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NEEDS ASSESSMENT FOR PRODUCTION OF AGRICULTURAL IMPLEMENTS AND SPARE PARTS IN UGANDA*

Mission report

* This document has not been edited.

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PREFACE

The Government of Uganda requested UNIDO to field a mission of experts to carry out a needs assessment for efficient production of agricultural implements and spare parts for industrial machinery in the country.

A team comprising of a staff member of the System of Consultations Division and Mr. Harish Chander Gandhi (UNIDO Consultant) visited Uganda under the IDDA STAS programme in October 1991 to carry out this assignment. During the mission, the team was received by senior Government officials including the Minister for Industry and Technology, Hon. J.F. Wapakhabulo, the Permanent Secretary Ministry of Industry and Technology Ms. T. Kinalwa and the Permanent Secretary Ministry of Education Mr. Tom Ogwal.

The team had extensive discussions with industrialists involved in production of agricultural implements and spare parts, as well as, a number of major users. Interviews were also conducted with officials of the Ministry of Planning and Economic Development, Ministry of Minerals and Water Development and various training institutions.

The team is indebted to the Government of Uganda for all the arrangements made to facilitate the carrying out of this assignment. In particular the team wishes to thank Mr. Martin Onyach-Olaa for accompanying the mission in all interviews and his devotion and efficiency in handling all the administrative arrangements.

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List of Abbreviations

CAD	Computer Aided Design
CNC	Computer Numerically Controlled
EASCO	East African Steel Corporation (1985) Ltd.
GDP	Gross Domestic Product
ILO	International Labour Organization
Lb	Pound
MTAC	Management Training and Advisory Centre
M.T.	Metric Tonnes
SAIMCO	Soroti Agricultural Implements Manufacturing Company
S.G.Iron	Spheroidal Grey Iron
OGL	Open General Licence
R&D	Research and Development
UACE	Uganda Advanced Certificate of Education
UDC	Uganda Development Corporation
UNCDF	United Nations Capital Development Fund
UNDP	United Nations Development Programme
UNIDO	United Nations Industrial Development Organization
USh	Ugandan Shilling
UShm	Ugandan Shilling Million
VTI	Vocational Training Institute

SUMMARY

The report reviews recent economic trends in the Republic of Uganda with specific reference to the industrial sector. After several years of political instability during which activities in the industrial sector were brought to a virtual standstill, the current Government of Uganda has embarked on a rehabilitation and development programme that has received wide acclaim by multilateral and bilateral financing institutions. Having remained either totally idle or improperly maintained for years, installed capacity utilisation of industrial machinery is at a very low level and a major contributing factor to this is lack of spare parts.

The poor performance of the industrial sector also has a direct adverse impact on agriculture -the dominant sector of the Ugandan economy. Farming in Uganda is primarily carried out by peasant farmers whose main agricultural tools and implements are hand hoes, ox-drawn ploughs, pangas and pick axes. There is only very limited use of tractors. UNIDO in collaboration with UNDP and UNCDF are involved in promoting a project for the production of ox-drawn implements in Northern Uganda. The main producer of agricultural hand tools is a private firm which although has a large capacity, is however facing marketing problems.

This report reviews the situation with regard to demand and supply of agricultural implements and spare parts for industrial machinery. Recommendations are made aimed at reducing bottlenecks in these two areas and thus enhancing the country's efforts towards rehabilitation and integrated development. Project concepts are proposed for establishment of a Precision Machining Workshop at the Management Technical and Advisory Centre run by the Ministry of Industry and Technology, assistance to Uganda Polytechnic Kyambogo, technical assistance to vocational training institutes and establishment of a Common Facility -cum- Training Workshop in Katwe.

1. STRUCTURE OF THE ECONOMY

1.1 Macro-economic factors

The economy of Uganda is predominantly agricultural. This sector accounted for over 68 per cent of GDP in 1990, whereas the share of manufacturing was merely just over 5 per cent. Study of Table 1 below indicates that the share of manufacturing in GDP has gone up from 3.5 per cent in 1986 to over 5 per cent in 1990. In the same period, there has been a decline in the share of agriculture from 70 per cent to 68 per cent. GDP registered a growth of 6-7 per cent in 1987-1989. There was, however, a drop to 3.4 per cent in 1990.

Table 1. GDP at factor cost, at constant 1987 prices (UShm)

Sector	1986	1987	1988	1989	1990
Agriculture	116,000	122,294	129,358	136,598	140,429
Mining and Quarrying	28	34	33	33	51
Manufacturing	5,767	6,734	8,262	9,793	10,513
Electricity/Water	126	130	105	113	127
Construction	2,438	3,261	4,154	4,524	4,963
Retail/Wholesale	17,389	18,977	21,091	22,943	23,843
Transport/Comm.	5,596	5,812	6,230	6,979	6,989
Community Service	11,820	12,226	12,619	13,005	13,486
O/O Dwellings	4,841	4,975	5,115	5,259	5,521
GDP	164,005	174,443	186,967	199,247	205,922
% growth	0.3%	6.4%	7.2%	6.6%	3.4%
GDP/capita (Ush)	10,865	11,245	11,725	12,150	12,205
% growth	-2.4%	3.5%	4.3%	3.6%	0.5%
Monetary GDP	87,560	94,581	103,881	112,481	116,608
Non Monetary GDP	76,445	79,862	83,086	86,766	89,314

Source: Background to Budget 1991-92, Ministry of Planning and Economic Development, Uganda - June 1991, Page 14

Overall industrial production in the country has been rising since 1987 as can be seen from Table 2, below, for the period 1987 to 1990. It may be noticed that after maintaining a high growth rate of above 16 per cent during the period 1987 to 1989, there has been a sudden drop to 6.3 per cent in 1990. This was due to the negative growth rate of 12.4 per cent of the textile and clothing sector resulting from the complete closure of one textile

mill and temporary closure of another for a period of two months. Also in 1990, food processing managed to record an overall positive growth inspite of a decline of 27.5 per cent in coffee processing.1/ The "other" group, registered lower growth because of the drop in cigarette production and cables, and closure of a number of small establishments.

Table 2. Industrial Production, sector growth rates 1987-1990

	Weights	1987	1988	1989	1990
Food Processing	20.7%	17.2%	28.0%	20.1%	10.7%
Drinks and Tobacco	26.1%	21.7%	39.6%	2.9%	8.0%
Textiles/Clothing	16.3%	7.6%	21.8%	8.9%	-12.4%
Chemical/Paint/Soap	12.3%	70.1%	11.2%	46.5%	12.9%
Other	24.6%	0.1%	10.7%	25.5%	8.2%
TOTAL	100.0%	16.1%	23.7%	17.4%	6.3%

Source: Background to the Budget 1991-92, Ministry of Planning and Economic Development, Uganda - June 1991, Page 16

The economy of Uganda has severely been affected by high inflation which is only recently being brought at manageable levels though as yet unsatisfactory. Between June 1990 and February 1991, the rate of inflation declined from 25.6 per cent to 22.4 per cent; in March 1991 it increased to 27.1 per cent, followed by a further increase to 31.4 per cent in May. It was expected that inflation would be about 34 per cent by the end of the 1990-1991 financial year.

1.2 Outlook of the economy and medium term prospects

In May 1987, the Rehabilitation and Development Plan 1987-1988 to 1990-1991 was published. Implementation of the plan has shown encouraging results. GDP has been growing, though not constantly at the same rate. In the 1991-1992 budget, certain policy initiatives have been put in place to strengthen the economic recovery programme and support the transition from economic recovery to economic development and structural transformation.

