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PROJECT COMPLETION REPORT

TANZANIA

KILOMBERO SUGAR PROJECT (LOAN 1041-TA/CREDIT 513-TA)

November 28, 1984

Eastern African Projects Department
Regional Mission in Eastern Africa

List of Abbreviations

CCM	:	Chama Cha Mapinduzi (The Party)
CDC	:	Commonwealth Development Corporation
EAAFRO	:	East African Agriculture and Forestry Research Organisation
ERR	:	Economic Rate of Return
GDP	:	Gross Domestic Product
GOT	:	Government of Tanzania
ha	:	hectare
IBRD	:	International Bank for Reconstruction and Development
IDA	:	International Development Association
IFC	:	International Finance Corporation
KDDC	:	Kilosa District Development Corporation
kg	:	kilogram
KI	:	Kilombero I (Msolwa/Ruaha development)
KII	:	Kilombero II (Ruembe Valley development)
KSC	:	Kilombero Sugar Company Limited
MOA	:	Ministry of Agriculture
NAFCO	:	National Agricultural and Food Corporation
NSI	:	National Sugar Institute
PMEA	:	Permanent Mission in Eastern Africa (now RMEA)
RMEA	:	Regional Mission in Eastern Africa (World Bank)
SAR	:	Staff Appraisal Report
SDC	:	Sugar Development Corporation (Sudeco)
TANESCO	:	Tanzania Electric Supply Company Limited
TAZARA	:	Tanzania - Zambia Railway
TCA	:	tons of cane per acre
TCD	:	tons of cane per day
TIB	:	Tanzania Investment Bank
TPC	:	Tanganyika Planting Company
TRDB	:	Tanzania Rural Development Bank

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PROJECT COMPLETION REPORT

Preface

This is the Project Completion Report (PCR) for the Kilombero Sugar Project, for which Loan 1041-TA and Credit 513-TA, each for US$ 9.0m, were approved on September 5, 1984. The Loan/Credit were closed on December 31, 1980; the Credit was fully disbursed by September 10, 1976 and the Loan by May 14, 1981.

This report was prepared by the Regional Mission in Eastern Africa (RMEA) following a mission to Tanzania in July 1983, and reflects information made available by the project agencies, namely the Sugar Development Corporation (SDC), which monitored the project, and the Kilombero Sugar Company Limited (KSC), the agency responsible for implementation of the project. Drafts of the PCR prepared by KSC in 1981 and 1982 served as useful background documents. Other sources of information included the Staff Appraisal Report (No. 466a-TA) dated July 30, 1974, the Loan, Credit and Project Agreements dated September 27, 1974, and subsequent amendments to these Agreements. Supervision reports, correspondence with the Borrower, and internal Bank memoranda as contained in relevant RMEA files have also been consulted. The PCR was substantially completed and submitted to the Operations Evaluation Department (OED) in May 1984.

A copy of the draft report was sent to the Borrower for comments on September 4, 1984. No comments have been received from the Borrower so far.

The valuable assistance provided in preparing this report by the Government of Tanzania (GOT) is gratefully acknowledged. Special mention must be made of the General Manager and Directors of Planning and Operations of SDC, and the General Manager and Financial Controller and other staff of KSC.

This project has not been audited by the OED.

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BASIC DATA SHEET

KEY PROJECT DATA

ITEM	Appraisal Estimate	Actual	Actual as % of Appraisal Estimate
Total Project Cost (US$ million)	55.8	63.2	113
Loan Amount (US$ million)	9.0	9.0	100
Disbursed	9.0	9.0	100
Cancelled	0	0	-
Credit Amount (US$ million)	9.0	9.0	100
Disbursed	9.0	9.0	100
Cancelled	0	0	-
Date Board Approval	-	09/05/74	
Date Effectiveness	12/31/74	02/14/75	
Completion Date	12/31/78	09/30/80	
Closing Date	12/31/79	12/31/80 a/	
Economic Rate of Return(%)	12.9	4	31
Institutional Performance		below expectations	
Number of Project Beneficiaries	-	n.a.	

CUMULATIVE DISBURSEMENTS b/

	No. of Years after Signing 1	2	3	4	5	6	7
Appraisal Estimate (US$m)	4.25	12.2	15.6	17.1	18.0	18.0	18.0
Actual (US$m)	1.2	9.4	15.0	16.0	16.6	17.5	18.0
Actual as % of Estimate	28	77	96	94	92	97	100

Dates of Final Disbursement
Credit : 09/10/76
Loan : 05/14/81

MISSION DATA

	Month/ Year	No on Mission	Speciali- zation c/	Staff Days in Field	Performance Rating: Status d/	Trend e/	Type of Problem f/
Identification	05/73	2	EC	14			
Preparation g/	06/73	3	AG/EC/AGR	36			
Appraisal	11/73	6	EC/FA/AG/ENG	156			
Supervision I h/	12/74	2	FA/ENG	8	-	-	-
II	05/75	3	AG/FA	12	2	2	F
III	10/75	2	FA/ENG	8	2	2	F
IV	05/76	1	ENG	5	2	2	F
V	11/76	2	ENG	10	2	1	F,M
VI	03/77	1	ENG	6	2	1	F,M
VII	11/77	3	ENG/FA	30	2	1	F,M
VIII	04/78	2	ENG/FA	10	2	2	F,M
IX	11/78	2	ENG/AGR	14	1	1	F,M
X	08/79	1	ENG	5	1	1	F,M
XI i/	02/80	3	ENG/AGR/EC	36	-	-	-
XII	10/80	2	ENG/AGR	20	3	3 j/	F,M,T

OTHER PROJECT DATA

Borrower	Government of Tanzania
Executing Agency	Kilombero Sugar Company Ltd and Sugar Dev't Corp.
Fiscal Year of Borrower	July 1 - June 30

Currency: Tanzania Shilling (TSh)
Exchange Rates:

1974 (Appraisal)	US$1 = 7.14	1978	US$1 = 8.3
1975	US$1 = 7.14	1979	US$1 = 8.5
1976	US$1 = 8.38	1980	US$1 = 8.18
1977	US$1 = 8.27	1981 (Completion)	US$1 = 8.25

Project Period Average = 7.99

a/ Although Closing Date was extended to 12/31/80, final disbursement made 05/14/81.
b/ Credit/Loan disbursements have been combined in table.
c/ AG - Agriculture; EC - Economics; ENG - Engineering; FA - Financial Analysis; AGR - Agronomy.
d/ 1 = Problem free; 2 = Moderate problems; 3 = Major problems.
e/ 1 = Improving; 2 = Stationary; 3 = Deteriorating.
f/ F = Financial; M = Management; T = Technical; P = Political; O = Other.
g/ Managing Agents Kilombero prepared feasibility study.
h/ As Loan/Credit were not effective, the first report was classed as a progress report and not a full supervision report.
i/ There was a combined supervision/preparation mission in February 1980. Their report is contained in a full BTOR dated 4/3/80 under Preparation of Sugar Rehabilitation Project.
j/ The mission from RMEA rated the Project 2/3 but HQ suggested that 3/3 might be a more accurate rating, with which RMEA agreed.

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PROJECT COMPLETION REPORT

Summary of Highlights

1. The Project was the third Bank Group supported project to assist the Tanzanian sugar industry. The International Finance Corporation (IFC) had earlier made two investments in the Kilombero Sugar Company (KSC). The first, in February 1960, supported the original development of the estate and a 20,000 ton factory; the second, in March 1964, supported expansion to 31,500 tons 1/. The total IFC investment was equivalent to $4.7 million, or 36 per cent of KSC's capital. KSC experienced numerous problems in its early development, including a cane disorder ("yellow wilt"), inadequate management resulting in poor cost control, and insufficient tractor maintenance. These difficulties were overcome by the appointment of Dutch Managing Agents in 1965, but due to pricing policy difficulties the principal investors sold their interests in the company to the Government of Tanzania (GOT) in February 1969. Apart from a set-back in 1972 due to problems with a diffuser, KSC's operations were reasonably efficient at the time of Project preparation and appraisal.

2. The Project, prepared with the help of the Managing Agents and PMEA (now RMEA), was appraised in the field in November/December 1973, negotiated at HQ between June 24-27, 1974, and Board approval for an IBRD Loan of $9m and an IDA Credit of $9m was given on September 5, 1974. The Danish Government was to provide $17.3m, the Netherlands Government $11.0m and GOT $9.5m, bringing the total to $55.8m. The GOT contribution included KSC self-generated funds of $4.0m thus reducing the GOT budgetary contribution to $5.5m.

3. The Project was in two parts. Part I was to develop a new sugar cane estate, ancillary services and outgrowers' land, and Part II was to provide a new factory and related facilities. The financing was to be shared as follows: Part I — IDA $9m, IBRD $9m, GOT $5m = $23m; and Part II — Netherlands $11m, Denmark $17.3m, GOT $4.5m = $32.8m. It was anticipated that KSC's annual sugar production would be increased by 45,000 tons, there would be savings and/or earnings of foreign exchange of $14m annually, and outgrower farm families would earn $275 annually by year 2 and $725 annually after about six years.

1/ Subsequent development raised capacity to 43,000 tons sugar per annum at time of appraisal.

4. Physical implementation of the Project was executed satisfactorily by KSC initially under the direction of the Managing Agents who also supervised the factory construction under a separate contract. Cost overruns, inadequate budgetary provisions, delays in the flow of counterpart funds and in reimbursement to KSC of funds originally provided by them, and an inadequate ex-factory sugar pricing policy caused major problems throughout the implementation period. These problems appeared to have been largely overcome and "institution building" achieved when local management took over and the Managing Agents were left with only an advisory role from 1977. Sugar output from both KSC estates increased from 43,817 tons in 1977 to 65,959 tons in 1978. The success was shortlived, however, as there was a dramatic drop in 1979 to 51,948 tons followed by 48,070 tons in 1980. The General Manager was relieved of his duties at the end of 1980 and an experienced expatriate took over as GM early in 1981.

5. Overall, the objective of setting up the plantation, constructing roads, building a factory and establishing the infrastructure was achieved successfully. The major factors responsible for bringing KSC as a company and the Project as a whole down were the rapidly deteriorating general economic situation (with a severe overall shortage of foreign exchange), poor ex-factory prices (which prevented the generation of funds with which to buy spares and replacements for the original KSC equipment), and the deterioration in management following localisation in 1977, which was further compounded by the total lack of labor discipline.

6. The main lessons to be learned from this Project are: (i) additional management responsibilities and staff needs arising from a project should be carefully assessed and provided for before overloading an existing company or parastatal organization; (ii) pricing policy and financial performance covenants should be strictly enforced; (iii) Governments should realize the foreign exchange implications and demands of sugar projects on their own resources; (iv) projections of benefits and implementation schedules in crops such as sugar and particularly in countries like Tanzania should allow for likely delays and risks of non-performance; and (v) more scope should be given to the use of turnkey contracts in projects.

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PROJECT COMPLETION REPORT

I. Introduction

1.01 At the time of appraisal Tanzania with a per capita income of $110 was one of the world's poorest countries. About 90% of the population, then estimated at 14 million and growing at 2.8% a year, were dependent on agriculture for their living. Agriculture contributed 80% of commodity exports and 40% of total GDP but in the period 1968-1972 had a disappointing real growth rate of 2.4%. In 1973 foreign exchange resources were being drained by imports of food including sugar (US$ 18.0m annually).

1.02 Increased agricultural production and development of rural areas were given great emphasis in Tanzania's Second Five-Year Plan (then in its final year). Priorities for crops were set based on production possibilities, market prospects and aimed at country self-sufficiency. One of the crops set for self-sufficiency was sugar because projected expansion of output had not been achieved and domestic demand had exceeded anticipated levels due to rapid increases in per capita consumption.1/ Import substitution in the case of sugar had become imperative.

1.03 The proposed project was the most advanced of four sugar developments planned by Tanzania which in combination aimed at achieving self sufficiency in sugar by 1977. By 1980 (its 6th year) the Project was expected to result in an incremental annual production of 45,000 tons of sugar and a foreign exchange saving of about $14 million a year. The increase represented 43% of the then current production and was almost one third of the projected expansion by 1980.

1.04 Tanzania's sugar is grown by four estates: the Tanganyika Planting Co was established at Arusha Chini in 1936 and operated by private Danish interests until it was bought by GOT in January 1980. At the time of appraisal, it accounted for over half the country's production from estate-grown irrigated cane resulting in a long milling season which helped to make it the most efficient plant in Tanzania. The Kagera Sugar Co Ltd was formerly a private estate and factory opened in 1958 in the Bukoba area in West Lake District to handle rainfed cane. At appraisal it was producing 8% of the national total but GOT had acquired

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1/ 10 kg/year in 1972, compared with annual per capita consumption in Kenya of 16.6 kg; Uganda 14.8 kg; and USA/UK over 50 kg.

70% of the interests and had plans to expand to about 60,000 tons sugar per annum by 1983. Mtibwa Sugar Estates Ltd was privately built in 1960/61 north of Morogoro and GOT acquired 50% of the interests through the National Agricultural and Food Corporation (NAFCO) in 1970 and the balance in 1975, making it a wholly-owned subsidiary of the Sugar Development Corporation (SDC). Cane was provided by the estate and outgrowers and produced at the time of appraisal 7,000 tons sugar annually (6% of national production). There were plans to expand to 50,000 tons by 1985 but this was subsequently amended to about 34,000 tons.

1.05 Kilombero Sugar Co (KSC) was the newest of Tanzania's sugar plants, commencing production in 1962. KSC was formed in 1960 with IFC and the Commonwealth Development Corporation (CDC) as its principal shareholders. Other initial investors were the Netherlands Overseas Financierings-Maatschappj - H.V. (MOFC), Vereridge Kilatteuse Cultur Maatschappj, Rubber Cultur Maatschappj Amsterdam and the Standard Bank of East Africa. KSC experienced considerable problems in its development and was profitable in only two of its first seven years of operation. A cane disease ("yellow wilt") depressed yields necessitating the introduction of new varieties and extensive drainage improvements. Poor cost control and inferior tractor maintenance resulted from inadequate management, but these problems were overcome by appointing expatriate managing agents in 1965. Apart from a setback in 1972 due to problems with a diffuser in the factory which led to excessive down-time, KSC's operations had become reasonably efficient.

1.06 In late 1968 Government decided to reduce the assured ex-factory price of sugar which it felt included a subsidy to KSC. The investors, however, were of the view that KSC would not be viable at the reduced price and felt that the higher price was fair for running an efficient operation. In February 1969 the principal investors sold their interests to GOT at mutually acceptable terms. The investments at the time of sale comprised IFC TSh 29.5m (34%), CDC TSh 30m (35%), MOFC TSh 12.5m (14.5%), Standard Bank TSh 4.1m (5%), GOT TSh 6.0m (7%), Rubber Cultur TSh 2.5m (3%) and Public TSh 0.8m (1%); total TSh 86.0m. On taking over KSC, the capital structure was reformed by GOT with TSh 36m as paid-up ordinary shares and TSh 36m as fully paid 7% non-cumulative preference shares. In 1972 GOT transferred the ordinary shares to NAFCO who transferred them to SDC in 1974. The company and its operations continued to be run by the Managing Agents.

1.07 To translate GOT's expansion plans for the sugar sector into action, the Sugar Development Corporation (SDC) was formed in 1974. It was given powers to develop the sugar industry, engage in sugar growing, processing and marketing, and manage sugar companies in which it had a controlling interest. Equity holdings originally held by the National Agricultural and Food Corporation (NAFCO) in KSC, Mtibwa and Kagera were transferred to SDC. Initially SDC concentrated on developing and implementing expansion plans and later took over the functions of the National Sugar Board in controlling and regulating production, marketing sugar in the mainland, and handling imports. It has always relied heavily on the support of consultants, mainly funded under Netherlands aid.

