherlands assistance could not be considered as a 'normal' investment stream (resulting in a cash flow of net benefits which are negative in the first years and then turn into positive flows in later years) it was not possible to calculate Internal Economic Rate of Return (IRRs). For that reason the Profit Rate has been taken as a yardstick of the rentability of the investments.

Table 1 Border prices of sugar (Dfl/ton)

Year	World market price ($/ton)	Trade, insurance ($/ton)	Border price ($/ton)	Exchange rate (Dfl/$)	Border price (Dfl/ton)
1980	632	70	702	2.0	1404
1981	374	70	444	2.5	1110
1982	186	70	256	2.7	691
1983	187	70	257	2.9	745
1984	115	70	185	3.2	592
1985	90	70	160	3.3	528
1986	133	70	203	2.5	508
1987	148	70	218	2.0	436
1988	225	70	295	2.0	590
1989	282	70	352	2.1	739
1990	277	70	347	1.8	625
1991	300	70	370	1.9	703
Average	246	70	316		723

Table 2 Kilombero: Net benefits through Netherlands aid (Dfl million)

Year	Dutch aid (Dfl million)	Additional sugar production (tons)	Value of sugar (Dfl million)	Recurrent costs (Dfl million)	Net benefits (Dfl million)
1980	−12.6	24,500	17.7	− 8.3	−3.2
1981	− 3.2	25,000	18.1	− 10.6	4.3
1982	−29.2	20,000	14.5	− 9.2	−3.9
1983	− 5.8	27,500	19.9	− 13.6	0.5
1984	− 4.0	23,000	16.6	− 12.5	0.1
1985	− 2.9	23,000	16.6	− 12.9	0.8
1986	− 7.2	21,000	15.2	− 8.9	−0.9
1987	− 4.2	22,500	16.3	− 7.7	4.4
1988	− 5.5	21,500	15.5	− 7.3	2.7
1989	− 4.9	19,500	14.1	− 7.0	2.2
1990	− 1.5	21,000	15.2	− 6.4	7.3
1991	− 1.8	27,000	19.5	− 8.7	9.0
Total	−62.8	252,500	199.2	−113.1	23.3

NPV (Net benefits; at 10% opportunity cost) = Dfl 8.3 million.
Net benefits at 10%. Profit rate = —= 19%. Netherlands aid flow at 10%.

Table 3 Mtibwa: Net benefits through Netherlands aid (Dfl million)

Year	Dutch aid (Dfl million)	Additional sugar production (tons)	Value of sugar (Dfl million)	Recurrent costs (Dfl million)	Net benefits (Dfl million)
1980	− 0.4	13,000	9.4	− 4.4	4.6
1981	− 2.4	13,500	9.8	− 5.7	1.7
1982	− 6.8	21,500	15.5	− 9.9	−1.2
1983	− 4.7	22,500	16.3	−11.1	0.5
1984	− 5.7	10,500	7.6	− 5.7	−3.8
1985	− 3.7	6,500	4.7	− 3.6	−2.6
1986	− 5.6	9,000	6.5	− 3.8	−2.9
1987	− 4.4	10,000	7.2	− 3.4	−0.6
1988	− 2.1	9,500	6.9	− 3.2	1.6
1989	− 2.5	11,000	8.0	− 3.9	1.6
1990	− 1.2	12,500	9.0	− 3.8	4.0
1991	− 1.2	13,000	9.4	− 4.2	4.0
Total	−40.7	152,500	110.3	−62.7	6.9

NPV (Net benefits) = Dfl 3.7 million. Profit rate = 14%.

Table 4 Kilombero + Mtibwa: Net benefits through Netherlands aid (Dfl million)

	Dutch aid (Dfl million)	Additional sugar production (tons)	Value of sugar (Dfl million)	Recurrent costs (Dfl million)	Net benefits (Dfl million)
Total 1980–1991	−103.5	405,000	309.5	−175.8	30.2

NPV (Net benefits) = Dfl 12.1 million. Profit rate = 17%.

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Abbreviations

ACP – African, Caribbean, Pacific Countries
BEMO – Beoordelings Memorandum (Appraisal Memorandum)
BMB – Berenschot-Moret-Bosboom Management Consulting for Development
CCC – Cross Cultural Consultancy
CCM – Chama Cha Mapinduzi (The Party)
CDC – Commonwealth Development Corporation
CIS – Commodity Import Support
DAC – Development Assistance Committee
DGIS – Directoraat-Generaal Internationale Samenwerking (Directorate-General for International Cooperation)
DHV – DHV Consulting Engineers (Raadgevend ingenieursbureau)
EC – European Community
ERP – Economic Recovery Programme
ERR – Economic Rate of Return
ESAP – Economic and Social Action Programme
FAO – Food and Agricultural Organisation
FMO – Netherlands Development Finance Company
GDP – Gross Domestic Product
HVA – Handelsvereeniging Amsterdam
IFC – International Finance Corporation
ILACO – International Landdevelopment Consultant
IMF – International Monetary Fund
IOV – Inspectie Ontwikkelingssamenwerking te Velde (Operations Review Unit)
IRR – Internal Economic Rate of Return
ISA – International Sugar Association
Kilodeco – Kilosa Development Corporation
KIT – Koninklijk Instituut voor de Tropen (Royal Tropical Institute)
KSC – Kilombero Sugar Company Limited
KSL – Kagera Sugar estate Limited
MDU – Manpower Development Unit (Sudeco)
MSE – Mtibwa Sugar Estate
NAFCO – National Agricultural and Food Corporation
NEI – Netherlands Economic Institute
NGO – Non-Governmental Organisation
NOF – Netherlands Overseas Financing Corporation
NPV – Net Present Values
NSI – National Sugar Institute

ODA – Official Development Assistance
OECD – Organisation for Economic Cooperation and Development
OGL – Open General Licence
OPS – Open-Pan Sulphitation
SCOPO – Standing Committee on Parastatal Organisations
SDC – Sugar Development Corporation (=Sudeco)
SKIL – Sugar Knowledge International Limited
SNV – Netherlands Development Organisation (Stichting Nederlandse Vrijwilligers)
SOMO – Centre for Research on Multinational Corporations (Stichting Onderzoek Multinationale Ondernemingen)
VMF – Verenigde Machine Fabrieken (Stork)
Sudeco – Sugar Development Corporation
tcd – tons of cane per day
TPC – Tanganyika Planting Corporation
UK – United Kingdom
USA – United States of America
USSR – Union of Soviet Socialist Republics
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