The highlights of performance in 1990-1991 are as follows:

The economic growth over the period 1989-1990 is estimated at 4.7 per cent. The balance of payment came under considerable pressure during this period. The provisional estimate of the year-end inflation is 34 per cent and there has been growth in money supply by 45 per cent.

1/ Background to the Budget 1991-1992, Ministry of Planning and Economic Development, Uganda - June 1991, Page 16

The medium term prospects of the economy are as follows:

The target of economic growth in 1991-1992 is 5 per cent and per capita income is likely to grow in excess of 2.5 per cent. The balance of payments position is likely to remain difficult. Inflation is projected to decline significantly in the period up to 1993-1994. In the short term, however, on-going reforms may have inflationary impact.

In the power sector, there are severe bottlenecks. There are frequent power shortages on account of poor equipment, lack of maintenance and inadequate transmission capacity. Regular demand for power by industries and domestic use is likely to outstrip full capacity in a few years. There are, however, plans to increase the output of power.

1.3 Policies related to industrial development

Uganda's early approach to industrial development was to follow the strategy of import substitution industrialization. Priority was accorded to low-skill import substitutes. A measure of success was achieved in this strategy and manufactured products were exported within the East African region in the 1960's. The political and economic turmoil of 1971-1986 period reversed this trend and almost destroyed the manufacturing sector, in particular, its exports. Imported manufactures, even of simple goods, are now much in evidence in the markets and retail stores. Spare parts are almost all imported.

To encourage foreign and domestic investment in Uganda, a major policy reform came into operation in January 1991, when the Investment Code 1991 was signed into law. The law rationalizes the various procedures for investment approval and introduces additional incentives for investors. Uganda Investment Authority has been established under the Ministry of Planning and Economic Development. This authority is intended to be "one-stop-shop" for investors to get the various Government approvals. In addition to its regulatory role, the authority is responsible for actively promoting Uganda as destination for foreign investors. It will provide advice, in identifying and establishing projects, to foreign and domestic investors.

In the industrial sector, the Government recognises the need to create an environment conducive to private sector investment. The Government intends to divest itself of commercial activities. The limited areas, where continued involvement by the Government in industrial public enterprises will be justified, will include high capital cost resource based projects with proven economic viability, but where entire equity cannot be generated by the private sector at this stage of the country's development. Out of the 112 public enterprises, the state will retain only 16 with 100 per cent equity; it will hold majority shares in 23 and minority shares in 13; the balance will be sold to the private sector or wound up.

1.4 Policies related to development of agricultural sector

Uganda, endowed with fertile land and generous rainfall, possesses about 167,500 Km2 (84% of total land area) of land suitable for agriculture. National Household Budget Survey (1989-1990) indicates that 80 per cent of the population is engaged in agriculture which contributes 70 per cent of GDP. The average household possesses 13,500 m2 (2.8 acres) of farm land plus 13,300 m2 (2 acres) of other land which is used mainly for grazing. Most farmers practice mixed farming owning livestock.

Apart from providing infrastructure, the Government's main role in agriculture is to provide support services. Uganda can increase agricultural output if farmers are helped to adopt improved technology. In the area of agricultural implements, it would involve technological upgrading from the use of hand tools to animal drawn implements and finally to tractor driven implements.

In all the three areas there are problems to be tackled. In the case of hand tools, there is a need to ensure sufficient supply of tools at affordable prices; in the case of animal drawn implements, there is the problem of insufficient number of oxen and shortage of finance for the farmer to purchase these implements. The use of tractors is still very much limited. In all, it is estimated that about 3000 tractors are available in the country. They are mostly privately owned and are imported since there is no local production. The Government set up a system of hiring tractors but this scheme was unsuccessful because of management problems; farmers could not be provided with adequate service due to lack of accountability on the part of hiring units. There is no special financing mechanisms to give special loans to farmers at concessional rates of interest, with long pay back periods. However, the Government is planning to set up an agricultural development bank for this purpose. The Government may also encourage private entrepreneurs to operate tractor hiring services.

2. THE MANUFACTURING SECTOR

2.1 Structure of the manufacturing sector

The development of the manufacturing sector in Uganda was stimulated during the 1960's through an import substitution policy to provide essential consumer goods to the people. This sector developed steadily until the early 1970's. It provided the domestic market with adequate supplies of basic goods and there was surplus production for exports, most notably in textiles and sugar. Then the downtrend started. There were 50 factories in the medium and large scale sector operating in 1971, but by 1981, 15 of these were completely closed down and the capacity utilisation of the remainder was only around 25 per cent.2/ In the small sized industries sector, 870 establishments were

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2/ UNIDO Industry Sector Programming Mission to Uganda - PPD/R.36, 23 May 1990, Page 23

operating in 1971. By 1981, only 418 could be identified and of these 162 had closed down and 256 were operating only intermittently. The fall in the manufacturing sector's GDP continued until 1986 but recovery started from then onwards.

In the index of industrial production (Table 3), "tobacco and beverages" have a weight of 26.1 per cent followed by "food processing" at 20.7 per cent. These two sectors also accounted for 45 per cent of the labour force in manufacturing industry, as per the Directory of Manufacturing Establishments, Ministry of Industry and Technology, 1989. As per the same document, 16 per cent of the companies employed more than 36 workers and provided 73.4 per cent of employment in the manufacturing sector, total employment being 62,555. In addition to this employment in the formal sector, there may be about 100,000 employed in the informal sector in manufacturing, repair and maintenance, etc.

Uganda does not possess a significant indigenous scientific and technological base; it has been heavily dependent on external sources for technology, design, machinery and equipment.

2.2 Industrial production

Table No. 3 gives data on the index of industrial production from 1984 to 1990 (with 1987=100 as the base). There has been a steady growth in the overall index from 1987 onwards. In 1990, however, there has been a drop in the production of "textile and clothing" sub-group. Except for this sector, every other sector has shown growth, though not at a uniform rate.

From Table No. 4, concerning installed capacity and percentage utilisation-manufacturing establishments: 1984-1990, it may be noticed that the capacity utilisation of the manufacturing establishments continues to be unsatisfactory, even though there has been improvement in some areas.

The Government has plans, over the 1992-1993 period, to organise a series of detailed studies of individual industrial sub-sectors. These will review the domestic and exports sales prospects, intersectoral linkages and general viability of each sub-sector.