II. Project Identification, Preparation and Appraisal

Identification and Preparation

2.01 At the beginning of 1973, the Managing Agents for KSC were requested by GOT to prepare a feasibility study for the expansion of Kilombero and the construction of a second factory. The feasibility study was expected to be ready by April 1973. The financing of the project was to be partially provided through bilateral aid funds from the Netherlands and Denmark. As GOT was anxious to start the Project before the end of 1973 it was hesitant to approach the Bank because of time lags associated with Bank loan processing. The Bank, however, advised GOT in March 1973, that subject to receiving a request for Bank assistance and adequate project preparatory work, it would endeavor to appraise the proposed project in September 1973. It is not altogether clear from the files but it appears that GOT's request for financing was made in early May 1973, and PMEA (as RMEA was known at that time) which was assisting in preparation fielded a pre-appraisal mission at the end of June 1973. Sugar pricing policies, organisation of outgrowers, local training needs and the need for continuing expatriate management were among the major issues identified at the preparation/preappraisal stage.

Appraisal

2.02 The Project was appraised in November/December 1973 and consisted of two major elements to be executed over the five year period 1974-1978.

Part I. The development of a new sugar estate and outgrowers' land adjacent to the existing Kilombero Estate at Msolwa (KI). The Project area in the Kilombero Valley (Kilosa district of the Morogoro Region) covered 37 square miles to the north of KI estate bounded on the west by the Migomberama mountains, on the south by the Great Ruaha River and KI estate, on the east and north by the Selous Game Reserve (see map IBRD 10889 in Appraisal Report 466a-TA). It is linked to Dar-es-Salaam by a railway and 370km of all-weather road. Specifically, Part I comprised:

(a) Land Development:

(i) development of a 7,300 acre (2,954 ha) sugar estate, partly under irrigation, and provision of cultivation equipment, roads and cane transport;

(ii) development of 2,400 acres (971 ha) of new, rainfed land for outgrowers (the Kilosa District Development Corporation (KDDC) and farmers settled in ujamaa villages); and

(iii) expansion of 2,200 acres (890 ha) of existing outgrower land for KI to replace outgrowers whose production would be diverted to Ruembe (KII);

(b) Non-factory Ancillaries:
provision of staff housing, water supply and community facilities, and a rail link;

(c) Training and Research:

(i) on-the-job and overseas training for factory and field personnel;

(ii) provision to increase adaptive research at KSC; and

(iii) provision for the identification and preparation of feasibility studies on further sugar developments in Tanzania.

Part II consisted of the provision of a new factory mainly financed by bilateral aid funds and specifically comprised:

(d) the erection of a 2,400 TCD (tons of cane per day) sugar factory complete with ancillaries under a fixed price turnkey contract; and

(e) supervision of construction under a separate contract.

2.03 The Project was to be executed by KSC under the direction of its Managing Agents, who would also supervise the construction of the factory in Part II under a separate contract. It was anticipated that the Project would increase the annual production of semi-refined sugar by 45,000 tons.

2.04 Following the appraisal mission, an Issues Paper was prepared on January 17, 1974 and discussed in Washington at a Decision Meeting on January 25, 1974. The main issues discussed and decisions taken were:

(a) Role of the Managing Agents. The Managing Agents were playing a multiple role in the Project: project preparation for KSC, construction supervision for the factory under a separate contract, preparation of tender documents for the turnkey construction, and continuation as managing agents for KI and KII on completion of the Project. It was proposed that IDA should review all contracts and proposed agreements and advise GOT accordingly, and that the construction contract should include a clause providing for independent inspection by a consulting engineer. It was decided to submit IDA's review to GOT (this was done on January 30, 1974) but that a separate consultant would not be recommended as confusion and conflicts could easily occur.

(b) Retroactive Financing and Amount of Credit. To enable the factory to commence milling operations in the 1976 season, US$ 0.7 million was proposed as retroactive financing for land development equipment and civil works. This was agreed and it was also recommended that the IDA allocation be raised to US$ 11 million from US$ 10 million in the approved lending program.

(c) Factory Location. It was proposed that the factory should be located in a site central to the project area instead of in an area in the SW corner on the north bank of the Great Ruaha River. It was decided that appraisal should continue on the assumption that the central site would be chosen and GOT should be advised accordingly. After further investigations and cost analyses, the original site was accepted by the appraisal mission.

(d) Price Policy. GOT expressed itself flexible on sugar price policy and stated that its policy was that a nationalized industry should make a "reasonable return" (which in practice meant covering all costs, including machinery replacements and loan servicing), and that it would welcome IDA guidelines on the price required for KII to operate profitably. It was proposed that rather than set a target rate of return the mission should calculate the effects on KII's internal financial return of a number of prices, inform GOT of the implications of each and leave the price setting to GOT, subject to an undertaking that prices will be adequate for KII to service and repay the loan capital and in the long run to provide a positive flow of cash to KSC equity-holders. It was decided that all costs including "the cost of money" should be recovered and that KSC should receive an ex-factory price sufficiently high to cover all its cash requirements including the service and repayment of loan capital and replacement of machinery.

2.05 It was pointed out in the issues paper that there had been increases in factory costs and GOT, the Netherlands and Denmark were looking to IDA for an independent assessment of the whole project partly as a check on the feasibility study prepared by the Managing Agents. The appraisal mission was of the view that appraisal of the estate development without an examination of the factory component was impracticable. It was therefore decided to send a supplementary mission to Holland and Denmark to discuss progress on the factory proposals with the Managing Agents and the bilateral lending agreements with the Dutch and Danes. In fact missions from both projects and programs divisions visited these countries in late February 1974. At the same time a Tanzanian delegation was in Amsterdam with powers to negotiate and sign the factory contract with the consortium. The contract was now to be a fixed price turnkey contract and the price had risen by about 60% above the August 1973 submission and had escalated about 40% since the December 1973 appraisal mission. This necessitated adjustment in financing with attendant delays but it was still thought the factory could be ready for test runs in 1976. The bilateral funding arrangements were sorted out, the project submitted to the Loan Committee on June 14, 1974 and a Credit of US$ 11 million and a Loan of US$ 6.5 million were proposed. After review the Loan Committee decided that Bank Group contribution to the Project should be US$ 18 million: IDA allocation US$ 9 million and IBRD allocation US$ 9 million. The Project was finally approved by the Board on September 5, 1974 and the Legal Documents signed on September 27, 1974.

Agreements Reached

2.06 During negotiations, agreement was reached on the following:

(a) in the event that outgrowers were unable to meet the schedules laid down for them, their land may be developed and operated by KSC until the outgrowers were ready to take over the developed areas;

(b) KSC's appointment of a Training Officer would be made only after consultation with the Bank;

(c) SDC would obtain the approval of the Bank on its proposals for organizing the sugar study prior to finalizing the selection of consultants;

(d) Government would commit not less than the equivalent of US$ 17.3 million of Danish loan funds to this Project;

(e) not less than 30% nor more than 50% of the total proceeds of the Dutch and Danish aid would be passed to KSC through SDC as equity capital;

(f) an experienced Financial Controller for KSC would be recruited;

(g) KSC's accounts would be audited by independent auditors acceptable to the Bank and the accounts and auditors' reports would be submitted within six months of the close of each financial year;

(h) prior approval of the Bank would be obtained to the terms of any renewal of the managing agency agreement due to become effective on May 1, 1974, or to any alternative arrangements which may be made;

(i) Government would set an ex-factory price for KSC sugar which would give a return on all capital employed, taking one year with another, of about 9%;

(j) retail prices for sugar would be reviewed regularly in the light of such factors as production costs and import prices; and

(k) KSC would keep under review the price payable for outgrowers' cane and would adjust this as necessary to ensure the maintenance of outgrowers' production incentives.

2.07 Effectiveness

Conditions of effectiveness of the Credit and Loan were as follows:

(a) receipt by the Bank of satisfactory evidence of firm commitments by the Dutch Government to provide the equivalent of US$ 11.0 million and the equivalent of US$ 17.3 million by the Danish Government, to meet the cost of the turnkey factory and supervision;

(b) the execution of financing agreements, acceptable to the Bank, between Government and KSC; and

(c) signature of a new managing agency agreement on terms acceptable to the Bank.

Financing

2.08 Total project costs were estimated at US$ 55.8 million (Table 1) and the financing of the Project was to be shared as follows:

	Dutch Govt	Danish Govt	IDA	Bank	Gov't	Total
	US$ (million)					
Part I (estate and ancillaries)	-	-	9.00	9.00	5.00	23.00
Part II (Factory)	11.00	17.30			4.50	32.80
Total Financing	11.00	17.30	9.00	9.00	9.50	55.80
Percent of Total	20	31	16	16	17	100

The Government contribution included KSC self-generated funds of about US$ 4.0 million, and the GOT budgetary contribution was thus expected to be reduced to about US$ 5.5 million, or 10% of total Project costs.

2.09 The IDA Credit of US$ 9.00 million was on standard terms and the IBRD Loan of US$ 9.00 million at 8% p.a. was for 25 years including five years' grace. Bank Group financing represented 78% of Part I costs, including all foreign exchange costs and about 34% of local costs. The Dutch loan was on the same terms as the IDA Credit. The Danish contribution representing parts of three loans to Tanzania were part repayable over 25 years with 7 years' grace and part over 35 years with 10 years' grace, all at zero interest. For both Dutch and Danish aid funds, 75% of expenditure had to be made on goods or services originating in the lending country. The composition of supplies for Part II took this into account and the bilateral financing was expected to be available as needed under the terms of the turnkey contract. The Danish loan was part of a larger commitment to Tanzania which was not tied specifically to this Project. At negotiations, Government assurances were obtained that it would commit not less than the equivalent of US$ 17.3 million of Danish loan funds to the Project.

2.10 Apart from funds required for the sugar survey (which would be a grant to SDC), Bank Group finance committed to Part I of the Project was to be on-lent to KSC at 9% per year interest. The proceeds of both the Loan and Credit were repayable by KSC over 25 years including 5 years' grace. Danish and Dutch aid covered Part II of the Project and an assurance was obtained that not less than 30% nor more than 50% of the total proceeds would be passed to KSC through SDC as equity capital. The Tanzanian contribution, other than that derived from KSC's self-generated funds, was to be passed to KSC as a 9% loan or equity as appropriate.

2.11 In order not to delay the start-up of the factory, preliminary work on land clearing and development, access roads, rail bed preparation and site clearing was being undertaken. To meet such costs incurred between May 1, 1974 and Loan/Credit effectiveness, provision was made in the IDA allocation for a sum not exceeding US$0.7 million from which expenditures on equipment and civil works would be met by retroactive financing.

<u>Procurement</u>

2.12 Assurances were obtained at negotiations that procurement procedures would be as follows:

(a) vehicles and related equipment for land clearing and preparation, for cane transport, and for administrative and service staff, irrigation, potable water and electricity transmission equipment (US$7.4 million) would be procured by international competitive bidding. Orders less than US$ 30,000 could be procured in accordance with government procedures. The sugar survey and feasibility studies would be carried out by consultants appointed in accordance with Bank guidelines;

(b) civil works construction (US$ 2.3 million) would also be procured by international competitive bidding except for small individual items costing less than US$ 30,000;

(c) land preparation, road construction, rail bed construction, and installation of irrigation equipment (US$ 2.6m) would be carried out by KSC itself. Rail line would be procured and laid by East African Railways under their standard procedures. Potable water and electricity would be installed by KSC or by local contractors.

III. Project Implementation and Operating Performance

Effectiveness and Start-Up

3.01 The date of effectiveness indicated in the Legal Agreements was December 31, 1974. In addition to the conditions described in Section 2.07 above, the Project Agreement had to be duly authorized and ratified as legally binding on KSC, and the Subsidiary Loan Agreement had to be duly authorized and ratified as legally binding on GOT and KSC. On December 19, 1974 the Bank extended the date for effectiveness to February 8, 1975 and on February 5, 1975 extended it again to March 10, 1975. GOT, however, met all the conditions sooner than the new date and the Bank declared the Loan, Credit and Project Agreements effective on February 14, 1975.

3.02 The slippage in the date of effectivness by six weeks cannot be considered unduly long taking into account the number of institutions and departments involved and when compared with delays in achieving effectiveness subsequently experienced in other projects in Tanzania. The delay did not adversely affect project start-up as the Managing Agents had appointed a Planning and Development Manager who had previous experience in dealing with Bank-funded projects. The first supervision mission (December 9-12, 1974), prior to effectiveness, while reporting some shortcomings did indicate that considerable progress had been made in the preparation of bidding documents and tenders. The mission highlighted problems which were likely to arise due to cost overruns, shortage of housing for contractors' staff, increase in permanent housing requirements due to villagisation policies, delays in installation of turbines at Kidatu power house, delay in pump house construction and the irrigation installation, delays in access roads and the rail link, appointment of consultants and the handling of procurement. The mission did report, however, that land development was up to target and proceeding well. Overall, the start-up can be considered satisfactory.

Implementation

3.03 The Project was, at that time, the largest Bank-funded agricultural project in Tanzania. It had numerous facets and throughout the project there were many problems covering agriculture, civil and mechanical engineering, finance, procurement and staffing. These were actively and positively tackled during Project implementation. A close rapport developed between RMEA (who supervised the Project), GOT, SDC, KSC, the Managing Agents and the various consultants. This resulted in physical implementation being successfully completed. The Bank's supervision missions between 1975/76 and 1978 assessed the Project overall as having only moderate problems. By 1978/79 implementation was virtually complete, the remaining problems were judged to be relatively minor, trend was improving and KII production had reached 72% of the appraisal figure. Unfortunately, the success was shortlived due to mismanagement and the Project was rated in October 1980 as having serious problems with a worsening trend, by the same mission which had judged it a year earlier as having only minor problems and improving. The reasons for the collapse leading to a proposed rehabilitation project will be discussed later in this report together with the problems related to specific items, how they arose and how they were addressed.

A. Land Development, Cane and Sugar Production

3.04 The extent of the area to be developed, referred to as KII, was based on the following assumptions. The agronomic conditions of the Lower Ruembe Valley (KII) were considered to be even better for growing cane than in the existing KI estate in the Ruaha and Msolwa areas. The mean yields of KI were used as a basis for assessing the areas required on the assumption that the climatic conditions, particularly rainfall, of the existing and new areas, 7.5km apart, would be similar. The rainfall pattern over a 12 year period was analysed and it was deduced, based on KI experience, that adequate cane ripening and milling days would be available in the 234 day period May 1 - December 20, to produce 421,500 tons cane, yielding 44,300 tons sugar at 10.5% rendement from a 2,400 tons of cane per day (TCD) factory.

3.05 The new factory was scheduled to start its first milling season by September 1, 1976 and up to that date all new project cane grown in KII would be milled in the existing KI factory. To achieve this the KI factory would have had to extend its milling season or increase its throughput by about 5% which was anticipated to be readily achievable from an established factory. If there was a processing shortfall, some cane could be held over to the next season and any drop in sucrose content as a result would at least be offset by increased yields, and the delay in obtaining returns was not expected to have a significant effect on the overall returns. In the first operational season of KII (1976/77), it was estimated that 323,000 tons cane would be harvested from 7,540 acres (3,051 ha) including outgrowers, which could be handled by the new factory in 150 days allowing for 10% down time. This program would have meant milling until the end of January which, as proved later, is a bit risky and a 10% downtime for a new factory for various reasons proved to be much too low.

3.06 After the first milling season, it was planned to increase cane production as quickly as possible by a crash program of land clearing, preparation and cane planting. The program of land clearing, preparation, planting, harvesting and sugar yields compared with actual achievements are shown in Tables 2 and 3. The results are summarised below.