Table 3. Index of Industrial Production

Annual Summary 1984-1990 (1987 = 100)

GROUP/ SUB-GROUP	NO. OF ESTABS	WEIGHT	1984	1985	1986	1987	1988	1989	1990
FOOD PROCESSING	49+	20.70	99.8	93.9	85.3	100.0	128.0	153.7	170.1
Meat, Fish and Dairy	6	1.70	130.0	106.4	72.5	100.0	149.4	109.4	143.7
Grain milling	13	4.30	77.0	83.5	77.3	100.0	139.5	139.1	136.0
Bakeries	9	1.40	67.2	83.8	70.6	100.0	131.7	153.4	261.5
Sugar and Jaggery	4	1.80	199.9	125.9	72.2	100.0	277.5	514.7	753.9
Coffee roasting	3	0.20	105.8	101.0	102.0	100.0	73.1	48.2	74.2
Coffee processing	+	8.62	91.3	90.1	98.9	100.0	95.6	106.0	76.9
Tea processing	1+	1.39	143.7	153.2	97.4	100.0	98.6	130.9	184.1
Other food processing	4	0.30	62.0	56.3	69.3	100.0	115.4	104.9	100.9
Animal feeds	7	0.99	31.5	32.6	52.1	100.0	101.9	121.0	116.7
TOBACCO AND BEVERAGES	12	26.10	79.4	84.8	82.2	100.0	139.6	143.7	155.2
Beer and Spirits	5	6.61	91.4	55.4	43.4	100.0	127.1	124.2	125.0
Soft Drinks	6	5.40	96.5	84.5	85.8	100.0	221.3	253.8	362.4
Cigarettes	1	14.09	67.3	98.7	99.0	100.0	114.1	110.5	89.9
TEXTILES AND CLOTHING	13	16.30	136.9	98.9	92.9	100.0	121.8	132.7	116.3
Textiles	4	12.00	111.8	102.6	93.8	100.0	106.4	110.4	79.8
Textile products	4	3.09	102.4	55.9	65.9	100.0	84.3	107.7	117.5
Garments	5	1.21	474.8	473.2	153.8	100.0	370.9	419.1	477.8
LEATHER AND FOOTWEAR	7	2.30	175.5	86.9	90.0	100.0	62.0	62.9	74.9
TIMBER, PAPER AND PRINTING	19	9.00	88.7	76.8	72.0	100.0	135.1	169.4	181.1
Sawmilling and Timber	2	3.20	77.5	53.3	60.8	100.0	96.0	61.5	50.9
Furniture & Foam Products	7	2.90	74.8	65.5	86.9	100.0	140.0	221.9	191.3
Paper and Printing	10	2.90	114.9	114.0	69.6	100.0	173.7	236.1	316.6
CHEMICALS, PAINT AND SOAP	16	12.30	61.2	58.6	58.8	100.0	111.2	162.9	183.9
Chemicals	1	0.31	72.7	87.4	68.4	100.0	88.1	88.1	79.9
Paint	3	0.51	166.0	176.2	88.2	100.0	98.3	167.5	62.0
Medicines	3	0.50	92.9	106.6	104.2	100.0	70.1	166.8	284.6
Soap	9	10.98	54.6	50.2	55.1	100.0	114.3	164.6	190.0
BRICKS AND CEMENT	11	4.30	156.5	122.7	120.6	100.0	94.4	109.0	154.2
Bricks, Tiles etc	9	2.23	157.8	171.2	137.3	100.0	98.8	105.2	149.0
Cement	2	2.07	155.2	70.6	102.8	100.0	89.7	113.2	159.8
STEEL AND STEEL PRODUCTS	17	5.30	110.7	133.1	105.9	100.0	87 2	98.9	106.1
Iron and Steel	5	1.51	217.3	249.4	95.3	100.0	125.1	74.1	57.5
Structural Steel	4	2.28	69.8	73.8	71.6	100.0	66.4	134.6	129.2
Steel Products	8	1.51	66.4	107.1	167.7	100.0	80.9	69.9	125.8
MISCELLANEOUS	17	3.70	139.5	139.1	141.0	100.0	134.0	204.2	181.0
Vehicle Accessories	5	0.91	183.1	164.4	146.7	100.0	104.5	164.0	224.8
Plastic products	4	0.63	92.0	84.2	90.4	100.0	58.2	105.0	103.0
Electrical products	2	1.15	125.9	83.5	76.1	100.0	100.9	142.9	110.5
Miscellaneous products	6	1.01	145.3	214.1	241.2	100.0	245.4	372.0	269.0
INDEX- ALL ITEMS	1	100.00	101.1	91.1	86.1	100.0	123.7	145.2	154.3

NOTE: In the tables, the symbol '+' is used to indicate that, in addition to the individual establishments covered in the index, production data for coffee and tea processing, as advised by the respective marketing boards, is included.

SOURCE: Statistics Department
Ministry of Planning and Economic Development

Source: Background to the Budget 1991-92, Ministry of Planning and Economic Development, Uganda - June 1991

Table 4. Installed Capacity and Percentage Utilisation, Manufacturing Establishments: 1984-1990

COMMODITY	SECTOR ISIC CODE(Rev 3)	UNIT	INSTALLED CAPACITY	1984	1985	1986	1987	1988	1989	1990
Proccesed Milk	1520	000 Lts	47,450	43.6	35.0	27.8	35.6	44.0	36.1	36.5
Wheat Flour	1532	Tonnes	45,000	9.4	17.4	15.8	21.0	27.2	30.8	28.6
Aniaal Feeds	1533	Tonnes	28,060	10.7	14.9	23.1	43.5	39.2	56.8	53.6
Biscuits	1541	Tonnes	648	8.8	5.1	12.5	19.3	12.8	8.6	19.8
Sugar	1542	Tonnes	160,000	1.8	0.5	-	-	4.7	9.9	18.1
Sweets and Toffees	1543	Tonnes	5,430	1.2	3.5	1.5	2.2	1.0	0.9	0.8
Roasted and Ground Coffee	1549	Tonnes	1,600	6.1	5.9	2.4	6.1	4.5	2.4	4.1
Soya Foods	1549	Tonnes	600	7.5	3.7	6.3	23.3	26.2	13.0	22.2
Curry Powder	1549	Tonnes	152	12.5	20.4	103.3	23.7	48.7	27.6	35.5
Uganda Waragi	1551	000 Lts	2,000	1.6	7.7	5.8	8.0	7.9	18.2	18.8
Beer	1553	000 Lts	49,128	30.8	17.1	14.0	34.4	43.7	39.7	39.5
Cigarettes	1600	Mil Sticks	1,900	50.8	74.5	74.7	75.5	86.2	83.5	67.9
Cotton and Rayon Fabrics	1721	000 Sq Mts	57,092	20.1	18.2	17.0	17.9	20.1	20.6	14.3
Blankets	1721	000 Pcs	1,500	5.5	1.7	2.7	9.8	3.3	5.8	4.6
Gunny Bags and Hessian Cloth	1723	Tonnes	5,400	21.3	13.3	11.3	9.7	13.4	16.1	8.0
Fishnets	1723	000 Pcs	550	10.7	5.1	6.0	8.5	9.5	10.0	11.3
Twines and Cords	1723	Tonnes	200	2.0	3.5	12.0	10.5	9.5	17.5	33.0
Garments	1810	000 Dzs	125	9.6	6.4	4.8	4.0	26.4	21.6	24.8
Finished Leather	1911	000 Sq Mts	471	9.6	3.4	6.8	4.0	2.8	3.2	8.9
Footwear	1920	000 Pairs	5,093	22.3	11.4	10.7	13.0	7.1	7.0	6.3
Sawn Timber	2010	Cu. Mts	4,000	-	-	35.9	62.8	49.7	34.3	6.3
Plywood	2021	Cu. Mts	2,357	-	-	22.7	35.2	43.5	22.3	22.7
Spring Matresses	2029	Cu. Mts	36,000	0.7	1.5	1.9	1.0	0.0	0.0	0.2
Brooms and Brushes	2029	000 Pcs	500	-	2.0	11.0	5.6	15.8	12.2	14.6
Paper	2111	Tonnes	2,690	8.4	12.7	5.4	1.4	4.7	9.7	14.6
Corrugated Cardboard Boxes	2112	000 Sq Mts	720	14.9	25.3	17.9	16.8	13.1	18.3	26.4
Cartons	2119	Mil Pcs	350	0.3	0.3	0.6	0.3	0.3	0.6	0.6
Paper Sacks	2119	000 Pcs	12,144	8.9	9.4	5.2	4.1	5.1	6.7	8.8
Envelopes	2119	000 Pcs	124,000	5.3	2.8	1.7	2.5	4.9	3.6	0.8
Acetylene Gas	2411	000 Cu Mts	108	8.3	124.1	9.3	13.9	12.0	10.2	12.0
Paints	2422	000 Lts	4,311	9.2	10.1	6.7	3.9	4.1	7.3	3.4
Soap	2424	Tonnes	36,000	2.8	2.1	9.1	43.8	51.3	75.3	84.9
Matches: Small Size	2429	Cartons 1/	43,200	0.0	0.3	0.4	0.1	0.2	0.9	0.1
Large Size	2429	Cartons 2/	12,000	0.0	0.0	0.0	3.2	3.0	1.6	0.5
Cycle Tyres and Tubes	2511	000 Pcs	2,400	6.3	5.3	4.2	1.5	4.6	0.1	0.8
Adhesives	2519	000 Lts	118	1.7	14.4	16.9	7.6	0.0	0.8	0.8
Rubber Solution	2519	000 Pcs	12,960	5.0	6.8	0.0	3.5	0.0	3.0	0.5
Jerrycans (Plastic)	2520	000 Units	950	0.0	0.0	0.0	30.7	15.7	32.6	32.7
Table Ware (Plastic)	2520	000 Dzs	268	0.0	11.2	16.4	59.3	43.3	46.3	34.0
Cement	2694	Tonnes	507,500	4.9	2.3	3.2	3.1	2.9	3.4	5.3
School Chalk	2695	Cartons	12,000	29.5	52.3	36.1	10.8	38.0	49.5	6.4
Steel Ingots	2710	Tonnes	22,000	6.4	11.3	3.9	4.2	5.1	0.0	0.0
Corrugated Iron Sheets	2710	Tonnes	20,000	9.8	12.1	5.3	3.2	3.6	6.9	6.3
Steel Beds	2811	Number	36,000	11.7	15.3	8.8	22.5	2.4	5.8	3.0
Steel Doors and Windows	2811	Tonnes	300	31.3	27.3	36.0	56.3	49.3	134.7	107.0
Hoes	2893	000 Pcs	3,500	5.1	11.5	14.3	17.6	14.4	14.8	22.3
Enamel Ware	2893	000 Dzs	3,000	1.4	0.4	1.1	0.4	0.1	0.1	0.0
Other Misc. Metal Products	2899	Tonnes	26,360	7.9	11.0	10.2	7.1	12.3	6.5	6.8
Cables/Conductors	3130	Kms	4,500	56.5	0.0	31.0	16.8	21.1	-	-
Cables/Conductors	3130	Tonnes 1/	1,180	-	-	-	-	11.0	13.4	10.3
Motor Batteries	3140	Pcs	50,000	19.6	14.8	16.1	9.5	11.0	25.4	38.8
Number Plates	3699	Pairs	24,000	25.3	29.8	46.4	46.3	7.6	28.2	30.0
Toothbrushes	3699	000 Pkts 3/	33	0.0	18.2	57.6	6.1	15.2	21.2	3.0
Pencils	3699	Gross	79,200	0.0	0.0	0.0	3.1	5.9	5.0	2.5
Ballpens	3699	000 Pkts 4/	192	0.0	14.1	7.3	39.6	18.8	25.5	14.6

Note: The coverage is essentially of those establishments included in the Index of Industrial Production and does not necessarily reflect total production of manufactured commodities in Uganda.

Source: Statistics Department, Ministry of Planning and Economic Development.

Other Notes: 1/ Unit of Measurement Changed.
2/ Cartons of 10 Gross Small Size Matchboxes.
3/ Cartons of 200 Large Size Matchboxes.
4/ One Packet of Toothbrushes Contains 24 Pieces.
5/ One Packet of Ballpens Contains 50 Pieces.
- Means No Production or No Information Available.

Source: Background to the Budget 1991-92, Ministry of Planning and Economic Development, Uganda - June 1991

3. THE ENGINEERING AND METALWORKING SECTOR

3.1 The basic metallurgical industries

As can be seen from Table 3 only five enterprises are indicated as involved in the iron and steel sector. This sector has a relative weighting of 1.51. Employment in "steel ingot" and "other metal products" was 951 in 1990. Uganda's basic iron and steel industry consists of two mini-steel plants -East African Steel Corporation (1985) Ltd. (EASCO) and Steel Rolling Mill Ltd both located in Jinja. The Government owns 51 per cent of equity in EASCO while the Steel Rolling Mills is a fully private operation.

EASCO, with installed capacity of 20,000 tons of rolled products per year, is currently undergoing rehabilitation to boost its capacity. The plan involves extensive replacement of obsolete machinery and repair of the infrastructure at an estimated cost of US$17.1 million. Once in operation, EASCO will have an electric arc furnace, continuous casting and rolling facilities.

Steel Rolling Mills Ltd. was commissioned in early 1988 as a rolling mill. It has also embarked on installation of an electric arc furnace. Upon commissioning, its crude steel production capacity will be about 25,000 tons per year. The plant will also be able to produce alloy steel rolled products, forging steel and steel castings. At present, mild steel rounds, squares and angles from imported billets are manufactured.

Capacity utilisation of the basic steel industry averaged only about 6 per cent over the period 1982 to 1988. This performance is expected to improve with full rehabilitation of EASCO and commissioning of the electric arc furnace at the Steel Rolling Mills Ltd.

Primary raw material for the basic steel industry at present is steel scrap which is currently available from domestic sources, but deficit is foreseen after six to ten years. However, there are iron ore deposits in the country, which are planned to be mined and converted into sponge iron for use in the steel industry. Exploration for iron ore at Kashenyi, Kabale District, is expected to be resumed in 1991-1992. Hematite deposits of 30 million tons are estimated in the Kashenyi area. Other main iron ore deposits are in Namakera (18 million tons), Sukulu (30 million tons). Exploitation of these deposits will provide the much needed backward integration of the iron and steel industry. However on account of infrastructural requirements, it is advisable to exploit the Namakera deposits in Mbale first as some of the infrastructure is already available in this area.

There is currently no production of non-ferrous metals. In the past, however, copper, tungsten, tin and gold had been mined. Copper and tungsten production stopped for many years because of the lack of spares and equipment related problems. In certain cases, spare parts for some equipment are no longer manufactured by the original suppliers. Local efforts to produce such spare parts have been constrained by lack of adequate designing and manufacturing facilities for such parts. The non-availability of many

critical raw and operating materials is another constraint inhibiting the progress of this sector. Such materials include electrodes, chemicals, refratories, etc., most of which are imported.

3.2 Foundries

There are twenty nine foundries in Uganda, producing cast iron and non-ferrous metal castings. There is no production of steel castings. Prior to the 1970's, Uganda had a well developed foundry industry and was exporting castings to some of the neighbouring countries. Its present capacity utilisation is very low because of the following problems:

- scarcity of raw and auxiliary materials;
- lack of R&D expertise and facilities;
- inadequacy of relevant training institutions;
- obsolete machinery and equipment;
- lack of maintenance and repair; and
- inadequate working capital.

Materials such as moulding and core sand, ferrous and non-ferrous scrap, and timber are potentially available.

3.3 The engineering industries

3.3.1 The range of goods produced

Included in this sub-group are the producers of a wide range of products including simple agricultural machinery, tools and implements, fabricated sheet metal products, transportation equipment such as trailers and vehicle bodies and spares. There is no production of capital goods like machine tools, industrial machinery etc, as well as, consumer durables like automobiles, tractors, household goods, etc. There is also no production of essential intermediate goods to facilitate growth of the engineering industry, like electric motors, contactors, ball and roller bearings, rubber parts, plastic parts, etc.