Crop Year		74/75	75/76	76/77	77/78	78/79	79/80	80/81	81/82
Clearing & preparation									
(acres)	App.	2,160	3,880	2,420	1,240	-	-	-	-
	Achieved	2,540	4,348	3,157	1,193	1,333	1,731	-	-
Milling Cane									
(acres)	App.	2,200	3,660	7,540	10,320	11,660	11,660	-	-
	Utilized	-	-	3,790	8,516	10,567	10,684	10,606	-
Cane Yields ('000m tons)									
	App.	66	143	322	409	439	425	416	415
	Achieved	-	43	205	196	311	304	283	310
Sugar yields ('000m tons)									
	App.	7	15	34	43	46	45	44	44
	Achieved	-	-	12	23	33	27	29	30
Milling days									
	App.	31	62	135	171	183	173	173	174
Milling Days Actual		-	-	178	217	181	175	192	-
Factory Downtime "		-	-	54%	46%	24%	22%	29%	-

3.07 Land clearing and planting on the estate got off to a good start and the May 1975 supervision mission reported work as being 33% above the appraisal figures. There was a delay, however, in organising the outgrowers and carrying out soil tests resulting in their achievement being 67% of the appraisal target. It appears that as outgrowers were not apprised fully about the Project in the early stages and not being fully committed, they could not readily appreciate why they should provide labor for planting. Rainfed cane is planted in December/January coinciding with foodcrop activities which caused a labor shortage and hampered planting. While the estate pushed rapidly ahead with the physical implementation of land clearing, preparation and planting, the support services such as surveying, recording and forward planning were inadequately staffed. The early statistics, therefore, were unreliable and several rechecks had to be made and figures readjusted at supervision missions before reasonably accurate areas of land under cane emerged. By June 1976 the position improved both in implementation and recording, and overall was about 115% of the appraisal target (estate 126% and outgrowers 88%). By then KSC were working to higher targets than those at appraisal and felt the land could and should be further improved: specifically, if local finance could be made available the planting program could be brought forward by a year, which would improve the factory viability. At this time certain sections of GOT were of the view that in order to maximise factory capacity cane should be grown on an estate basis, while others felt that outgrowers should receive more emphasis. In December 1976 the Bank requested GOT to clarify its policy to ensure a regular supply of cane to both KI and KII factories for the future. The matter was finally sorted out in early 1977 when GOT stated that apart from estate production, outgrowers in parastatal organizations such as Kilosa (KDDC) and various cooperatives would be encouraged and assisted by KSC. The individual outgrowers who had proved reliable in the past would continue to receive mechanisation support for bush clearing, cultivation and planting where required. This would, it was thought, ensure that the factories would be fed to capacity. On the whole, this was a big program requiring good management, but coincidentally management changes were also taking place.

3.08 By early 1977, the Managing Agents had been at KSC for nearly 12 years, qualified Tanzanian staff were becoming available, and GOT felt that the time was opportune to localise KSC's management. The existing managing agency agreement which expired on April 30, 1977 was therefore replaced by a Management Advisory Agreement whereby the previous Managing Agents would second to KSC a General Management Advisor, a Factory Management Advisor and an Agricultural Management Advisor. The original expatriate General Manager and the Agricultural Manager provided by the consultants left and their posts were filled by their Tanzanian deputies. The ten remaining expatriate staff originally employed by the consultants were expected to be employed by KSC and an agreement was reached between KSC, SDC, the Treasury and the Dutch Government for the "topping up" of the expatriate salaries. Most of the expatriates, however, did not readily accept the switch from working for the Managing Agents to direct employment by GOT (through KSC). By November 1977 only 4 of the posts had been filled (Instrument Engineer, Chief Engineer, Chief Stores Officer and Financial Controller) leaving the important posts of 3 mechanical engineers (factory), 1 factory workshop engineer, 1 tractor workshop engineer and 1 farm machinery and transport manager vacant. At this time, quite apart from the vacancies mentioned above, there had been a large turnover of junior management which created gaps in middle management. There were no Assistant Field Managers in KI and only two in KII whereas there should have been three in each. The General Management Advisor and the General Manager proved to be incompatible and the former was transferred to Kagera estate as General Manager leaving the advisory post vacant. Unfortunately at this time SDC was insufficiently staffed to control and guide KSC.

3.09 In March 1977 SDC issued a directive to KSC on the planting to be done in 1977/78 to achieve full factory capacity in 1978/79. A concerted effort was made during 1977/78 and by November 1977 the cane area had been increased above appraisal targets to compensate for lower yields per acre experienced in the preceding three years. The comparative areas were:

Estate	Cumulative Acres: Appraisal 1977/78	Cumulative Acres: Actual Nov 1977	Cumulative Acres: %	Balance to Completion: App.	Balance to Completion: Revised	Total Project (Acres): App.	Total Project (Acres): Revised	Total Project (Acres): %
Irrigated	3,500	3,743	107	-	-	3,500	3,743	107
Rainfed	3,800	4,452	117	-	-	3,800	4,452	117
Sub-total	7,300	8,195	112	-	-	7,300	8,195	112
Outgrowers (Rainfed)								
New KII Plantations	2,400	3,072	128	-	1,585	2,400	4,657	194
Replace KI Plantations	2,200	1,333	61	-	-	2,200	1,333	61
Sub-total	4,600	4,405	96	-	1,585	4,600	5,990	130
TOTAL	11,900	12,600	116	-	1,585	11,900	14,185	119

It will be seen that the Estate area overall was to be 12% above appraisal, mainly in the rainfed area, while the KII outgrowers would be 94% above and the KI area only 61% of the appraisal figures.

3.10 The April 1978 supervision mission, however, found that matters were not improving. Cane production was lower than anticipated at appraisal and in the previous season was even lower than estimated by KSC. The 1977/78 estimate by KSC was 31,337 tons sugar and achievement was only 23,111 tons although the milling season was extended to February 15, 1978. As a result the 1978/79 estimates had been revised downwards from 42,800 to 32,884 tons of sugar. The figures (including KI factory) were:

	1977/78: KI	1977/78: KII	1977/78: Total	1978/79: KI	1978/79: KII	1978/79: Total
Appraisal Estimate (tons sugar)	45,000	33,000	78,000	45,000	43,000	88,000
KSC Estimate Nov 1977 (tons sugar)	26,125	31,337	57,462	37,400	42,800	80,200
Actual (tons sugar)	20,711	23,111	43,822	33,145	32,889	66,034
KSC Revised Estimate (tons sugar)	-	-	-	33,705	32,884	66,589

3.11 Various reasons were given for the low yields which at that time were averaging: KI estate 32 tons cane/acre (TCA), KII estate 28.5 TCA and outgrowers 20TCA. (At appraisal averages were taken as: Irrigated cane KI & KII 45TCA, Rainfed cane 36TCA and outgrowers 30TCA). The KI irrigation equipment was old, had not been maintained and was virtually ineffective; KII irrigation installation was delayed and the whole of KII estate could be considered rainfed; the outgrowers did not use any fertiliser. Apart from these it was found that in some of the KII plantings there were gaps of up to 25% of the area. The Agronomy Department reported that management at that time did not heed their advice and there was evidence of conflict (the Agronomist subsequently left). The Agronomy Department was of the opinion that low yields were principally due to the application of fertiliser at the wrong time and no soil analyses having been done on which fertiliser programs could be based. Over 90% of the estate was planted with variety NCo376 which is suitable for the area and soil conditions but susceptible to smut (ustilago scitaminea) which was present and depressing yields. They also confirmed a low plant population which they felt was due to lack of supervision during and after mechnical planting; none or inadequate land planing had been done. Adversely affecting both estate and outgrowers in that season was a cholera epidemic and quarantine which restricted movement of men and machinery. It was obvious at that time that the Management Advisory Agreement was only working moderately well, there was a lack of qualified staff, agricultural operations were sub-standard, irrigation in KII was behind schedule and the installation required much more detailed supervision and coordination. Both KSC and SDC were advised of the position and it was stressed that the reasons for the low yields must be identified and dealt with. Another factor which adversely affected the factory operations was lack of transport to haul the cane. Even if yields had been higher it is doubtful if the cane could have been transported. At the lower than estimated yields KI factory had 23% and KII had 31% downtime due to shortage of cane in the 1977/78 season. This meant a considerable amount of stand-over cane plus a large cane area for the 1978/79 campaign estimated to produce about 50% more sugar than in 1977/78. Lack of staff and spares in the workshops had been the cause but four Indian engineers and one Dutch tractor workshop engineers had been engaged and a crash program was in hand to have as much equipment as possible in operation by the start of the 1978/79 season.

3.12 The November 1978 mission reported estate development had been completed ahead of schedule but the installation of the irrigation equipment had only been 65% commissioned by August 1978 and yields were therefore lower than anticipated. To make up for the low yields the total acreage including outgrowers was 25% above the appraisal estimates. The standard of management appeared to have improved although it was agreed that two more years of advisory service were required with emphasis on agriculture, irrigation, cane haulage and factory processing. By end-November 1978 a total of 65,000 tons of sugar had been produced from both factories and by the end of the season 66,034 tons sugar had been produced compared with the appraisal estimate of 88,000 tons, KSC's original estimate of 80,200 tons and their revised estimate of 66,589 tons. All cane harvested in the 1978/79 campaign was rainfed and the average for plant cane and three ratoons was 34.25 tons cane per acre (TCA) compared with the appraisal figure of 38.25 TCA, a shortfall of 10.5%. Plant and first ratoon yields were high because 60% of the former and 24% of the latter was stand-over cane, but the mission was of the view that as there was ample room for improvement of yields due to better agricultural management practices, the appraisal figures for rainfed estate cane could be obtained. The mission stressed the importance of leaving about 900 acres of cane, which was retarded due to the dry conditions which had prevailed during the milling season, for crushing in the next season when it would have received the benefit of the rainy season which was just starting . KSC management, however, were reticent about accepting this advice as they were anxious to achieve their revised target of 66,589 tons of sugar. Outgrower cane production was 74% of the appraisal estimate and, since management regarded the yields actually achieved as the best that could realistically be expected, they planned to increase the outgrower area to 125% of the appraisal figure. Additional transport for outgrower cane haulage would be available for the 1979/80 campaign. The general condition and availability of equipment together with the tractor workshop and overall control had improved. While there were still problems with vibration of the KII factory turbo-alternators, the 1978/79 campaign had shown a vast improvement in factory performance. Overall project development had proceeded well, inevitable problems in a project of this size had been tackled sensibly and while a considerable amount of improvement was necessary the Project appeared to have a sound base. The mission therefore stated the Project was having only minor problems and improving. This was a rare rating for project implementation in Eastern Africa.

3.13 In the 1979/80 season the irrigated estate area was reduced by 67 acres (60 acres found unsuitable and 7 acres handed over to NSI) but the balance 3,633 acres was still above the appraisal figure of 3,500 acres. A 21 acre block was developed in the rainfed estate bringing the area to 4,529 compared with the appraisal figure of 3,800 acres. The total estate area was therefore 8,162 acres which was 112% of the appraisal figure of 7,300 acres. Because of lower than anticipated outgrower yields, KSC decided to encourage outgrower production by strengthening their outgrower department, organizing a separate project outside the Bank-supported Project financed by the Tanzania Investment Bank (TIB) and the Tanzania Rural Development Bank (TRDB). About 5,230 acres of outgrower cane was to be planted, bringing the KI and KII outgrower area to 9,395 acres or 204% of the appraisal figure of 4,600 acres. Overall the area under cane would be 17,557 acres or 147% of the appraisal figure of 11,900 acres. The Bank was not consulted before the outgrower plan was developed but it was roughly in line with the consultants' study on Kilombero and was aimed at producing about 88,000 tons sugar in the 1980/81 crushing season based on average estate yields of 31.5 TCA and outgrower yields of 24TCA. (Appraisal figures: estate 40.3TCA, outgrowers 30TCA). KSC appeared to aim at a larger area with lower yields rather than identifying the causes for the lower yields and rectifying them (see para 3.18).

3.14 The 1979/80 milling season got off to a bad start due to excessive rains which commenced in November 1978 and continued almost unabated until May 1979. Fields were flooded, cane flowered, the campaign was late in starting and the labor went on strike because of the additional work in trimming the bottoms which had been flooded and the tops which had flowered. This prevented them from achieving their tasks and deprived them of any bonus. The KSC sugar production estimate for both factories for 1979/80 was 65,000 tons (appraisal 89,000 tons) but the achievement was 51,948 tons (KI - 25,328, KII - 26,620). The average estate yields at KI and KII were 27 and 27.9TCA respectively and the rendement figures were 9.32% and 8.82% for KI and KII factories respectively. The main reasons for the low output per acre and the low sucrose content given by KSC management were the excessive rains which adversely affected the cane and prevented replanting of the uprooted areas and nurseries. Crop maintenance was sub-optimal because labor could not work because of rain and equipment could not enter the fields because of wet conditions. Tillering was poor resulting in low stalk population, average stalk thickness was small, and flowering was early and of a high percentage. The extreme weather conditions under this campaign made it difficult to identify other reasons for the low yields or any shortcomings in management which were to manifest themselves later.

3.15 In July/August 1979 there were indications that management was improving as well as vehicle/equipment maintenance and utilisation, which would result in better agricultural practices and improved yields. While the KII irrigation system had become operative it had not been fully utilised due to the unusual rains, and it was going to be some time before comparative figures between irrigated and non-irrigated cane could be established. A management advisory agreement with the consultants for two more years had been finalised, and KSC estimated that in the 1980/81 season, due to increased outgrower cane area and production coupled with better estate practices, at least 85,000 tons of sugar would be produced compared with the appraisal figure of 89,000 tons. Estate yields were assessed at 31.45TCA and outgrowers' yields at 23.95TCA.

3.16 During the supervision-cum-preparation mission of February 1980, the General Manager of KSC was on forced leave pending an enquiry by the Party (CCM) but there was no clear indication that management was deteriorating. Prior to the mission a Bank consultant had paid a visit to KSC to examine the soils in connection with the expansion program which the consortium of consultants had proposed under the sugar study financed by the Project. The Bank consultant felt that a careful check and reappraisal of the expansion program was necessary and KSC staff confirmed that about 75% of the existing estate area was poorly or inadequately drained. The 1980/81 crop projections were closely examined by the mission and the estimate was revised downwards to 65,000 tons of sugar. This was even considered an optimistic figure and it was agreed with KSC/SDC that their consultants would be asked to investigate and identify if possible the reasons for the low yields bearing in mind that the area under cane had been considerably increased. They would also make recommendations on the action required to arrest the decline and to bring yields back to a level which would feed both factories to capacity.

3.17 As the 1980/81 campaign progressed it became evident that the quality of the cane being harvested was poor and the sugar content was low. KSC therefore revised the estimate down to 60,720 tons sugar which was still over-optimistic because the plant population on KII proved to be significantly lower than expected and the stalk length and thickness of the cane on KI was considerably below the long-term average. However, despite the area under cane being much larger than envisaged at appraisal and an excellent growing season with 1,422mm of well-distributed rain between December 1979 and May 1980, only 48,069 tons of sugar was in fact produced (KI - 19,503 and KII - 28,566) from 508,748 tons cane. The rendement was 9.47% from KI and 9.44% from KII.

3.18 The study which the February 1980 mission proposed was completed by KSC's consultants by about July 1980 and the report was made available to the October 1980 Bank mission. In general the decline in yields was attributed to poor agricultural activities. The report specified poor land preparation (ploughing and levelling), poor planting (whole stalk planting and some of doubtful quality), inadequate weed control (lack of herbicides), ineffectiveness of fertiliser (due to poor irrigation and shortage of fertilizer), poor cultivation (done too late or not at all due to lack of and bad use of available equipment, lack of workshop backup and spares, lack of experienced personnel), inefficient irrigation and drainage. The October 1980 mission discovered that although the KSC General Manager had returned to duty in April 1980, having been cleared of the Party's charges, the standard of management, loyalty and discipline in all sectors of the company had deteriorated sadly. Although the irrigation system was now fully operative, its utilisation was far from optimal. There was lack of supervision resulting in wrong irrigation cycles, wrong spacing, wrong number of sprinklers, pipes not vertical, sprinklers not revolving, blocked nozzles, leaking connections and punctured pipes. Operators did not know when to shut down and move pipes and the section manager could not be traced in the field or in his office. With the dry weather prevailing every effort should have been made for efficient use to promote healthy cane growth after harvesting for the following season. Although the August 1979 mission had found equipment/vehicle operation and maintenance improving, it was reported to the February 1980 mission (there was no harvesting in progress) that spare parts had again become a problem. In October 1980, towards the end of the 1980/81 campaign, the shortage of cane transport was causing excessive factory shutdown time. In these conditions one would have expected tight control and supervision but the mission reports this to have been totally lacking in the fields and in the cane yards. It was obvious to the mission that the next season's crop would be low because, apart from the irrigation constraints mentioned above, it was found that the agricultural practices were being skimped as tractors of the correct type, trash rakes and chisels were not available. Due to lack of funds little or no replacement of KI transport/equipment had taken place, and KSC management had instead deployed KII project equipment to KI. How long this practice had been going on is not known because earlier missions which had concentrated more on the KII project had been assured that all project machinery was in fact being used on the Project. The area was too vast to carry out specific checks but the October mission was able to ascertain that of 131 tractors financed under the Project 17 were beyond repair and were to be sold. The balance 114 were split up as follows: 51 at KI (22 under repair, 29 operating); 63 at KII (20 under repair, 43 operating). This meant that only 43 out of 131 project machines were operational at KII and the Project was being adversely affected due to the lack of a properly coordinated replacement program at KI.