Visit to the various engineering enterprises and institutions indicates that this industry operates at a low technology level. The plant and machinery used for production lack precision and the quality of goods produced is also of low level. Demand from the market for goods of high quality is met through imports. Upgrading of local facilities, wherever economically viable, could reduce dependence on imports. Of course, along with the upgrading of facilities, attention will have to be paid to elevation of technical skills as well. This would be required even to absorb the imported technology and provide the essential repair and maintenance facilities

3.3.2 Metal fabrication industries

With the exception of a few large-scale diversified workshops such as UGMA Engineering Corporation Ltd., Casements (Africa) Ltd., Chillington Tool Company (Uganda) Ltd., Motay Engineering Works Ltd., and PABCO Enterprises, most of the fabrication workshops are small, employing 2 to 15 persons. Capacity utilisation of these workshops is very low because of some of the following constraints:

- shortage of imported raw materials, spare parts and other inputs;
- competition from cheaper imports (for example hoes from China, trucks with fabricated bodies, whereas fabrication can be done in Uganda);
- severe shortage of engineering design, R&D expertise and facilities;
- lack of quality control and testing facilities;
- obsolete and difficult to maintain equipment;
- a deficiency of practical technical skills at all levels.

The Government and industry are keen to put this industry on a sound footing because of the important role it can play in reviving the economy.

4. MANUFACTURE OF AGRICULTURAL TOOLS, IMPLEMENTS AND FARM MACHINERY

4.1 The status of supply and demand

The availability of agricultural tools and implements has been a major concern in the agricultural development of Uganda. Over 80 per cent of its rural population is involved in agricultural production. Their basic tools of production are the hand hoes, pangas, slashers and axes. In the Northern and Northeastern parts of the country, ox cultivation had been the basic method of preparing land -until livestock got rustled and stolen in the period 1971 to 1986. In the South and most of Western Uganda, the hand hoe is the basic tool of agricultural cultivation.

There has been a shortage of basic tools and as a result the Government used several mechanisms to import them. The challenge to the local manufacturers lies in improving the quality of their products and lowering the production costs by improving their manufacturing efficiencies.

Though accurate assessment of the demand of agricultural implements is not available, indications from the Ministry of Agriculture and other sources are that annual requirements can be placed as follows:

Hoes	1.8 million
Shovels	75,000
Axes	60,000
Ox ploughs	9,000

Production capacity of SAIMCO for ox-ploughs is being planned on one shift basis. It is felt that after the production has stabilised, this enterprise, along with others in this field, will be able to meet the

requirement of ox-drawn implements. Even if, there is more demand, it can be met by marginal additions to the plant or working an extra shift.

In case of hand tools also, the current demand can be met by the existing manufacturers. This belief is strengthened by the fact that hand tools have not been planned for production at Soroti. UGMA has also not planned to re-enter this market since they feel that current producers can satisfy the market. The Chillington Tool Co. (Uganda) is also of the view that no additional capacity needs to be set up for farm tools in their range of manufacture.

Details of the local manufacture are given below.

4.2 Local manufacture

For the last ten years, almost all farm machinery and implements have been imported -partly because of unavailability from domestic manufacturing industry and partly because of donor-aid programmes. Such imports were at extremely low prices and local manufacturers could not compete with them. There is no import duty on agricultural implements and hand tools. However, the local manufactureres have to pay import duties and sales taxes on the imported raw materials. Hence, it is difficult for the local manufacturers to compete with imported products.

From time immemorial, farm tools have been manufactured by blacksmiths in rural areas and they still exist. With the advent of industrialisation, a number of commercial enterprises were set up, to manufacture on a more improved basis, the hand hoe and other agricultural tools. Enterprise-wise position of the major ones is as follows:

4.2.1 Soroti Agricultural Implements Manufacturing Co. (SAIMCO)

SAIMCO was originally set up as a privately owned enterprise in 1967, to manufacture low cost agricultural tools and implements. These included ox-ploughs and spares, cultivators, ground nut diggers, ox-carts and maize hammer mills. In 1972, it was taken over by a co-operative union and subsequently the ownership was passed on to the Government. The output in this factory is low because of lack of raw materials and poor condition of buildings and machinery. Only one each of, lathe, shaper, milling, drilling, grinder and press brake machines are in operational condition. All other workshop equipment is old and cannot be used. The company has a staff of 49 persons. Their current activities are: repair of ox-ploughs, fabrication of maize hammer mills, metal gates and fences, etc.

In early 1980, the Government of Uganda requested UNCDF to support the project. A techno-economic analysis was carried out in 1983-1985 on behalf of UNIDO and UNDP. Based on this, UNDP and UNCDF decided to support the project and the project document was signed by the parties involved in 1987. The project did not start due to financing problems.

A joint mission of UNIDO-UNCDF visited Uganda from 27-31 May, 1991 to review the project. It is expected that the project may start in late 1991/early 1992.

It is planned to completely rennovate the factory. The work would involve renovation and expansion of workshop and office buildings;

renovation and addition of plant and machinery; and other assistance like provision of raw materials for a limited period, training, etc.

The following will be the production capacity after completion of the project:

	PRODUCT	CAPACITY
1.	Ox-ploughs	8000
2.	Shares	24000
3.	Ox-carts	1000
4.	Hammer mills	100
5.	Repairs for worn-out ploughs and tools	25 per cent of the total capacity of the factory in value terms
6.	Production of spare parts	
7.	Repairs of worn-out components and parts for industry	

This factory has an important role to play and work on the project needs to be expedited.

4.2.2 The West Acholi Co-operative Workshop, Gulu

This is a co-operative workshop with basic equipment which includes 6 lathes, 2 drilling machines, 3 bending machines, 2 welding sets, etc. The company has used the services of an expatriate design machinist for a year at Gulu to help them develop various products. The company is now completely locally run. Implements manufactured by this co-operative include: ox-drawn ploughs (moldboard), brick mould and press, grain mill, and groundnut sheller. Among other tools manufactured are rake, hoe, hand scythe and trowel.

4.2.3 Chillington Tool Co. (U) Ltd.

This company is owned by Chillington UK (80%), the Government of Uganda through Uganda Development Corporation (15%) and Michel Cotts (5%). Their range of production include 3 lb, 2 1/2 lb, and 1 1/2 lb of hoes. They also fabricate wheel barrows with solid rubber tyres based on imported components.

They have two lines of production for hoes with a capacity of 1.25 million hoes per line. One line is in operation and trial production is going on at the second line. Their actual production in 1990-1991 was about 800,000 hoes. They have planned a production of 2.3 million hoes in 1992 and 1993. They intend starting export of this item to neighbouring countries. As per their estimate, demand in Uganda is one million hoes per annum. After meeting the local requirements, they will have sufficient capacity for exports. Their stores were full of hoes waiting for customers. They felt that the slackness of demand is because of imports. They produce 20,000 wheel barrows per year. This firm has a small tool room for their captive requirements.

4.2.4 UGMA Engineering Corporation Ltd. Lugazi

This company is jointly owned by the Government of Uganda (51%) and the Mehta Group (49%). It used to manufacture hoes, pick axes and shovels. It discontinued making them because of uneconomic operations. They felt that the material consumption was too high compared to the price the end-product fetched in the market. According to them Chillington Tool Co. (U) Ltd. has expanded its capacity and can meet the entire demand of the country. There is no reason for UGMA to revive this activity, which in any case, can only be done by them after extensive repairs of the old plant or preferably by putting up a new plant. The old one is in a very bad condition.

4.2.5 Other Manufacturers

The production of agricultural machinery is also spread over many medium and small enterprises. Of the firms visited, H.S. Notay and Company make maize mills, oil pressess, etc. PABCO Enterprises Ltd. make grass choppers, spares for maize mills, etc.

5. MANUFACTURE OF SPARE PARTS

5.1. Demand from various sectors

During the 1970's and early 1980's, the industry sector deteriorated more than any other sector of the economy. Over this period, many of the large and medium-scale industries collapsed. After the present Government was formed, it divided its economic programme into three phases. The first one being, emergency/relief phase which ended in 1986; second is the current phase, which is one of rehabilitation. This will be followed by the third phase which will be concerned with the restructuring and development of the economy towards being integrated and self sustaining.

The current phase lays emphasis on the rehabilitation of priority industries. In the areas of manufacturing industries, rehabilitation projects include factories involved in the production of textiles, steel, cement, sugar and chemicals. Brief description of the these projects is given in

appendix A. These projects involve overhauling of some of the old machines, as well as, additions of new machines. Spares will be required to bring the old machines into working order.

Apart from the demand created by the rehabilitation projects, spares are regularly needed by the process and other industries in the manufacturing sectors like food processing -with coffee being the major item; tobacco and beverages; textile and clothing; paper and printing; chemicals, paint and soap; bricks and cement; steel and steel products; service sectors like water; power generation and distribution; mining and quarrying. Further, spares demand arises from agricultural machinery and implements; automobiles; household goods and a variety of other products used in everyday life.

Accurate estimates of spares demand are not available, but through interviews with concerned persons in the Government and industry, it is clear that there is a large demand and there is a very high degree of dependence on imports. In the statistics of composition of imports for 1989-90, published by the Bank of Uganda, import of spares in 1989 was US$ 7,213,000 and in 1990 it was US$ 11,728,000. Importation of spares formed 3.81 per cent of total imports in 1989 and 5.67 per cent in 1990. These were imports made on cash basis and do not include imports financed through external loans and grants or private foreign exchange. As it can be seen, spares imports are quite substantial.

Spare parts could be classified for the purpose of this study by weight as heavy, medium and small; by requirement of accuracy as normal accuracy and precision parts; standard and special parts -proprietary in nature; by the type of materials used as ferrous, non-ferrous, rubber, plastic or synthetic materials parts. Reference will be made to them at relevant places. UGMA, while planning their rehabiliation programme, have estimated the demand for some of the spares as foundry products, per year as follows: railways 915 metric tonnes (M.T.); general industries 3,800 M.T.; sugar mill rollers 840 M.T.; ingot moulds 1410 M.T. (for steel plants); grinding media and lining plates 600 M.T. (for cement and mineral processing industries) and non-ferrous castings 150 M.T. for various industries.

From the above, it is clear that the demand is high and it will continue to grow as the economy revives. There would also be a qualitative change in the requirement, as rehabilitation and growth process would bring in new equipment of comparatively higher technology.

5.2 Supply from imports

As mentioned earlier, there is a heavy dependance on imports for most spares. To solve spare parts problems of industry and other users, a provision has been made so that they can be imported under the open general licence system.

It is, however, felt by users that the prices they pay for imports are very high. Furthermore it takes a long time to get spares from abroad and this often disrupts production. Wherever possible, spares are being stocked,

but these measures can take care of only normal wear and tear parts; in case of unanticipated breakages, equipment remain un-used for long periods for want of spares.

Obsolescence of machinery still in use poses another problem as far as procurement of the spare parts is concerned. The original manufacturers would have discontinued making such machines and can no longer supply the parts. In such cases, a well developed indigenous capability can help in keeping the equipment running.

5.3 Domestic manufacture of spare parts

5.3.1 Infrastructure for spare parts production

A number of companies are engaged in the manufacture of spare parts as a part of their activity. Additionally, technical educational institutions also help the industry in this field. Deficiencies are, however, observed in the following areas:

Design: Capability in this field is extremely limited. In the case of spares for obsolete equipment, or unexpected breakage of some part of a running machine, design will have to be made with limited data on hand -mostly it would be the broken part. Design work in such a case would involve: ascertaining the material of the component; dimensions of the component and tolerances required in various areas; function the part has to perform, based on which required surface treatment to be given could be decided. The next stage for the engineer would be to decide on the method of manufacture to be followed and then getting the part fitted in the machine.

This work calls for knowledge in a variety of areas of engineering which needs to be built up to ensure indigenous capability, particularly when precision spare parts are involved. The designing of such parts can be aided by modern computerised equipment which can measure the part accurately and also produce a drawing. If desired, the data can also be fed directly into computer numerically controlled (CNC) machines to be used for manufacture of the part. The modern material testing machines can give exact composition of the material and other characteristics of the part in very short time with direct reading. This kind of equipment is not available in the country. Hence, to build up the design capability inputs by way of both the technical knowledge and equipment would be required.

Quality: Quality of the part produced would depend on: correct design of the part; appropriate manufacturing process indicated by the methods engineer; availability of required machines and equipment for processing the same -including the quality control equipment; correct material and skill of the people processing the same. There are serious deficiencies in Ugandan industry in almost all these areas. The spare parts now

being produced in the country leave much to be desired in the area of quality. Hence, this appears to be another reason for heavy dependance on imports.

Machinery and Equipment: Most machinery and equipment used for manufacture of spare parts by existing establishments are old and not up to the required standards of accuracies. Some of the machines at the Uganda Polytechnic Kyambogo and vocational training institutes at Jinja and Nakawa are good and can be used for comparatively more accurate small sized spare parts. Material testing facilities are good at the Polytechnic and Makerere University, though not exactly "state-of-the-art".

There are serious deficiencies, however, in the range of plant and equipment required for manufacturing precision spare parts. These include: gear cutting and grinding machines; precision centreless, cylindrical and internal grinders; heat treatment; electroplating; spark erosion machines; horizontal boring machines and the latest inspection equipment for checking accuracy of the parts.

Another deficiency seen is in the area of capability of the industry to manufacture precision jigs and fixtures, dies, gauges and tools. Availability of this facility would enable the firms to manufacture precision spares and other parts. This would also help in general technological upgrading of the engineering industry in the country.

Manufacturing capacity: As mentioned earlier, a number of enterprises are engaged in the manufacture of spare parts. The railways, steel rolling mill, soft drink producers, farm implement manufactures, textile mills are among the few who have their own facilities to meet a part of their requirements for spare parts and tools. Among the engineering firms, UGMA is expected to play the leading role in the production of spares especially of the larger sizes.

5.3.2 UGMA Engineering Corporation Ltd. Lugazi

One of the important suppliers of spare parts to the industry is UGMA Engineering Corporation Ltd., Lugazi. A former captive maintenance workshop of Uganda Sugar Corporation, it was converted in the year 1960 into a separate engineering unit. The objective was to serve the needs of sugar, cement and other industries. Equipped with foundry, machine shop, fabrication shops and other facilities, it was able to meet the demand of spare parts of many industries in Uganda and neighbouring countries.

In 1970, a large expansion programme costing US$ 6 million, was embarked upon to make the unit the largest heavy engineering unit in East Africa. A part of the new equipment was received in 1972 and was in the process of being erected, when political events in that period stopped further progress. Subsequently, production in the factory almost came to standstill.