3.19 Subsequent missions were in connection with the preparation of a proposed rehabilitation project and no further supervision reports were submitted. It was decided by the SDC Board on December 30, 1980 that the General Manager of KSC should be removed from his post at the end of January 1981. The then expatriate General Manager of Mtibwa estate was appointed General Manager KSC, which post he held until his retirement in June 1983. He was replaced by the expatriate who had succeeded him at Mtibwa on July 1, 1983. Through funds provided from the Export Development Credit scheme, KSC was able to purchase some equipment and the Dutch Government has financed 10 expatriate staff. This has prevented the estate from sliding back while the future of a possible rehabilitation project is being considered. The production over the last three years is as follows:

					TONS CANE/ACRE		
		SUGAR	CANE	% REND	RAINFED	IRRIGATED	O/GROWERS
1981/82	KI	20,094	196,536	10.22	27.32	25.09	19.5
	KII	30,000	312,570	9.6	26.32	33.26	17.1
	TOTAL	50,094	509,106	9.84			
1982/83	KI	14,712	154,359	9.53	25.90	27.11	15.8
	KII	25,394	275,558	9.20	26.31	33.59	21.4
	TOTAL	40,106	429,917	9.33			
1983/84	KI	22,630	224,321	10.09	36.42	34.80	15.0 1/
	KII	27,470	304,876	9.01	38.04	37.23	21.8
	TOTAL	50,100	529,197	9.47			

1/ Figures are up to November 30, 1983. KSC estimate that by end of milling season sugar production will be: KI 24,280, KII 30,720, total 55,000 tons.

The appraisal figure for 1981/82 was 89,000 tons sugar and for subsequent years 90,000 tons equally distributed between the two factories. KII factory is therefore working at about 66.6% of the capacity anticipated at appraisal and KI factory at under 50% capacity.

B. Irrigation

3.20 There is no discussion in the SAR on the proposed irrigation system other than a general description, a statement that it will be needed early in 1974/75 for use by KSC in the development of the estate and an indication in the critical path method network (Annex 12) of a target date of June 1975. The draft bidding documents were not prepared for review until January 1975, tenders closed June 20, 1975 and completion was expected by November 1975. The supply and installation of the irrigation system was fairly large and complex and the consultants who were supervising the factory building work were awarded the contract for design and supervision of construction. They were not responsible for the supply and delivery of the equipment; to save on costs this was split up, which caused problems at a later date. The pipes were supplied from Belgium, the sprinkler equipment from Austria, shipping, delivery to site and insurance was awarded to a West German firm, and the installation was entrusted to a local contractor. There were numerous changes in the consultant's staff, shipping mix-ups and a lack of coordinated control of all the people involved. In retrospect the possibility of a turnkey contract for the irrigation works should have been given more serious consideration.

3.21 In April 1976 a Bank consultant visited the site and examined the specifications, the work in progress and confirmed that, apart from some over-designing and suggested improvements to protect the river bank, the system as a whole was satisfactory. Shipments were on time and it was estimated that the main line would be completed by December 1976 and pumping tests carried out on the entire system early in 1977. The installation contract was awarded mid-1976 to a reliable local contractor but there was a delay in the transportation arrangements of the pipes from Dar-es-Salaam to site and a new completion date of September 1977 was set. Further slippage took place: by March 1977 it was estimated that completion would be November 1977 but that portions of the system could be handed over progressively; by November 1977 some of the trenches had caved in, 85% of pipes had been laid but only 30% tested as KSC had not provided the test pumps as per contract, shortages of essential pipes and gaskets were discovered, and the new completion date became February 1978. The April 1978 supervision mission discovered a lack of coordination and progress was very slow. The General Management Advisor had been allotted the task of overseeing and coordination when the new consultants' management advisory agreement came into effect but shortly afterwards he was transferred to Kagera and control lapsed. KSC made efforts to bring this facet of the Project back into line but the system was not completed until November 1978, three years behind the appraisal date and two years behind the date set at the beginning of 1975.

3.22 Due to the heavy rains in November 1978-May 1979 the system was not fully utilised, and it was therefore not possible to diagnose any shortcomings in the system or establish any comparative figures between irrigated and rainfed cane. The supervision-cum-preparation mission of February 1980 was informed that the irrigation system could not be used when the factory was not working due to limited power being available from TANESCO. Although the November 1980 mission was advised that the

TANESCO power problem had been resolved and the system was fully operative, it was found that it was being poorly operated as described in paragraph 3.18. During a visit to the estate in July 1983 in connection with the PCR, it was found that TANESCO power had become a problem again as additional load had been added to the transmission lines and transformers. As a result KII irrigation could only be used to 60% capacity and the new KI system (financed separately under Dutch and Danish aid and Austrian suppliers' credits) to 50% capacity. Action was planned to resolve the difficulties but when it would be achieved was not known. KSC has summed up the problems of the KII irrigation installation work as stemming from poor coordination between the four suppliers/contractors involved, unplanned shipments resulting in materials arriving in the wrong order of use and poor consultancy input. On start-up there was insufficient power and excessive bursting of pipes. The former has still to be resolved but the latter has been rectified by lowering the working pressure and better coordination between the field and the pumping stations. With increased usage from 1981, problems of lack of spares, inadequate numbers of lines, lack of repair facilities and lack of transport for supervision manifested themselves. These had been resolved by the 1982/83 season but KSC foresees problems ahead unless it is allocated foreign exchange to replace damaged pipes. The system has been in partial operation for six years and a regular replacement program is essential. The result of all these delays and misfortunes is that KII irrigated area has never received the full benefit of irrigation which has had a deleterious effect on past and future yields of cane.

Weir across Great Ruaha River

3.23 The effects which the construction of the Kidatu Hydroelectric dam would have on the river were not foreseen at preparation nor appraisal. 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 KII pumphouse. The stage was reached when the pump intakes were actually clear of the water. KSC built a temporary weir which was breached on several occasions, consultants' advice was sought by SDC/KSC and a permanent weir was constructed together with reinforcing of the river's banks. The initial cost of the temporary weir was TSh 0.75m ($0.105m) but emergency repairs cost TSh 3.25m ($0.45m) and the permanent weir cost DG4.91m (US$ 1.75m) including consultancy fees plus TSh 2.57m ($0.36m). The whole was met by Dutch grants. The Mtera dam which controls the flow of the Great Ruaha River to Kidatu has been completed, which means that in future there should be no excess flow from the Kidatu dam which caused the extensive damage to the original rock weir constructed by KSC. The weir as now constructed does not have any sluice gates and the road once envisaged will not be constructed due to lack of knowledge about the weir's foundations. There will, therefore, be no means of transporting cane from KI estate to KII factory across the weir as envisaged in the development program prepared by the sugar study consultants.

C. Factory

3.24 Under Part II of the Project, a factory having a capacity of 2,400 tons of cane per day (TCD) was to be constructed and ready for start up by July 1976. It was estimated that the factory would produce 45,000 tons sugar per annum in a milling season of 200 days allowing for 10% factory downtime with an outturn of 10.5% sugar to cane. A fixedprice turnkey contract was awarded to a Dutch firm covering the factory building, milling machinery, cane intake, steam and power generation plants. The ancillary work comprised tractor workshops, warehouses, storage tanks, offices, pump stations and canals for factory and irrigation water supply, a telephone system and spare parts for the factory equipment. The construction was supervised by KSC's Managing Agents under a separate contract.

3.25 The factory buildings and the machinery installation were completed by July 1976 when test runs were carried out. The factory was officially opened by the President of Tanzania on August 3, 1976. Rectification of problems with the boilers and the turbo-alternator sets delayed the start of actual milling trials until September 10, 1976. During 53 operating days 35,000 tons of cane were crushed, equivalent to 660TCD or 27.5% of design capacity. Liquid fuel consumption was excessively high due to low throughput and resultant low bagasse production. Numerous operating problems came to light some of which were attributed to design, others to faulty installation. The main ones were excessive vibration of the turbo-alternators (one had to be sent back to Germany for rebalancing), unreliable automatic regulation of the steam supply, low steam generation, inadequate level control of the evaporators, impurities detection equipment was over-sensitive, an underground cable to the induced draft fans burned out and there were numerous mechnical problems with driving gears, chain drives, leaks in the plumbing installation, etc. The Principal Contractor's Project Manager was replaced and experts from the various suppliers were brought in to rectify defects during the non-milling season. Successful performance tests were eventually conducted between September 3-5, 1977 when the factory over a continuous 3 days running averaged 2,518 TCD, fuel consumption was 4.99 litres per ton of cane (satisfactory because of low fibre content in the cane) and total downtime for factory reasons was 9.37%. The suppliers of the turbo-alternators stated that the vibrations were within permissible limits and the warranty on these units was extended to October 1979. By October 15, 1977, No 1 alternator had to be closed down because of excessive vibration and an expert had to be sent to investigate the situation. In the meantime the contractors refunded TSh 1.22 million to KSC, based on a claim submitted by their Managing Agents, for late completion and testing.

3.26 The factory has never been extended to full capacity over a prolonged period since it started up and the performance is shown in Table 5 up to 1980/81. In subsequent years sugar produced was 30,000, 25,394 and 27,470 tons up to 1983/84, which means the factory has only been operated at about two-thirds of its capacity in any one year. Despite this KSC feel that factory performance has been generally satisfactory (once the initial problems had been rectified), the major exceptions being the vibration of turbo-alternators mentioned above and problems in cane loading and handling because the cranes were too fragile for heavy duty operations. However, factory performance as a whole cannot be fully evaluated until yields rise and full and continuous capacity milling seasons are achieved.

D. Tractor Workshops and Maintenance.

3.27 KSC had a past history of poor tractor and equipment maintenance (paragraph 1.05) and the additional strain put on the KI workshops during the development of KII estate aggravated the situation. After the completion of the KII tractor workshops in July 1976, KSC reorganised the workshops into a light and heavy section, and the November 1976 mission again reported an improvement in maintenance and servicing. There was, however, a shortage of spares and materials due to import restrictions which was discussed with Treasury and Kilimo representatives. Staffing of the workshops lagged and by March 1977 only 5 of the 9 engineers required were in post, middle echelon staff were only 40% of the cadre and there was a shortage of Grade I mechanics. Although this was pointed out to the management of KSC/SDC, the November 1977 mission again reported poor operation and maintenance of equipment due to lack of trained mechanics, workshop engineers, senior tractor workshop and transportation staff and inadequate stocks of the correct spares. There was a wide range of makes and models compounding the difficulty of proper ordering, and although KSC could now order directly instead of through the State Trading Corporation they did not have the qualified staff to organize it efficiently. By April 1978 five expatriate engineers had been employed, local agents for vehicles and equipment had been called in to carry out repairs and to advise on maintenance procedures, and mechanization officers who had been acting as workshop engineers were now in the agricultural department to control the use of plant and machinery. By November 1978 a Farm Machinery and Transport Manager was in post, a private firm of advisors had carried out a stores survey and were about to submit recommendations in inventory control, and KSC felt they were getting on top of the equipment and vehicle operation and maintenance problems. The improvement continued and KSC reported to the August 1979 mission that they had 90% of vehicles and equipment plus 100% of tractors and trailers on the road at the start of the 1979/80 campaign. A stores controller had been employed and was progressively improving systems and about TSh 6m ($0.7m) worth of obsolete stock had been identified which would be sold or modified to suit existing requirements. Unfortunately, by the end of the 1980 milling season the position had again deteriorated, there was a shortage of transport for cane haulage causing shutdowns at both factories, and agricultural practices were being skimped for lack of the correct equipment (paragraph 3.18).

3.28 At the request of SDC a special study was made in 1980 by the KSC consultants, who also provided the management advisory services, and they recommended a massive injection of field and transport equipment, particularly into KI estate. The misuse of KII project equipment has already been discussed at the end of paragraph 3.18. The situation was partially alleviated by funds from the Export Development Credit and by the control exercised by the new General Manager who took over in February 1981. A new expatriate workshop team (2 Chief Engineers, 4 supervisors) under a Farm Machinery/Transport Manager was installed in 1982, financed by Dutch aid and supplied by the consultants who provide the management advisory services and the current expatriate General

Manager. In July 1983 a mission in connection with this PCR found that the position of both KI and KII workshops was vastly improved but this cannot be maintained without an injection of foreign exchange in the immediate future, as most of the salvaged and modified spares have been used up. Although the machines can be made to run, they cannot all be operated at full capacity and a replacement program is necessary. Unless this is put in hand immediately, the present expatriate staff cannot see how they can achieve more than they have done and the position will again deteriorate. The bulk of the expatriates, apart from two on the permanent staff of the consultants, are on two year contracts but the work ahead of them will take much longer; it is doubtful if all will wish to extend their contracts unless they have the materials with which to do their work.

3.29 Due to frequent changes in workshop staff and senior management, coupled with a hand-to-mouth existence forced on KSC by import and foreign exchange restrictions over the years, there has been a lack of a coordinated equipment policy. This has resulted in a multiplicity of makes and types of machines making servicing and maintenance unnecessarily difficult. Some of the machines on the inventory are not now required and others are not ideally suited for the work to be done. During discussions with the present expatriate staff at KSC, it was agreed that the following action is now required: (1) Assess and list accurately what machinery is required for the operations of KI and KII plus outgrowers; (2) Prepare a full condition report on each existing machine which fits into this list; (3) Quantify costs to overhaul and rehabilitate each machine; (4) Decide on (a) which machines can be economically rehabilitated, (b) which should be sold or scrapped and (c) what new purchases are essential; (5) Decide on necessary fleet changes and standardisation for the future when considering item 4(c). This is a big task and it is doubtful whether the existing expatriate staff can undertake it and carry out their current work program at the same time. Inputs by a specialist consultancy team will be required.

E. Ancillary Works and Other Items

3.30 Support work under Part I of the Project comprised the construction of roads and a rail link, deep wells for a potable water supply, staff housing, community center and guest house, shopping area, primary school and a police station. Numerous problems attended the implementation of these works, some of which were resolved during implementation and some of which still exist.

Roads

3.31 Access roads to the factory and fields were successfully constructed with equipment funded under the Project. The standards were good and the roads have stood up remarkably well. Maintenance has been only fair due to the lack of a planned program caused mainly by the lack of trained management personnel, vehicles and equipment. This is a matter which will require continued attention in the future to obviate an expensive road rehabilitation program.

Rail Link

3.32 The rail link for the transportation of sugar and molasses was constructed by the East African Railways Corporation. With the dissolution of the East African Community in 1977 the service was taken over by the Tanzania Railways Corporation, which for a variety of reasons has been unable to provide adequate wagons and tankers since 1977. This has resulted in KII sugar being mainly transported by road and molasses being firstly transported to KI by private contractors owning small tankers, where it is transferred to tankers on the TAZARA rail link for delivery to Dar-es-Salaam for export. (KI is served by both TAZARA and Tanzania Railways Corporation). This has resulted in heavy transportation costs.

Wells and Potable Water

3.33 The original project design contemplated two deep wells and these were constructed by an international firm of contractors based in Tanzania. Some water was also supplied through the KII factory water treatment plant. The deep well water supply has been unsatisfactory from the beginning as regards quality and quantity and finally the wells collapsed and are now unusable. The factory water supply depends on the use of imported chemicals which are not always available, and with the large increase in population at KII potable water is a problem. KSC management have taken the matter up with the Regional Authorities who agree that water supply in the area is really their responsibility and will endeavor to obtain funds from the Central Government to ease the situation. In view of Tanzania's current financial situation this will not be easy and will inevitably take time. KSC intend to construct a separate main to carry untreated water to be used for flushing toilets, watering gardens, etc and are also planning an alternative good water supply from springs situated close to the TANESCO power house complex.