In 1980, UGMA Engineering Corporation Ltd., was incorporated with share holding of 51 per cent by the Government of Uganda and 49 per cent by the Mehta Group Management Ltd. -a private enterprise.3/ Phase I of the rehabilitation programme undertaken during 1981-1985, consisted mainly of bringing some of the existing machines into working order. A new shop was added in 1985 to manufacture steel furniture. Phase II of the programme about to be started consists of the following:

(i) Replacement, addition and modernisation of machinery in various shops;
(ii) Manufacture of office equipment, welding electrodes, conveyor chain parts, high tensile fasteners and generation of oxy-acetylene gas;
(iii) Installation of facilities for building truck bodies and rewinding of electric motors.

In this phase, a training department would also be set up to meet internal requirements of the company.

An investment of US$15 million is planned in this phase with anticipated increase in production capacities as follows:

SHOP	FROM	TO
Fabrication Shop	40,000 items	1,500,000 items
Machine shop	100 M.T.	300 M.T.
Welding electrodes	-	302 M.T.
Oxygen cylinders	-	200 M.T.
Electrical rewinding shop	-	100 motors
Truck body building	-	250 truck bodies

With this expansion, their sales turnover is expected to go up from about US$1.5 million in 1989 to US$8.2 million. The programme is expected to take about 2 years for completion.

With this programme, apart from the increase in capacity, it is planned to improve the quality of parts and castings. The new products of the foundry would be spheroidal grey (SG) iron, heat resisting castings etc. A useful addition for precision machining would be: spark erosion machine, cylindrical grinding machine and internal grinding machine.

5.3.3 Gaps in the manufacturing range

It is estimated that after the expansion and modernisation of UGMA, Uganda will be able to meet the requirement for spares of heavy and medium range for sugar, cement and other process industries etc. The main gap wil be to meet the requirement of precision small and medium parts for all industries -particularly textiles, food and beverage

3/ Company document of UGMA Engineering Corporation Ltd. on the Rehabilitation Plan

industries, machine tools and consumer durables. Another gap will be rubber parts like "O" rings, seals, v-belts and packings, etc. There is no indigenous manufacture of such items. They are however regularly consumed and are imported at high prices. Indigenous capability is also lacking in the area of production of plastic parts. There is an increasing use of such parts in many products and such a capability in the country could be of immense use.

5.3.4 Supply of materials

There is a heavy dependance on the import of materials required for spare parts. Various initiatives have however been taken to tackle this problem. In the area of steel products, Steel Rolling Mills Ltd. (SRM) is being expanded to add an electric arc furnace. With this, they will be able to make their own billets for the requirement of rolling mild steel round and square bars, and angles. They will also be able to make alloy steels like spring steel and stainless steel to meet local requirements. SRM is already in dialogue with Chillington Tool Company (Uganda) to make forging quality steel for them for the manufacture of hoes. They could also make steel castings. The situation will further improve after the rehabilitation of East African Steel Corporation (1985) Ltd.

Another important input of materials for spares would be ferrous and non-ferrous castings. There are a number of foundries which can make these castings. The problem is with the quality of castings. With the modernisation of UGMA, this problem would be substantially reduced. Steel Rolling Millls Ltds. also has plans to enter this market at a later date.

At some stage it may be worthwhile examining the possibility of setting up die-casting facilities for non-ferrous metal parts. At present, steel is produced in the country by melting steel scrap. Further, backward integration would involve mining the iron ore available in the country and converting it to sponge iron for use in the furnace. Plans for this are also on hand.

5.4 Human resources

Technical education at various levels in the country is organised as follows:

Vocational Training Institutes. They are engaged in training of workers in various trades. Two years of theoretical and practical training is provided in various trades. They come under the Ministry of Labour.

Technical Schools and Institutes. At the basic level are the technical schools which provide vocational training. Technical institutes are at the next higher level and provide craft, advanced craft and lower technician training to UCE (Uganda Certificate of Education) holders. As per provisional figures, in 1989 there were 52 technical schools and institutes in which enrollment was 6,941.

Technical Colleges. They occupy the next higher level and provide Ordinary Diploma in Engineering courses to "Uganda Advanced Certificate of Education" (UACE) holders. As per provisional figures, in 1989 there were 5 technical colleges with enrollment of 995 students.

Uganda Polytechnic Kyambogo. The polytechnic offers certificate, ordinary and advanced diplomas in science techniques and engineering disciplines to UACE holders. They provide theoretical and practical knowledge to man construction, service and manufacturing industries. It is an important institute and can give useful inputs to industry. It has deficiencies in its mechanical engineering workshops in the areas of foundry, sheet metal shop and quality control equipment. Some of the machines in the workshop require major repairs. The teaching staff also need further inputs in the latest developments in their fields. This polytechnic is under the control of the Ministry of Education.

Makerere University. It provides degree courses in engineering. In mechanical engineering, fifteen students are taken per year. They have a small workshop with general purpose machines for providing practical training to students. They have well-equipped laboratories for material testing and metallography.

Apart from the above, there are also organisations which provide in-service practical training and education to persons at various levels in industry. Among those visited are the following:

Vocational Training Institute, Nakawa. They train people under the apprenticeship scheme. The students come to the institute from industry for six weeks of practical and theoretical instruction in various trades. This institute has capacity for training eighty persons at a time. They have a well equipped machine shop in which components of normal accuracies can be machined. They do not, however, have modern machine tools and equipment. They come under the control of the Ministry of Labour.

Management Training and Advisory Centre, Nakawa. This centre operates under the Ministry of Industry and Technology. They conduct short term refresher courses and seminars with duration of one to six weeks. Various management subjects are covered like General Management, Human Resource Management, Financial Management etc. They also have a small engineering workshop specialising in carpentry, metal work and automotive services. The centre undertakes special training and advisory programmes for the development of entrepreneurs with regard to skills and operations of the small and medium enterprises. In recent years the workshop has not been fully utilised and the centre planned to close it down and sell the equipment. The Ministry of Industry and Technology has however suspended implementation of that decision.

From the above description, it is clear that there is basic educational institutional back-up for industry in Uganda. During the course of discussions with various managers of industries, however, we were informed

that fresh graduates from all technical education institutes lack even the most fundamental practical knowledge on workshop practice. It appears that workshop practice is not given due importance in virtually all training institutions and as a result students graduate with little knowledge on basic machine operations. This is a serious flaw requiring urgent corrective measures since workshop facilities and instructors are available in many training institutions. These facilities are not being fully utilized and workshop training is not being given the right weight in the curriculum.

6. CONCLUSIONS AND RECOMMENDATIONS

6.1 Agricultural implements

With the production capacities being planned for Soroti Agricultural Implements Manufacturing Co., Chillington Tool Company Ltd. (Uganda) and the present production of West Acholi Cooperative Workshop, Gulu, it is felt that there is no need to put up new facilities for meeting the country's requirement in this sector. In fact, Chillington is carrying a heavy stock of hoes for want of customers.

There is a need, however, to expedite work at Soroti, to meet the demand for ox-drawn implements. This industry is importing steel for their production at a high cost. Apart from the various operational difficulties involved in importing, there is also a problem of high cost of such materials, considering transportation costs from far off places abroad. With the commissioning of the electric arc furnace at Steel Rolling Mills Ltd. it will be possible for them to obtain their supplies locally.