Housing

3.34 International tenders were invited for the development of the housing estate including staff houses, guest house, community center, shopping center, school and police station in accordance with the SAR. The bids received were much higher than the allocations in the SAR and the requirements had to be reassessed to suit the availability of funds. A substantial part of the increase was due to the need for extra 'C' type houses caused by the dispersal of people living close to the estate at the time of appraisal to distant Ujamaa villages. There were protracted negotiations between the Bank/GOT/SDC/KSC regarding how the cost overruns were to be financed. Although adjustments could be made between categories, GOT had to increase its counterpart funding. The contract was finally awarded in January 1976 for 15 'A' type houses, 20 'B' type houses and 704 'C' type houses, a guest house and a community center, and the work was essentially completed by mid-1977. Modifications had to be carried out later to the 'C' type houses to prevent the ingress of rain, to give some privacy to the kitchen areas and to improve the drainage system. Due to lack of supervision by the consultants, rectification work had to be carried out to the community center, which was done at the consultants' expense. Cane cutters' camps to house seasonal labor are being constructed under a phased program by KSC and in the meantime the temporary camps set up by the building contractors are being used for this purpose. Using hindsight more detailed planning at preparation and appraisal and during implementation by the supervising consultants of this large housing complex would have been advantageous.

Sugar Survey

3.35 To avoid continued piecemeal growth of the industry, the Project included provision for a country-wide survey of sugar potential which would identify possible development areas and include preparation of detailed feasibility studies (SAR 4.14). The study was late in starting and the TOR drafted by the appraisal mission had to be amended by SDC (with Bank approval) to suit the changed conditions. As the study progressed it was found that there was considerably more work involved than envisaged at appraisal, including extensive soil analyses and aerial surveys plus a manpower development survey. The final survey cost was US$ 771,000 in foreign exchange plus TSh 1.1m ($134,000) in local costs of which $869,706 was claimed from Project funds.

3.36 The study report proposed for consideration by GOT/SDC the expansion of Kilombero I factory from 40,000 to 43,000 tons and KII from 45,000 to 94,000 tons sugar per annum making a total of 137,000 tons; expansion of Mtibwa from 25,000 to 54,580 tons; and the development of a new estate and factory at Ruipa to produce 111,600 tons sugar per annum. The reports contain much useful information but unfortunately, because of the decline in the sugar industry mainly due to Tanzania's foreign exchange constraints, they cannot be used for developing new expansion projects at present. Because of the decline in Kilombero performance a rehabilitation instead of an expansion program is under consideration, Mtibwa expansion was scaled down to a factory improvement project (being funded by the Netherlands), and the Ruipa project is held in abeyance. The manpower study (see para. 3.40 below) was linked to the expansion program but the criteria in the report still hold good and the report, therefore, can be used as a guide to assist SDC in its manpower planning even at a lower scale. It is a pity that more benefit is not going to emerge from such a large expenditure on studies, but the idea at appraisal was sound and the sad turn of events in the sugar industry only manifested themselves after the completion of the studies.

Training and Research

3.37 Because of the acute shortage of suitably trained manpower in Tanzania at technical and higher levels, a training program was built into the Project. At the time of appraisal GOT had decided to set up a National Sugar Institute (NSI) at Kilombero funded by the Dutch. KSC had in place a system comprising in-company training schemes and fellowships aimed at upgrading its staff at all levels. These programs required strengthening and expansion to meet the needs of KII estate and factory as well as the general growth of the sugar industry.

3.38 An experienced expatriate training coordinator/instructor was to be recruited under the Project to review and upgrade existing training courses, curricula and procedures. More workers and supervisory staff than necessary for KI would be employed so that they could receive training, and then experienced personnel would be divided between KI and KII when the latter became operational. Training was to cover all facets of the sugar industry including field work, cane transportation, tractor workshops, factory operations, factory workshops and maintenance, civil works, administration and accounts.

3.39 Despite repeated requests the training coordinator was never recruited, and finally a Tanzanian was sent on a diploma course in "Industrial Education and Training". Training at lower levels based on in-company training worked reasonably well, but training for middle level supervisory staff got off to a slow start and it was only at the beginning of 1978 through the insistence of supervision missions that overseas training programs were initiated. 28 candidates were sent for overseas training in material management, accountancy, industrial safety, general management, mechanical and electrical engineering, industrial education and training, personnel management, crop pathology, planning and control in agriculture, irrigation, sugar cane technology and power electronics. Apart from this a number of candidates were sent for training to various establishments within Tanzania.

3.40 Out of Project funds, US$515,668 was spent on training, about US$36,000 was provided by the main factory contractors for factory training and US$107,000 was provided by the Dutch Government in the advisory consultants' contract which was utilised for various training facilities. The Bank also provided a sum of US$276,000 for equipment for the NSI. In the national sugar study (para. 3.35 above) financed under the Project, the consultants made a thorough study of manpower and training needs for the sugar industry as a whole and submitted a report to SDC in January 1980. At that time, taking into account the sugar expansion program which GOT had in mind, the consultants assessed that the additional manpower requirements were for 183 managerial, 410 supervisory, 185 clerical, 1,618 artisanal and 426 semi-skilled workers: a total of 2,822 personnel over a ten year period. The costs were estimated at TSh 39.5m ($4.8m) local and US$448,000 foreign costs. These figures will be reduced because the expansion program cannot take place as planned, but they give an indication of what is still required for manpower training in Tanzania's sugar industry.

3.41 In spite of the training efforts made under the Project, the results in terms of institution-building were not up to appraisal expectations. Although most trainees returned to work at KSC (at least initially), they still lacked depth of practical experience and were not yet in a position to assume posts with independent management responsibility. This is manifested by the current status where, alongside the management advisory agreement, no less than eleven expatriates have had to continue to be employed (under Dutch Aid) to fill such posts as General Manager, Field Superintendent, Mechanisation Superintendent, Irrigation Superintendent, Farm machinery/Transport Manager, two tractor workshop engineers and four supervisors. There are several technical posts in the factories filled by expatriates and the Chief Accountant-cum-Financial Controller is also an expatriate. Sugar estates/factories are usually in remote and somewhat inhospitable areas, making it difficult to attract local managerial and technical staff of the required calibre unless they are given considerable incentives to take up these posts. Apart from this there is still a chronic shortage in Tanzania of the numerous skills required to run a sugar industry and it will take several years at considerable expense to rectify the situation.

Research

3.42 Sugar research in East Africa was coordinated by the East African Agriculture and Forestry Research Organisation (EAAFRO) with headquarters at Muguga in Kenya. The EAAFRO sugar research station responsible for the introduction, selection and breeding of new varieties is at Kibaha in Tanzania. Pest control was based in Uganda. National research comes under the Ministry of Agriculture but only limited variety trial work was carried out at its research station at Katrin. Most applied research is carried out by estates but this has been limited in quantity and quality. With the break-up of the East African Community in 1977 the facilities at Kibaha were reduced. At KSC only little useful work has been done and improvements made during the Project due to the general constraints (see para. 3.11). The research component in the Project was limited to the supply of two agronomists, two assistants and some equipment. Even if the component had been bigger, it is doubtful if under the circumstances prevailing at KSC more could have been achieved. The sugar industry has approached GOT to implement a program of applied research covering irrigation, drainage, field mechanisation, smut and nematode control, cane quality and new varieties appropriate to various geographical areas. With the new rapport being built up between the three East African community countries, sugar research may improve but this will take time.

Follow-On Project

3.43 In view of the continuing shortfall in overall sugar supply compared with demand projections over the longer term, it was expected by both the Bank and GOT that a follow-on project would emanate from the results of the Sugar Study and feasibility reports. As explained in para. 3.36, with the decline in Kilombero performance, it became apparent that further expansion of Kilombero was unrealistic for the time being and what is really required is rehabilitation of existing facilities. Meanwhile, the Dutch had agreed to finance the necessary improvements to Mtibwa factory. As preparation of a rehabilitation project at Kilombero proceeded, the Danish Government, who had been requested by GOT to assist in rehabilitating the Tanganyika Planting Company (TPC), approached the Bank to ascertain how they could coordinate their action with the Bank's. It was agreed in March 1981 that the Dutch would cooperate with the Bank on the Kilombero rehabilitation while the Danes would cooperate with the Bank on TPC rehabilitation. It was also agreed between SDC/GOT and the lenders by the end of 1981 that a healthy overall sugar sector was a prerequisite to a successful rehabilitation project and preparation would therefore encompass the whole sugar sector. Five scenarios have been developed covering full rehabilitation down to holding operations, but the costs are high, particularly the recurrent foreign exchange costs which will be required to keep the industry going after rehabilitation. It is doubtful if Tanzania can afford to embark on any of the scenarios given its present economic situation, and the matter is under consideration by the

GOT. With its present limited resources, Tanzania will have to decide on its priorities within the agricultural sector and where the sugar industry fits into these priorities. The sugar industry is relatively foreign exchange-intensive and the Bank's recent Agricultural Sector Report rated sugar as a low priority in economic terms. 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 requires a large slice of Tanzania's limited foreign exchange resources. The industry also requires considerable management and technical skills which have not yet been developed in Tanzania. It will take time and money to rectify the situation, and Tanzania's sugar industry will continue to have to rely on expatriate management and donor assistance for some years to come.

Procurement

3.44 At the very beginning of Project implementation, problems in procurement arose because of the Managing Agents' tendency to disregard the Bank's procedural guidelines in their professed desire to "get on with the job". This was manifested particularly in the following two actions: (i) award of a contract for staff housing without the required approval from the Bank (this was subsequently proposed to be financed from other sources); and (ii) appointment of a Dutch firm as the principal design and supervision consultants, also without prior Bank approval (the firm was retained after it had agreed to beef up its staff). Apart from these initial lapses at the commencement of the Project, procurement procedures were subsequently followed in accordance with Bank Guidelines and the Legal Documents.

IV. Project Impact

4.01 Despite the development of considerable infrastructure, the Project so far has had less than its intended impact largely due to three factors, at least two of which were beyond its control: a rapidly (particularly in later years) deteriorating general economic situation, a difficult and unsupportive policy environment, and extremely weak management. With a severe overall shortage of foreign exchange and completely inadequate ex-factory prices, the Project (as well as the existing KI estate) was starved of funds for normal operation, maintenance spares, and replacement of equipment. Weaknesses in management (including the expatriate advisors) were manifested in the failure to improve the irrigation and drainage systems at both KI and KII, the use of unsuitable and costly cultivation practices, the toleration of poor husbandry standards, etc. These weaknesses were further compounded by the total lack of labor discipline resulting from the politicization of management-labor relations which, among other things, made it almost impossible to dismiss incompetent staff.

4.02 Although the results and benefits estimated during preparation and appraisal have not been fully achieved, the Project has undoubtedly developed the Kidatu area: the establishment of the estate and the KII factory with the ancillary infrastructure is of great potential benefit to Tanzania. Considerable effort is now required by GOT/SDC/KSC to improve and sustain cane yields to ensure that the factory is kept continuously fed to capacity, thereby exploiting to the maximum the large investment which has been made.

4.03 The sugarcane outgrowers in the area have received extensive assistance and a base has been formed from which further improvement is possible. More detailed organisation and control is necessary, however, to obtain the full benefits of outgrower cane production bearing in mind that the KII factory has to depend on outgrowers for about one-third of its cane supply. This subject will have to be more vigorously tackled by GOT/SDC/KSC in the interests of both the outgrowers and KSC.

4.04 The Project provided employment to many hundreds during implementation and has created permanent and seasonal employment since the factory started up in 1977. The number of permanent employees in KII rose from 982 in January 1977 to a peak of 2,206 in December 1978 and has now levelled off at about an average of 1,200. There is a large employee turnover, a few leaving with due notice and a large number merely absconding from duty for personal reasons. Seasonal labor varied between about 1,200 in 1977 rising to 3,632 in 1980 and now averages about 2,500. If the necessary effort referred to in the two preceding paragraphs is applied, there is greater useful employment potential.

4.05 The implementation and subsequent management of this Project has highlighted the difficulties which obtain in running an efficient sugar industry. GOT/SDC are now much more fully aware of the problems which inevitably arise unless the ex-factory price of sugar is regularly adjusted to ensure company liquidity and thereby the capacity to finance replacements of equipment and the purchase of spares. Apart from this, the necessity to make a regular allocation of foreign exchange of a substantial amount to KSC (and the sugar industry in general) has become clear.

V. Financial Performance

5.01 As shown in Table 1 the total project costs were estimated at appraisal at US$55.8m (TSh 397.9m) and the financing was to be shared as shown in para. 2.08. The Tanzanian contribution included at least US$4m of self-generated funds by KSC who were expected to produce a net surplus of US$10m after taxation in the 5 years from 1973/74 to 1977/78. In the same period GOT was expected to receive a further US$4m in excise duty from the incremental sugar production. From 1978/79, the Project's sixth year, GOT was expected to show a positive net cash flow exceeding US$5m per year (SAR 6.08).

5.02 Changes in the price structure of sugar are shown in Table 9 together with the variation in excise duty, etc. The profit and loss accounts of KSC for the fiscal years 1973 - 1981 are shown in Table 10. The salient figures from these tables together with production figures of KI factory have been compiled in Table 12. Actual sugar production at KI dropped from 39,072 tons in 1973/74 to 20,094 tons in 1981/82. At appraisal it was assumed to be 44,000 tons in 1973/74 and remain constant thereafter at 45,000 tons per annum. KII actual production commenced in 1976/77 with 11,612 tons sugar rising to 30,000 tons in 1981/82, whereas at appraisal it was expected to commence at 34,000 tons rising to 44,000 tons per annum over the same period. KSC, therefore, did not produce the net surplus of US$10m as anticipated between 1973/74 and 1977/78. Apart from 1973/74 KSC ran at an actual operating loss from 1974/75, and by 1977/78 the accumulated loss was TSh 26.5m (US$ 3.71m). In 1980/81 GOT waived previous and current interest payments due by KSC, but even then the accumulated losses had risen to TSh 38.25m (US$ 5.4m). With the large increase in the ex-factory price in 1981/82 (mainly due to negotiations for preparation of the rehabilitation project), the position is now better and in 1981/82, due to an operating surplus of TSh 30.7m plus TSh 8.5 other income, the accumulated loss had been reduced to TSh 0.7m, even on the low throughput of 50,000 tons. The main point, however, is that KSC has been unable to contribute to the Project as anticipated and the burden has fallen on GOT through SDC.

5.03 From the incremental sugar production in the KII factory, using the sales tax, excise duties, etc shown in Table 12, the total revenue which accrued to GOT for the years 1976/77 and 1977/78 was TSh 66.4m (US$ 9.3m). The amount from excise duty alone was TSh 14.34m (US$ 2m) compared with the appraisal figure of US$ 4m. This ignores the actual drop in KI production and the resultant loss in excise duty between 1973/74 and 1977/78. Actual production of the two factories is between 50-56% of appraisal targets and GOT revenue from excise duty, sales tax, etc is very much lower than anticipated. GOT, however, introduced a special revenue account in November 1974 of TSh 2,800 per ton, made other adjustments and raised the domestic price from TSh 3,000 to TSh 6,000 per ton. It will be seen from Table 9 how frequently changes were being made to the price structure at this time in order to collect more revenue. The sugar companies, however, did not get the full benefit of these price increases and suffered in general in not having enough funds to carry out adequate repairs and replacements. Due to the difficult foreign exchange situation, spares were scarce and exorbitant prices had to be paid for such items as were available. Although ex-factory prices were adjusted from time to time, the increases usually were too little, came too late and did not cover the cost of production. At negotiations it had been agreed that GOT would set an ex-factory price which would give a return on the capital employed, taking one year with another, of at least 9%. Due to the low production, the high rate of inflation and other demands on GOT resources, the factory prices were never in fact adjusted to achieve this during the project period, despite Bank supervision missions continuing to point this out as a problem. (It may be recalled that it was substantially on this pricing issue that IFC and other private investors had been obliged some years earlier to sell their shareholdings in Kilombero to the Government).

5.04 The actual project costs amounted to TSh 504.94m ($63.2m) and were incurred as shown in Table 11. The actual financing percentages compared with those at appraisal were:

	Dutch Govt	Danish Govt	IBRD/IDA	Tanzania	Total
Appraisal Total (US$m)	11	17.3	18	9.5	55.8
Actual Total (US$m)	11	17.3	18	16.9	63.2
Appraisal percent	20	31	32	17	100
Actual percent	17.43	27.42	28.53	26.62	100

VI. Institutional Performance and Development

6.01 During appraisal it was determined that there was insufficient local management strong enough to continue running KI and at the same time implement a Project of this size. At negotiations, therefore, it was agreed that as a condition of effectiveness a new managing agency agreement would be signed between KSC and the then existing Managing Agents. It was also agreed that prior Bank approval would be obtained to the terms of any renewal of the agreement or to any alternative arrangements which may be made. (Paragraphs 2.06(h)and 2.07(c)). In 1977 GOT/SDC were keen to have KSC managed by Tanzanians and at the same time the Managing Agents did not appear particularly keen to continue to carry full management responsibilities. With the agreement of the Bank, because at that time it did appear that local top management who had been in the sugar industry for many years could cope, the managing agency was changed to a management advisory agreement. This was not a success, local top management failed and was replaced by expatriates. KSC is now being run with a large expatriate staff indicating that institutional development has been slower than expected at appraisal (paragraphs 3.08, 3.11, 3.18, 3.28).

6.02 A training program was built into the Project because of the shortage of suitably trained manpower and an expatriate training coordinator was to be recruited. The coordinator was never employed, training got off to a slow start and had to be rushed towards the end of the Project. Nevertheless a considerable amount was spent on training and it is disappointing that some ten years later so many expatriate staff have still to be employed. If GOT wish to have a successful sugar industry managed by Tanzanians, a properly coordinated training program for the whole industry is required (paras. 3.37-3.41).

6.03 KSC is a wholly-owned subsidiary of the Sugar Development Corporation (SDC). During the life of the Project there were numerous changes in top management of SDC and they did not have senior experienced technical staff to guide or monitor the work of KSC. Certain SDC staff were sent on training under the Project which has been of benefit, but much more has to be done if SDC is to be effective as a holding company fully able to monitor the performance of its subsidiaries.

6.04 Because of the problems outlined above, heavy reliance on consultants has resulted. Some consultants have been engaged for specific tasks within the Project while others have operated over long periods such as those providing management and management advisory services. Performance and the results have been varied. The consultancy work covering the housing and the KII irrigation scheme left something to be desired. The sugar study was adequately handled although there were cost overruns. The yields at Kilombero and the Project declined despite having been managed by the firm of consultants who were insisted on by the appraisal mission. SDC staff have pointed out that the managers (and subsequently advisors) were working under difficult conditions and in many instances their instructions/advice had not been adhered to/followed. This is essentially correct but the consultants should have then made clear their inability to manage under the prevailing conditions.

Compliance with Legal Covenants

6.05 During implementation both SDC and KSC had to be reminded by most supervision missions (and during Country Implementation Reviews) of compliance with legal covenants. At the close of the Project there were three Project Agreement conditions which had been violated: PA 3.05(b), the training officer was never employed but a staff officer was trained under the Project (para. 3.44); PA 4.02, submission of audited accounts was always late; PA 2.04(b), without reference to the Bank a large number of items of agricultural equipment were diverted for use on KI estate, not part of the Project (para. 3.18). Clause 3.05 of the Development Credit Agreement whereby the ex-factory price of sugar should be adjusted to allow 9% return on the capital employed "taking one year with another" was never achieved. Although an amendment to the Subsidiary Loan Agreement (SLA 2.04) was agreed in principle by HQ on December 28, 1979, the final amendments were never submitted to the Bank for approval.

VII. Bank Performance

7.01 The Bank went into this Project with its eyes open having had the experience of the two previous investments by IFC in 1960 and 1964. The various issues were addressed during preparation, pre-appraisal and appraisal and the rationale for the Project made good sense. The estimated potential yields, however, proved in practice to be over-optimistic. It has now been learned from experience that a more cautious approach is required taking into account all the constraints if a project of this type is to be a success.

7.02 Physical implementation was satisfactory bearing in mind the complexity of the Project. Supervision by RMEA was regular, there was continuity of staff and the mix of disciplines of members was correct. MOA, SDC and KSC commented appreciatively on more than one occasion on the help and guidance received from missions. The missions concentrated initially on the KII Project and using hindsight it might have been beneficial if they had looked more closely at KI operations earlier than they did, when the downslide of KI yields and equipment might have been identified. In the same context it would have helped if an agriculturist/agronomist had been attached to some of the missions between 1975 and 1978. At the same time it must be borne in mind that KSC was managed and advised by a firm of international consultants having a reputation of sugar experience and had been connected with KSC for many years. One would have expected them to have brought the problems they were facing to the notice of supervision missions but there is no record of this having been done.

7.03 Bank staff were helpful in dealing with financial problems arising from the housing cost overruns at the beginning of the Project, assisting in getting GOT to reimburse KSC with funds, and funding some of the equipment in the National Sugar Institute. They also interceded on numerous occasions regarding ex-factory prices, although their success in this field was not very marked.

7.04 In the final stages it was Bank supervision-cum-preparation missions which identified and highlighted the problems facing KSC as a whole and guided SDC on how they should be tackled. Overall, Bank performance has been satisfactory.

VIII. Economic Re-Evaluation

8.01 The major quantifiable benefit of the Project has been increased sugar production which has substituted for imports and thereby helped improve Tanzania's balance of payments position. However, due to the various causes cited in earlier sections, actual KII production under the Project has fallen well short of the appraisal targets of 45,000 tons' sugar and 16,000 tons' molasses annually from 1979. The peak sugar output level reached by KII was in fact only 32,889 tons (in 1978/79), after which production fell off again. In the absence of further major rehabilitation investments, the best that can be hoped for over the next 10-12 years is that annual sugar production at KII can be held around the 25,000 ton level.

8.02 Largely as a result of the shortfall in sugar (and molasses) production, the economic rate of return (ERR) on project investments is now estimated at about 4% (Table 13). This is well below the likely opportunity cost of capital in Tanzania and compares unfavorably with the ERR figure of 12.9% anticipated at the time of appraisal. If sugar production had in fact increased at the rate projected in the appraisal report, the revised ERR would have been a more satisfactory 12%. The ERR could also be significantly higher if world sugar prices rise substantially above the levels projected for the rest of this decade, although this is unlikely.

8.03 The above ERR estimate takes account of all investment, operating and maintenance costs, including items such as research, training and the sugar sector survey whose benefits in the long run would accrue to the economy as a whole and not just to the Project. Costs and benefits have been computed at border prices in constant 1981/82 terms, and exclude all taxes, duties and subsidies. Since sugar production under the Project is being used entirely for import substitution, the economic analysis was based on import parity prices for sugar based on the World Bank's commodity price data and forecasts, with appropriate adjustments for ocean freight, handling and other charges (see footnote 6 in Appendix to Table 13). On the other hand, since molasses output (equal to roughly 3.5% of cane produced by weight) is largely exported, it has been valued on the basis of export parity prices.

8.04 In all calculations of economic costs and benefits, the foreign exchange component (direct and indirect) has been shadow-priced to reflect the economic cost of foreign exchange to Tanzania. Specifically, the shadow exchange rate has been taken as 10% above the official rate in 1973/74-1975/76, 50% above the official rate in 1976/77-1979/80, and 100% above the official rate thereafter (see footnote 2 in Appendix to Table 13). In view of the difficulties occasionally experienced by Kilombero in obtaining labor to work in the cane fields, the shadow wage rate has been taken as equal to the market wage.

IX. Conclusions

9.01 The objective of creating a plantation and constructing a factory with the associated infrastructure to achieve considerable savings in foreign exchange was sound when the Project was conceived in 1972/73. Although the implementation was carried out reasonably successfully, the economic situation in Tanzania deteriorated rapidly during the project period. The Project and KSC as a company suffered from poor ex-factory prices which prevented KSC from generating funds to replace the existing KI equipment and they therefore used KII project equipment on KI to get over their difficulties. There was not enough equipment to serve both KI and KII which resulted in the KII Project suffering and the KI problem not being really solved. The sudden deterioration of management exacerbated the situation, resulting in a rehabilitation project having to be considered for Kilombero.

9.02 Lessons to be learned from this Project are:

a) It should not be readily assumed that an ongoing company or parastatal (however well managed) can easily handle the substantial increase in workload and responsibilities involved in taking on a large new project in addition to its existing operations. The additional management responsibilities and staff needs should be carefully assessed and provided for in each such case, and the possibility of creating an ancillary unit or entity (part of, and reinforcing, the original organization) to assist in project implementation should also be considered.

b) Pricing policy and financial performance covenants can be critical to the success or failure of revenue-earning entitities, particularly when the internal generation of funds is an integral part of the overall financing plan for a project (mainly to cover maintenance and replacement needs). The enforcement of such covenants should therefore receive highest priority in the Bank's dialogue with the Government, both in the course of project supervision and as part of general agricultural sector policy discussions.

c) In all sugar projects it is necessary to realise at the outset the relatively high foreign exchange component in both operating and replacement costs. This is particularly the case when the objective is foreign exchange savings and the crop or product is not actually creating foreign exchange. Governments then have to made adequate provisions for foreign exchange allocations from their own resources.

d) In crops such as sugar and particularly in countries like Tanzania where so many operating difficulties abound, it is only prudent to be somewhat conservative in projections of benefits and implementation schedules, with appropriate allowance for likely delays and risks of non-performance in accordance with expectations. This does not indicate that a negative attitude should prevail but all possible constraints should be taken into account to arrive at realistic projections under the particular circumstances.

(e) Although turnkey contracts may initially appear to have a somewhat higher cost than separate contracts for equipment, shipping, installation, etc., they may later avoid costly delays in accrual of benefits and also ensure the provision of an important management element in the procurement process (particularly in situations where foreign technical assistance is otherwise a sensitive issue). Projects should, therefore, allow more scope for use of turnkey contracts, with proper evaluation of bids including the relatively greater risks and costs of delays in delivery and installation under separate contracts.

Table 1

KILOMBERO SUGAR PROJECT (Loan 1041-TA/Credit 513-TA)

APPRAISAL COST ESTIMATES

	Local (Tsh million)	Foreign (Tsh million)	Total (Tsh million)	Local (US$ million)	Foreign (US$ million)	Total (US$ million)	Proportion of Total (%) 1/	Foreign Exchange %
Part I								
Development Costs								
Land development, transport, and irrigation equipment	3.2	45.6	48.8	0.4	6.4	6.8	12	94
Other land development costs	11.0	6.7	17.7	1.5	1.0	2.5	4	38
Non-factory buildings and equipment	9.6	4.4	14.0	1.4	0.6	2.0	4	32
Water and electricity supplies	0.9	1.6	2.5	0.1	0.3	0.4	1	65
Community facilities	1.7	0.6	2.3	0.2	0.1	0.3	1	25
Access Railway and Road	1.7	2.7	4.4	0.2	0.4	0.6	1	60
Sub-total	28.1	61.6	89.7	3.8	8.8	12.6	23	69
Research and Training	3.1	3.0	6.1	0.5	0.4	0.9	1	49
Sugar Survey	0.5	1.6	2.1	0.1	0.2	0.3	1	73
Kilosa District Development Corp.	0.5	0.2	0.7	0.1	- 2/	0.1	- 3/	29
Total	32.2	66.4	98.6	4.5	9.4	13.9	25	67
Contingencies								
Physical	3.8	7.4	11.2	0.6	1.0	1.6	3 4/	66
Price	18.3	35.5	53.8	2.5	5.0	7.5	13 5/	66
Total Part I	54.3	109.3	163.6	7.6	15.4	23.0	41	67
Part II								
Factory (Turnkey contract including plant, machinery, freight insurance and local transport)	32.2	195.2	227.4	4.5	27.3	31.8	57	86
Factory supervision	-	6.9	6.9	-	1.0	1.0	2	100
Total Part II	32.2	202.1	234.3	4.5	28.3	32.8	59	83
Total Project Cost	86.5	311.4	397.9	12.1	43.7	55.8	100	78

1/ Including contingencies.
2/ Less than US$100,000.
3/ Less than 0.5%.
4/ 3% on total Project cost and 11% on Part I base cost.
5/ 16% on total Project cost and 54% on Part I base cost.

Table 2

TANZANIA

Kilombero Sugar Project (Loan 1041-TA/Credit 513-TA)

PROJECT COMPLETION REPORT

KII New Land Development Schedule
(ACRES)

	1973/74		1974/75		1975/76		1976/77		1977/78		1978/79		1979/80		1980/81	
	APPRAISAL	ACTUAL	APPRAISAL	ACTUAL	APPRAISAL	ACTUAL	APPRAISAL	ACTUAL	APPRAISAL	ACTUAL	APPRAISAL	ACTUAL	APPRAISAL	ACTUAL	APPRAISAL	ACTUAL
Irrigated Estate																
Nursery	-	225	620	206	700	360	340	380	240	245	240	374	240	461	-	-
Plant Cane	-	-	780	2,334	2,000	2,306	360	2,342	460	393	460	350	460	1,116	-	-
Cutting II	-	-	-	216	100	1,123	2,700	997	700	2,846	700	309	700	262	-	-
Cutting III	-	-	-	-	-	216	100	150	2,100	968	700	2,190	700	45	-	-
Cutting IV	-	-	-	-	-	-	-	-	-	150	1,400	894	700	1,362	-	-
Cutting V	-	-	-	-	-	-	-	-	-	-	-	-	700	436	-	-
Uprooted	-	-	-	-	-	-	700	638	700	724	700	1,577	-	-	-	-
Rainfed Estate																
Plant Cane	-	-	760	-	220	1,092	760	1,395	760	2,368	760	588	760	288	760	649
Cutting II	-	-	-	-	2,060	-	220	-	760	1,224	760	2,593	760	939	760	196
Cutting III	-	-	-	-	-	-	2,060	-	220	-	760	860	760	2,397	760	936
Cutting IV	-	-	-	-	-	-	-	-	2,060	-	220	-	760	806	760	1,883
Cutting V	-	-	-	-	-	-	-	-	-	-	1,300	-	220	48	760	601
Cutting VI	-	-	-	-	-	-	-	-	-	-	-	-	540	-	-	-
Uprooted	-	-	-	-	-	-	-	-	760	588	760	288	760	649	-	-
Rainfed, New Outgrowers																
Plant Cane	-	-	-	-	960	320	960	694	480	858	480	774	480	1,529	480	20
Cutting II	-	-	-	-	-	-	960	-	960	-	480	165	480	162	480	50
Cutting III	-	-	-	-	-	-	-	-	960	-	960	16	480	98	480	105
Cutting IV	-	-	-	-	-	-	-	-	-	-	480	10	960	12	480	74
Cutting V	-	-	-	-	-	-	-	-	-	-	-	-	-	6	480	38
Uprooted	-	-	-	-	-	-	-	-	480	-	480	-	480	-	480	-

Note: Number of cuttings and areas do not correspond with those in preceding or following years because of deferred cane caused by delayed factory commissioning in 1976 and bad weather in 1977.

TANZANIA

Kilombero Sugar Project (Loan 1041-TA/Credit 513-TA)

PROJECT COMPLETION REPORT

KII Cane Production Schedule (at average yields) M TONS

Table 3

	1975/1976		1976/1977		1977/1978		1978/1979		1979/1980		1980/1981		1981/1982	
	APPRAISAL	ACTUAL	APPRAISAL	ACTUAL	APPRAISAL	ACTUAL	APPRAISAL	ACTUAL	APPRAISAL	ACTUAL	APPRAISAL	ACTUAL	APPRAISAL	ACTUAL
rigated Estate														
ant Cane	46,800	42,795	120,000	132,068	21,600	2,303	27,600	4,549	27,600	25,876	27,600	13,553	-	20,321
itting II	-	-	5,000	33,059	135,000	66,447	35,000	10,892	35,000	5,510	35,000	30,101	-	33,591
itting III	-	-	-	3,809	4,500	23,023	94,500	59,237	31,500	602	31,500	7,296	-	35,149
itting IV	-	-	-	-	-	3,717	-	2,510	56,000	38,757	28,000	624	-	9,429
itting V	-	-	-	-	-	-	-	-	-	12,874	21,000	28,649	-	1,181
itting VI	-	-	-	-	-	-	-	-	-	-	-	-	-	15,850
TAL	46,800	42,795	125,000	168,936	161,100	95,490	157,100	77,188	150,100	83,619	143,100	80,223	143,100	115,521
infed Estate														
ant Cane	30,400	-	8,800	36,365	30,400	72,865	30,400	33,004	30,400	5,235	30,400	4,989	-	24,305
tting II	-	-	90,640	-	9,680	27,920	33,340	71,118	33,440	31,979	33,440	4,529	-	4,377
tting III	-	-	-	-	76,220	-	8,140	21,368	28,120	57,044	28,120	23,393	-	3,478
tting IV	-	-	-	-	-	-	65,920	-	7,040	19,090	24,320	45,543	-	13,983
tting V	-	-	-	-	-	-	-	-	35,100	1,331	5,940	12,330	-	35,760
tting VI	-	-	-	-	-	-	-	-	-	-	11,880	-	-	13,946
TAL	30,400	-	99,440	36,365	116,300	100,785	137,800	125,490	134,100	114,679	134,100	90,784	134,100	95,849
infed, New Outgrowers														
ant Cane	-	-	31,680	-	31,680	-	15,840	21,219	15,840	6,310	15,840	2,025	15,840	-
tting II	-	-	-	-	33,600	-	33,600	11,442	16,800	16,085	16,800	4,898	16,800	1,811
tting III	-	-	-	-	-	-	28,800	1,504	28,800	9,596	14,400	10,278	14,400	3,952
tting IV	-	-	-	-	-	-	-	889	12,960	1,166	25,920	7,241	12,960	6,914
tting V	-	-	-	-	-		-	-	544	-	-	3,731	12,000	10,041
TAL	-	-	31,680	-	65,280	-	78,240	35,054	74,400	33,701	72,960	28,173	72,000	22,718
isting Outgrowers	66,000	-	66,000	-	66,000	-	66,000	73,069	66,000	72,512	66,000	83,373	66,000	74,144
TAL CANE	143,200	42,795	322,120	205,301	408,680	196,275	439,140	310,801	424,600	304,511	416,160	282,553	415,200	310,232
gar Production t 10.5%)	15,000	-	33,800	11,612	42,900	23,105	46,100	32,889	44,600	26,620	43,700	28,566	43,680	30,000

KILOMBERO SUGAR PROJECT (LOAN 1041-TA/CREDIT 513-TA)

PROJECT COMPLETION REPORT

OUTGROWERS DEVELOPMENT SCHEDULE
(IN ACRES)

YEAR	UJAMAA VILLAGES								KILOSA DISTRICT DEVELOPMENT CORPORATION								EXISTING OUTGROWERS		OUTGROWERS TOTAL	
	NEW PLANT CANE		RE-PLANTED CANE		RATOON CANE		TOTAL		NEW PLANTED CANE		RE-PLANTED CANE		RATOON CANE		TOTAL					
	ACT	APR	ACT	APR	ACT	APR	ACT	APR	ACT	APR	ACT	APR	ACT	APR	ACT	APR	ACT	APR	ACT	APR
1975/76	240	336	-	-	-	-	240	336	80	624	-	-	-	-	80	624	2,200	2,200	2,520	3,160
1976/77	194	336	60	-	247	336	501	672	500	624	-	-	250	624	750	1,248	2,776	2,200	4,027	4,120
1977/78	858	168	-	-	440	672	1,298	840	-	312	-	-	750	1,248	750	1,560	3,108	2,200	5,156	4,600
1978/79	500	-	-	168	779	672	1,279	840	274	-	-	312	614	1,248	888	1,560	3,221	2,200	5,388	4,600
1979/80	1,261	-	-	168	976	672	2,237	840	268			-312	876	1,248	1,144	1,560	3,221	2,200	6,602	4,600
1980/81	-	-	-	168	1,391	672	1,391	840	-	-	-	312	1,136	1,248	1,136	1,560	3,942	2,200	6,469	4,600
1981/82	-	-	-	168	1,430	672	1,430	840	-	-	-	312	1,143	1,248	1,150	1,560	3,932	2,200	6,512	4,600
1982/83	-	-	-	168	990	672	990	840	-	-	-	312	824	1,248	824	1,560	4,404	2,200	6,218	4,600
1983/84	-	-	18	168	620	672	638	840	-	-	-	312	637	1,248	637	1,560	3,971	2,200	5,246	4,600

ACT - ACTUAL

APR - APPRAISAL

Table 5

TANZANIA

KILOMBERO SUGAR PROJECT (LOAN 1041-TA/CREDIT 513-TA)

PROJECT COMPLETION REPORT

Summary of Yearly Laboratory Reports 1974/75 - 1979/80

Name of Factory (Ruembe) Kilombero - KII

Year	1976/77	1977/78	1978/79	1979/80	1980/81
Start of season	10/9/76	14/7/77	1/6/78	1/6/79	1/6/80
End of season	14/3/77	14/2/78	29/11/78	18/11/79	10/12/80
Season days	175	174	182	173	192
Cane Crushed	153,974.67	257,748.39	323,241.65	301,981.93	302,760.70
Sugar produced	11,612.2	23,105.3	32,889.70	26,620.3	28,566.0
Yield	7.54	8.96	10.17	8.81	9.44
Cane Sugar ratio	13.26	11.16	9.83	11.34	10.60
Pol % cane	12.31	12.04	12.91	11.64	12.56
Fibre % cane	15.19	13.22	15.65	16.24	15.26
Mill extraction	92.72	95.54	95.62	94.49	94.61
Reduced extraction	94.19	95.82	96.62	95.96	95.72
Boiling house recov.	65.98	77.46	89.27	80.07	78.79
Boiling house effic.	79.31	93.86	95.06	92.27	90.75
Overll recovery	61.18	74.01	78.44	75.35	74.54
Total losses	51.79	25.99	21.56	24.64	25.46
Losses in bagasse	7.70	4.45	4.38	5.50	5.39
Losses in molasses	33.37	15.37	13.45	10.99	12.19
Losses in filtercake	1.39	1.26	1.27	1.97	2.15
Undetermined loss	9.33	4.91	2.46	6.19	5.73
Season hours (S.H.)	4,169.00	5,157.00	4,337.25	4,141.0	4,602.5
Milling hours % S.H.	46.50	54.58	76.06	77.63	71.37
Total stops % S.H.	54.24	45.95	22.07	22.37	28.63
Cane shortage % S.H.	23.12	31.95	6.84	10.59	15.06
Technical stops % S.H.	28.03	9.84	14.91	10.43	13.53
Non-tech. stops % S.H.	3.08	4.16	9.26	1.35	15.06
Tons Cane/S.H.	36.93	49.98	74.53	72.92	65.78
Cane/Mill day (G.C.)	1,906.16	2,198.28	2,352	2,254.65	2,212.23
Sugar/S.H. (tons)	2.78	4.48	7.58	6.43	6.21
Sugar/Milling day	143.75	197.03	239.29	198.75	208.73

Table 6

TANZANIA

KILOMBERO SUGAR PROJECT (LOAN 1041-TA/CREDIT 513-TA)

PROJECT COMPLETION REPORT

Tractor Capacities

(Land Clearing and Preparation, Planting and Cropping)

OPERATION	TRACTOR 1/ ACTUAL	TRACTOR 1/ APPRAISAL	WORK RATE ACRES/HR ACTUAL	WORK RATE ACRES/HR APPRAISAL	CANE TYPE 2/
(a) Clearing, Preparation and Planting					
Treedozing	C 200	C 180	0.33	1.00	
Clearing and piling	C 200	C 180	0.40	0.34	
Ripping	C 200	C 180	0.40	0.92	
Levelling	C 75	C 75	1.00	0.42	
TRCH Harrowing	C 200	C 180	1.43	1.00	
Harrowing	C 100	C 105	2.00	2.00	
Furrowing	W 90 H.C.	C 105	2.00	2.00	
Planting	W 75	W 75	0.67	1.00	
(b) Subsequent Operations					
Trashraking	W 75	W 65	1.00	2.27	(R)
Chiselling	W 75	W 47	1.25	1.43	(F, R, P)
Fertilizing	W 75	W 65	1.25	1.43	(F, R. P)
Ratoon Reshaping	W 90 H.C.	W 75 H.C.	1.43	1.89	(R)
Herbicide Spraying	W 75	W 65 H.C.	2.86	2.86	(F, R, P)
Uphilling	W 90 H.C.	W 65 H.C.	1.43	1.54	(F, P)
Stubble Ploughing	W 75	W 65	0.95	0.70	(P)
Deep Ploughing	W 75	W 92	0.31	0.55	(P)
Planting	C 100	C 105	0.70	1.22	(P)
TRCH Harrowing	C 200	C 180	0.71	1.10	(P)
Harrowing	C 100	C 105	2.00	1.90	(P)
Furrowing	W 90 H.C.	C 105	2.00	2.00	(P)

1/ C = Crawler, W = Wheeled, HC = High Clearance. Figures are HP.

APPRAISAL	ACTUAL	
C 75 - Caterpillar D4	C 75	Caterpillar D4
C 105 - Caterpillar D5	C 100	Caterpillar D5
C 180 - Caterpillar D7	C 200	Caterpillar D7
W 47 - Massey Ferguson 135	W 40-45	MF 135 & IH 444
W 65 - Massey Ferguson 165	W 70-75	IH 574 & IH 684
W 75 - Massey Ferguson 185		IH 744 & IH 745-5
W 92 - Massey Ferguson 1080	W 90-100	IH 666 & IH 966 HC

2/ F = First Planting R = Ratoon P = Replanting

KILOMBERO SUGAR PROJECT (LOAN 1041-TA/CREDIT 513-TA)

PROJECT COMPLETION REPORT

ESTATE CROPPING OPERATIONS TRACTOR HOURS

	APR	ACT	1974/75 APR	1974/75 ACT	1975/76 APR	1975/76 ACT	1976/77 APR	1976/77 ACT	1977/78 APR	1977/78 ACT	1978/79 APR	1978/79 ACT	TOTAL APR	TOTAL ACT
First Planting After Clearing														
	Hrs/Acre													
Acres			2,160	2,540	3,880	2,666	2,420	2,722	1,240				9,700	7,928 1/
Planting	1.00	1.50	2,160	3,810	3,880	3,999	2,420	4,083	1,240					
Fertilizing	0.70	0.80	1,512	2,032	2,716	2,133	1,694	2,178	868					
Herbicide Spraying	0.35	0.35	756	889	1,358	933	847	953	434					
Chiselling	0.70	0.80	1,512	2,032	2,716	2,133	1,694	2,178	868					
Uphilling	0.65	0.70	1,404	1,778	2,522	1,866	1,573	1,905	806					
Estate Cuttings II-V														
Acres				216	2,160	1,339	5,080	1,147	5,840	3,964	5,840		3,680	
Trashraking	0.44	1.00		216	950	1,339	2,235	1,147	2,570	3,964				
Chiselling	0.70	0.80		173	1,512	1,071	3,556	918	4,088	3,171				
Fertilizing	0.70	0.80		173	1,512	1,071	3,556	918	4,088	3,171				
Ratoon Reshaping	0.53	0.70		151	1,145	937	2,692	803	3,095	2,775				
Herbicide Spraying	0.35	0.35		76	756	469	1,778	401	2,044	1,387				
Replanting Estate & Outgrowers														
Acres								60	700 3/	638	2,380 4/	767		
Stubble ploughing	1.40	1.05						63	980	670	3,332	805		
Deep ploughing	1.80	3.20						192	1,260	2,042	4,284	2,454		
Planing	0.80	0.70						42	560	447	1,904	537		
TRCH Harrowing	0.92	1.40						84	644	893	2,190	1,074		
Harrowing (2x)	0.53	0.50						30	371	319	1,261	384		
Furrowing	0.50	0.50						30	350	319	1,190	384		
Planting	1.00	1.50						90	700	957	2,380	1,151		

Estate Only						
Fertilizing	0.70	0.80	490	510	1,666	614
Herbicide Spraying	0.35	0.35	245	223	833	268
Chiselling	0.70	0.80	490	510	1,666	614
Uphilling	0.65	0.70	455	447	1,547	537

1/ Including nurseries, excluding old outgrowers.
2/ Outgrowers ratoon will be maintained by themselves.
3/ Estate's CI and nurseries (460 + 240) acres.
4/ Including old and new outgrowers land to guarantee a good crop (920 acres).

APR - APPRAISAL
ACT - ACTUAL

KILOMBERO SUGAR PROJECT (LOAN 1041-TA/CREDIT 513-TA)

PROJECT COMPLETION REPORT

ESTATE CROPPING OPERATIONS TRACTOR HOURS

ESTATE CROPPING OPERATIONS COSTS IN TSHS

	Tractor		TShs Cost Hour		1974/75		1975/76		1976/77		1977/78		1978/79	
					APR	ACT	APR	ACT	APR	ACT	APR	ACT	APR	ACT
First Planting Acres					2,160	2,540	3,880	2,666	2,420	2,722	1,240			
Operations	APR	ACT	APR	ACT										
Planting	W 75	W 75	24	52	51,840	132,080	93,120	138,632	58,080	141,344	29,760			
Fertilizing	W 65	W 75	18	52	38,880	132,080	69,840	138,632	43,560	141,544	22,320			
Herbicide Spraying	W 65 - HC	W 75	24	52	51,840	132,080	93,120	138,632	58,080	141,544	29,760			
Chiselling	W 47	W 75	11	52	23,760	132,080	42,680	138,632	26,620	141,544	13,640			
Uphilling	W 65 - HC	W 90	28	60	60,480	152,400	108,640	159,960	67,760	163,320	34,720			
Total TShs/Acre					226,800	680,720	407,400	714,488	254,100	729,496	130,200			
					105	268	105	268	105	268	105			
Estate Cuttings II-V Acres						216	2,160	1,339	5,080	1,147	5,840	3,964	5,840	
Trashraking	W 65	W 75	18	52		11,232	38,880	69,628	91,440	59,644	105,120	206,128		
Chiselling	W 47	W 75	11	52		11,232	23,760	69,628	55,880	59,644	64,240	206,128		
Fertilizing	W 65	W 75	18	52		11,232	38,880	69,628	91,440	59,644	105,120	206,128		
Ratoon Reshaping	W 75 - HC	W 75	32	52		11,232	69,120	69,628	162,560	59,644	186,880	206,128		
Herbicide Spraying	W 65 - HC	W 90 - HC	24	60		12,260	51,840	80,340	121,920	68,820	140,160	237,840		
Total TShs/Acre						57,888	222,480	358,852	523,240	307,396	601,520	1,062,342		
						268	103	268	103	268	103	268		

Replanting Estate & Outgrowers, Acres					60	700	638	2,380	767
Stubble Ploughing	W 65	W 75	23	52	3,120	16,000	33,176	54,740	39,884
Deep Ploughing	W 92	W 75	107	52	3,120	74,900	33,176	254,660	39,884
Planing	C 105	C 100	100	191	11,460	70,000	121,858	238,000	146,497
TRCH Harrowing	C 180	C 200	162	230	13,800	113,400	146,740	385,560	176,410
Harrowing	C 105	C 100	100	191	11,460	70,000	121,858	240,380	146,497
Furrowing	C 105	C 100	113	191	11,460	79,100	121,858	268,940	146,497
Planting	W 75	W 75	24	52	3,120	16,800	33,176	57,120	39,884
Estate Only									
Fertilizing	W 65	W 75	18	52		12,600	33,176	42,820	39,884
Herbicide Spraying	W 65 -HC	W 75	24	52		16,800	33,176	57,120	39,884
Chiselling	W 47	W 90 - HC	11	60		7,700	38,280	26,180	46,020
Uphilling	W 65 -HC	W 75	28	52		19,600	33,176	66,640	39,884
Total TShs/Acre					57,540	497,600	749,650	1,692,650	901,225
					959	711	1,175	711	1,175

Note: 1/ Operation Costs includes implement.
2/ Outgrowers replanted cane is 60 acres of 1976/77.

APR - APPRAISAL
ACT - ACTUAL

KILOMBERO SUGAR PROJECT (LOAN 1041-TA/CREDIT 513-TA)

PROJECT COMPLETION REPORT

PRICE STRUCTURE OF SUGAR FROM FACTORY TO CONSUMER
TSh/ton except last line which is TSh/Kg

Details	Price as on 15/6/72	Price as on 31/10/74	Price as on 1/11/74	Price as on 4/3/75	Price as on 1/12/75	Price as on 15/12/75	Price as on 16/8/76	Price as on 17/6/79	Price as on 22/6/79	Price as on 11/8/80	Price as on 10/7/81	Price as on 1/1/83
Ex-Factory Price	904.85	1,700.00	1,390.00	1,390.00	1,390.00	1,850.00	2,200.00	2,500.00	2,730.00	3,410.00	4,750.00	4,750.00
Excise Duty	462.90	413.00	413.00	413.00	413.00	413.00	413.00	413.00	-	-	-	-
Handling Charges	3.50	60.00	60.00	60.00	60.00	-	-	-	-	-	-	-
Sales Tax	-	300.00	300.00	300.00	300.00	300.00	1,188.00	938.00	1,851.00	1,850.00	1,850.00	2,850.00
Reserve Fund	100.00	230.00	572.00	362.00	362.00	362.00	312.00	262.00	300.00	600.00	600.00	600.00
Development Fund	300.00	-	-	-	-	-	-	-	-	-	-	-
Special Revenue Account	-	-	2,800.00	2,800.00	1,800.00	1,300.00	-	-	-	-	-	-
Marketing Charges	98.00	102.00	115.00	115.00	115.00	215.00	327.00	317.00	445.00	665.00	(620.00)	(620.00)
SDC Profit Margin	-	-	-	-	-	-	-	-	40.00	45.00	55.00	55.00
NMC	-	-	-	-	-	-	-	-	-	1,000.00	1,000.00	1,000.00
Wholesaler Purchasing Price	1,869.25	2,805.00	5,650.00	5,440.00	4,440.00	4,440.00	4,440.00	4,430.00	5,366.00	7,570.00	9,000.00	10,000.00
Wholesaler Profit Margin	48.75	65.00	100.00	190.00	190.00	190.00	190.00	190.00	200.00	350.00	360.00	360.00
Retailer Purchasing Price	1,918.00	2,870.00	5,750.00	5,650.00	4,630.00	4,630.00	4,630.00	4,620.00	5,566.00	7,920.00	9,360.00	10,360.00
Retailer Profit Margin	82.00	123.00	250.00	370.00	370.00	370.00	370.00	380.00	434.00	580.00	640.00	640.00
Consumer Price per ton	2,000.00	2,993.00	6,000.00	6,000.00	5,000.00	5,000.00	5,000.00	5,000.00	6,000.00	8,500.00	10,000.00	11,000.00
Consumer Pricer per kilo	2.00	3.00	6.00	6.00	5.00	5.00	5.00	5.00	6.00	8.50	10.00	11.00

CANE PRICES PAID TO OUTGROWERS
TSh per tonne based on 10.5% rendement

Year July/June	1972/73	1974/75	1975/76	1976/77	1977/78 1978/79	1979/80	1980/81	1981/82	1982/83
TSh/tonne	42.50	52.50	71.50	92.45	95.00	100.00	105.00	138.00	170.00

Note: For 1983/84 Cane Price TSh 238/- per tonne.

Table 9

TANZANIA

Kilombero Sugar Project (Loan 1041-TA/Credit 513-TA)

PROJECT COMPLETION REPORT

Profit and Loss Account for the Fiscal Years 1973-1980
(TShs '000)

Description	1973	1974	1975	1976	1977	1978	1979	1980	1981
Sales Value of Sugar	48,620	58,658	101,472	113,270	167,133	167,428	263,954	203,571	220,515
Less: Excise Duty and Sales Tax	16,455	18,086	56,163	59,211	71,963	58,037	89,400	65,710	67,192
Net Sales	32,165	40,599	45,309	54,059	95,170	109,391	174,554	137,861	153,323
Increase/Decrease in Value of Stocks	-	-	-	-	-	23,526	(20,776)	11,111	(10,283)
Production Value	32,165	40,599	45,309	54,059	95,170	132,917	153,778	148,972	143,040
Cost of Production	27,559	30,500	37,116	51,660	90,949	116,264	116,850	126,126	114,131
Gross Profit	4,606	10,099	8,193	2,399	4,221	16,653	36,928	22,845	28,909
Administrative Expenses	6,108	7,186	8,837	11,108	17,076	17,767	27,046	32,286	35,630
Gross Profit before Interest Charges	(1,502)	2,913	(644)	(8,709)	(12,855)	1,1114)	9,882	(9,441)	(6,721)
Interest	-	-	238	1,289	9,301	12,457	12,743	13,928	12,370
Operating Income/Losses	(1,502)	2,913	(882)	(9,998)	(22,156)	(13,571)	(2,861)	(23,369)	(19,091)
Other Income	826	1,152	1,320	4,004	4,823	3,565	7,448	10,218	16,222
Other Expenses	(719)	(738)	(1,108)	(1,841)	(1,234)	(2,268)	(1,347)	(2,986)	(1,965)
Profit and Loss before Taxation	(1,385)	3,327	(670)	(7,835)	(18,567)	(12,274)	3,240	(16,137)	(4,834)
Adjustments relating to Previous Years						7,612	(3,092)	(2,525)	11,588
Net Profit/Loss	(1,395)	3,327	(670)	(7,835)	(18,567)	4,662)	148	(18,662)	6,754
Balance/Loss Brought Forward	3,337	1,942	5,269	4,599	(3,236)	21,803)	(26,465)	26,317)	(44,978)
Balance carried to Balance Sheet	1,942	5,269	4,599	(3,236)	(21,803)	(26,465)	(26,317)	44,978)	(38,225)
Depreciation Provision (incl. above)	749	4,749	4,750	5,160	16,348	24,505	27,797	29,007	28,676

TANZANIA
Kilombero Sugar Project (Loan 1041-TA) Credit 513-TA)
PROJECT COMPLETION REPORT
Project Costs

Item	1973/74	1974/75	1975/76	1976/77	1977/78	1978/79	1979/80	1980/81	TOTAL
				(TSh)					
Part I									
Land Development, Bridges, Roads	2,307,388	7,757,068	10,705,946	7,832,919	899,267	1,894,170	-	-	31,396,758
Irrigation and Drainage	-	-	-	3,866,460	34,905,139	-	-	7,298,563	46,070,162
Tractor and Transport	696,359	4,519,281	14,332,513	17,465,278	389,430	7,031,727	6,349,126	1,023,216	51,806,930
Housing and Facilities	164,722	561,114	14,831,891	57,628,703	2,731,373	-	-	-	75,917,803
Furniture, Equipment, Electricity, Water Supply	81,008	323,836	1,826,313	5,901,552	781,057	472,055	-	-	9,385,821
Research, Training and Development	-	-	-	1,275,433	110,403	983,995	869,148	528,204	3,767,183
Subtotal	3,249,477	13,161,299	41,696,663	93,970,345	39,816,669	10,381,947	7,218,274	8,849,983	218,344,657
Part II									
Factory and Supervision	-	-	-	266,815,588	-	-	-	-	266,815,588
Factory spares	-	-	-	12,580,476	-	-	-	-	12,580,476
Subtotal	-	-	-	279,396,064	-	-	-	-	279,396,064
Sugar Survey	-	-	7,200,000	-	-	-	-	-	7,200,000
TOTAL PROJECT COSTS	3,249,477	13,161,299	48,896,663	373,366,409	39,816,669	10,381,947	7,218,274	8,849,983	504,940,721

TANZANIA

Kilombero Sugar Project - Loan 1041-TA/Credit 513-TA

PROJECT COMPLETION REPORT

Sugar Production and Financial Results

	73/74	74/75	75/76	76/77	77/78	78/79	79/80	80/81	81/82
Sugar Produced - K I (tons)	39,072	35,276	34,290	34,918	20,711	33,069	25,328	19,504	20,094
Sugar Produced - KII (tons)	-	-	-	11,612	23,105	32,889	26,620	28,566	30,000
Total Production (tons)	39,072	35,276	34,290	46,530	43,816	65,958	51,940	48,070	50,094
Appraisal Total (tons)	44,000	45,000	45,000	79,000	78,000	88,000	89,000	89,000	89,000
KSC Operating Income/Loss (TShs m)	2,913	(.382)	(9,998)	(22,156)	(13,571)	(2,861)	(23,369)	19,091)	30,666
KSC Profit/Loss BF (TShs m)	1,942	5,269	4,599	(3,236)	(21,803)	(26,465)	(26,317)	(44,978)	(38,225)
KSC Balance (TShs m)	5,269	4,599	(3,236)	(21,803)	(26,465)	(26, 317)	(44,978)	(38,225)	(0,682
Ex-Factory Price/Ton (TShs)	904.85	1,390	1,850	2,200	2,200	2,730	2,730	3,410	4,750
Excise Duty, Sales Tax, Reserve/ Development Fund Special Revenue Account (TShs/ton)	862.90	4,085	2,875	1,913	1,913	2,151	2,151	2,450	2,450
Subsidy to NMC	-	-	- -	-	-	-	-	1,000	1,000
Consumer Price (TShs/ton)	2,000	6,000	5,100	5,000	5,000	5,000	6,000	8,500	10,000
Duty and Taxes Paid by KSC (TShs m)	18,085	56,163	59,211	71,963	58,037	89,400	65,710	67,192	83,994

TANZANIA
Kilombero Sugar Project (Loan 1041-TA/Credit 513-TA)
Economic Analysis

Item	1973/74	1974/75	1975/76	1976/77	1977/78	1978/79	1979/80	1980/81	1981/82	1982/83	1983/84	1984/85-1992/93
	(TSh'million)											
COSTS												
Capital Costs												
-financial values, current prices 1/	3.25	13.16	48.90	373.37	39.82	10.38	7.22	8.85	-	-	-	-
-economic values, current prices 2/	3.69	15.02	55.00	475.88	49.31	12.78	8.94	14.50	-	-	-	-
-economic values, constant prices 3/	9.89	35.30	112.20	796.71	75.44	18.15	11.35	16.09	-	-	-	-
Operating and Maintenance Costs												
-financial values, constant prices 4/	-	4.76	7.82	39.78	74.65	103.73	81.14	82.41	100.41	109.37	169.18	137.68
-economic values, constant prices 5/	-	5.28	8.68	46.94	88.09	122.40	95.75	123.62	150.62	164.06	253.77	206.52
Total Economic Cost	9.89	40.58	120.88	843.65	163.53	140.55	107.10	139.71	150.62	164.06	253.77	206.52
BENEFITS												
Revenue from Sugar Sales (constant economic prices) 6/	-	-	-	55.45	95.05	147.18	249.56	240.18	198.51	224.97	387.32	315.20
Revenue from Molasses Sales												
-economic values, current prices 7/	-	-	-	1.96	1.87	4.59	5.55	7.57	3.90	1.88	2.28	1.53
-economic values, constant prices 8/	-	-	-	3.41	2.86	6.52	7.05	8.40	3.90	1.69	1.82	1.00
Total Economic Benefit	-	-	-	58.86	97.91	153.70	256.61	248.58	202.41	226.66	389.14	316.20
Net Economic Benefit (Cost)	(9.89)	(40.58)	(120.88)	(784.79)	(65.62)	13.15	149.51	108.87	51.79	62.60	135.37	109.68

ERR = 4.3%

See Appendix on next page for footnotes.

Appendix to Table 13
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Footnotes (Economic Analysis Assumptions)

1/ Actual cost figures from Table 11.

2/ Taxes at an average rate of 15% of total costs have been taken out. Foreign exchange component was taken as 80% of all capital costs except: (i) land development, bridges and roads (70%); (ii) housing and facilities (50%); and (iii) research, training and development (60%). Average official rates of exchange were taken as follows:

1973/75	:	US $ 1 = TSh. 7.14
1975/76	:	US $ 1 = TSh. 7.76
1976/77	:	US $ 1 = TSh. 8.33
1977/78	:	US $ 1 = TSh. 8.28
1978/79	:	US $ 1 = TSh. 8.40
1979/80	:	US $ 1 = TSh. 8.34
1980/81	:	US $ 1 = TSh. 8.21
1981/82	:	US $ 1 = TSh. 8.80
1972/83	:	US $ 1 = TSh.10.75
1983/84 onwards	:	US $ 1 = TSh.12.20

The shadow exchange rate is taken as 40% above the official rate in 1973/74-75/76, 50% above the official rate in 1976/77-79/80, and 100% above the official rate thereafter.

3/ All prices were expressed in constant 1981/82 prices. The following factors (derived from the GDP deflator) were used to convert current values in earlier and later years to constant 1981/82 prices:

1973/74	:	2.68
1974/75	:	2.35
1975/76	:	2.04
1976/77	:	1.74
1977/78	:	1.53
1978/79	:	1.42
1979/80	:	1.27
1980/81	:	1.11
1982/83	:	0.90
1983/84	:	0.80

4/ Since no breakdown was available for operating expenses at Msolwa (KI) and Ruembe (KII) separately for each year, cost figures per ton of sugar produced in 1981/82 were taken as standard (adjusted for different cane prices and exchange rates in each year). This gave the following costs per ton of sugar produced (in constant 1981/82 prices, and excluding

Appendix to Table 13
Page 2 of 3

interest and depreciation):

1976/77	:	TSh 3,426/ton
1977/78	:	TSh 3,231/ton
1978/79	:	TSh 3,154/ton
1979/80	:	TSh 3,048/ton
1980/81	:	TSh 2,885/ton
1981/82	:	TSh 3,347/ton
1982/83	:	TSh 4,307/ton
1983/84 onwards	:	TSh 5,507/ton

(The above figures are assumed to include normal maintenance and minor equipment replacements. However, they do not include expatriate technical assistance funded through bilateral grants, on which no cost information is available from Kilombero's accounts).

5/ Average exchange rates and tax rate were taken as in footnote 2 above. Shadow price of labor was taken as equal to the market wage rate. The average foreign exchange component of operating/maintenance costs was taken as 60%.

6/ Sugar production figures for 1976/77 - 1981/82 were taken from Table 12; subsequent figures used were 25,394 tons in 1982/83, 30,720 tons in 1983/84, and 25,000 tons/year thereafter. Import parity prices in constant 1982 prices were derived as follows:

	1976/77	1977/781	1978/79	1979/80	1980/81	1981/82	1982/83	1983/84 (onwards)
Raw sugar (FOB Carribbean ports)	$ 260	$ 210	$ 233	$ 628	$ 385	$ 247	$ 280	$ 383
Processing	42	42	42	42	42	42	42	42
Conversion	23	23	23	23	23	23	23	23
Subtotal	$ 325	$ 275	$ 298	$ 693	$ 450	$ 312	$ 345	$ 448
Bagging	10	10	10	10	10	10	10	10
Marine Freight & Insur.	60	60	60	60	60	60	60	60
Finance & Documentation	9	9	9	9	9	9	9	9
Handling losses	2	2	2	2	2	2	2	2
Total at DAR	$ 406	$ 356	$ 379	$ 774	$ 531	$ 393	$ 426	$ 529
Shadow exchange rate (TSh/US$)	12.5	12.4	12.6	12.5	16.4	17.6	21.5	24.4
Total at DAR	TSh 5,075	4,414	4,775	9,675	8,708	6,917	9,159	12,908
Port handling, clearing, etc.	200	200	200	200	200	200	200	200
Total cif DAR	TSh 5,275	4,614	4,975	9,875	8,908	7,117	9,359	13,108
less railage from KII to DAR	(500)	(500)	(500)	(500)	(500)	(500)	(500)	(500)
Import parity price ex factory	TSh 4,775	4,114	4,475	9,375	8,408	6,617	8,859	12,608

.3/.

7/ Molasses production was taken as 3.5% of total cane crushed (Table 5) on average. Export parity prices were taken as follows (based on actual prices obtained in the first five years and projections thereafter): 1976/77 : TSh 363/ton; 1977/78 : TSh 207/ton; 1978/79 : TSh 406/ton; 1979/80 : TSh 525/ton; 1980/81 : TSh 714/ton; 1981/82 : TSh 350/ton; 1982/83-83/84 : TSh 200/ton; 1984/85 onwards : TSh 165/ton.

8/ Derived from above by applying inflation factors from footnote 3.

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