The industry is not in a position to compete against imports under the existing tariff structure. If their expanded capacities are to be fully utilised, they would need adequate protection for a certain limited length of time. The tariff structure will have to be examined in detail by the Government. As there is no import duty on imported finished products, local manufacturers are at a disadvantage since they have to pay duty on imports of raw materials, as well as, other local taxes. There is a good case for permitting duty free import of materials to the manufacturers of agricultural implements and tools in support of building a sustainable indigenous capacity in this sector.

6.2 Spare Parts

In the current rehabiliation phase of industry and later developing the economy as integrated and self sustaining, it is essential that spare parts of the required quality be easily available. At present, there is heavy dependance on imports and indigenous production is not well developed. Major gaps are seen in the areas of availability of steel, design capability, precision machining facilities and the availability of technically competent manpower. Among non-metallic spare parts, there are no facilities for producing rubber and plastic parts. It will be advisable for the Government to encourage rubber and plastic parts industry.

After commissioning of the furnace and other facilities of the Steel Rolling Mills Ltd. and after rehabilitation of East African Steel Corporation (1985) Ltd., various types of steel and steel castings would become available. Steel production will receive further backup support after mining of the iron ore deposits gets under way.

Expansion of UGMA Engineering Corporation Ltds. has been planned in a manner that it would meet the requirement of medium to large sized spare parts. The foundry modernisation would improve the quality of castings.

A gap would, however, remain to be filled up in the areas of: precision parts of small and small to medium range; design capability; availability of adequately trained technical manpower; and rubber and plastic parts. The outline of the various proposals in respect of these are described below. Detailed project wise proposals are listed in Section 7.

6.2.1 Precision Machining Workshop

Main features of this workshop should be as follows:

(i) It should be capable of producing small and small to medium spare parts, gauges, jigs, fixture, tools and dies;

(ii) It should have facilities for the manufacture of spur and helical gears, heat treatment, electroplating, external, internal and surface grinding;

(iii) It should have relevant inspection equipment and material testing facilities;

(iv) It should have Computer Aided Design (CAD) facilities for designing various items mentioned above;

(v) An additional activity of the centre would be conducting short term specialised courses for training designers for spare parts, jigs, fixtures and press tools. Special training needs of industry for precision machine operations and quality control could also be undertaken.

6.2.2 Assistance to Uganda Polytechnic Kyambogo

Main features of this assistance will be as follows:

(i) Preparation of the rehabilitation plan for various workshops;

(ii) Providing equipment and facilities for foundry and sheet metal shop;

(iii) Upgrading the machine shop by addition of CNC training machines and equipment to introduce this technology in the country;

(iv) Training of lecturers in the advanced machining technologies.

6.2.3 Assistance to vocational training institutes

During the rehabilitation phase and in the next phase of development of the country, full range of workshop machinery and equipment will have to be put to use for producing spares and other goods. Hence, it is important that students from vocational training institutes are adequately prepared in the arts of gear cutting, heat treatment, pattern making, foundry work and the use of quality control equipment. For this purpose, teachers in those institutes would need refresher/retraining in these technologies.

6.2.4 Training in the informal sector

There is a lot of activity in the metalworking sector, in which many artisans with basic technical skills but with only very elementary education are involved. There is a need to capitalize on this talent through upgrading of skills. It is suggested that the Government of Uganda should establish a small Common Facility Workshop -cum- Training Centre to assist artisans in upgrading of skills as well as improve quality of their products through use of the common facilities of the workshop. The workshop should be set up in the vicinity of the current main operating premises of the artisans in Katwe.

7. PROJECT CONCEPTS

7.1 Precision Machining Workshop

Project Identification: This project is proposed to fill up a gap which exists in precision machining capabilities of the engineering industry in Uganda. The problem was identified after visiting local industries, training institutions and interviews with the concerned government authorities.

Problems Identified: Capacity utilisation of the manufacturing sector in Uganda is low, in part, due to non-availability of spare parts. Local manufacture of spare parts is not so well organised and can at best cater to the requirement of components of low quality. There is, hence, a heavy dependance on imports resulting, at times, in long waiting periods for unexpected breakages. Certain basic facilities, for production of precision spares, like heat treatment, electroplating, precision grinding and gear cutting are either not available or they cannot meet rigid specifications required for production of precision parts. Additionally, facilities are not available for the production of precision jigs and fixtures, press tools, gauges etc. The industry is using such equipment of crude design which

affects quality of the goods produced. There is also no facility for getting these items designed locally.

Project Objective. The objective of the project would be to establish facilities for the production of precision spare parts of small and small to medium size; train the designers for preparing designs for these parts and the tooling; develop facilities for manufacture of precision tools, dies, jigs and fixtures, gauges, etc; provide special training to operators to work on precision machines and help in improving quality of the products in the engineering sector.

Project Description. The proposed project would comprise the following activities:

- selection of international experts for the preparatory phase, chief technical advisor, works manager and tool and components designer;
- appointment of local staff to run the workshop;
- appointment of sub-contractors by UNIDO for supply, erection and commissioning of machinery and equipment;
- overseas training of personnel of the workshop;
- on-the-job training by international experts;
- transfer of technology with regard to activities of the workshop by the UNIDO experts;
- drawing up systems and procedures including methods of pricing the products and services, since the project is planned to be self financing once it is fully commissioned. It has to run as a commercial enterprise;
- drawing up the training plan for designers and specialist precision machine operators;
- this project will be a new organisation, which may use some of the existing facilities of the Management Technical and Advisory Centre, Nakawa. This way it will come up faster, at a minimum cost.

Project outputs. They would be as follows:

(i) local manufacture of precision spare parts;

(ii) facility to manufacture precision tools, gauges, jigs, fixtures, dies etc. to help the industry in improving quality of production of their products and spare parts;

(iii) enhance the local design capability;

(iv) upgrading of the skills of workers through specialised training on precision machines;

(v) the centre will create awareness in the industry for upgrading quality standards.

Project Inputs.

Human resources. UNIDO experts would be required as follows:

1.	Preparatory phase	3 man months
2.	Chief technical advisor (with experience of running tool room and general machine shop)	36 man months
3.	Designer (with specialisation in tool design)	24 man months
4.	Works manager for machine shop (with the knowledge of tool room operations and heat treatment)	30 man months

Training of supervisory and other staff may be provided by the contractors/suppliers of the plant and machinery.

Local staff at various levels will be recruited to work under the guidance of the UNIDO experts and will eventually take over from them. The strength in all would be around 80 persons.

Counterpart Body. Considering the nature of the workshop, it should be set up under the control of the Ministry of Industry and Technology. Main users of this workshop would be the manufacturing industry. For effective functioning, it should be set up as a new autonomous organisation under the control of the Government. The Government of Uganda should provide local facilities like buildings and infrastructure; UNDP/UNIDO could provide plant and machinery, as well as, experts for a certain period of time. After initial investment by the Government and UNDP/UNIDO up to the stage of full commissioning of the plant, it should be self financing and should run as a profit centre. It is suggested that the workshop of the Management Training and Advisory Centre (MTAC) may be expanded to house this workshop and a portion of their main building may be used for classrooms and administrative offices.

Project Beneficiaries. Direct beneficiaries of the project would be the manufacturing sector, particularly the engineering sector, which can improve quality of their products and enter new areas of precision production.

Situation Post-Project. On completion of this project, the manufacturing sector would be able to get critical precision spare parts manufactured from this centre. The engineering industry will be able to get their precision

tools, jigs, fixtures, etc., manufactured here and they will get trained designers from this centre. It would run on commercial lines with the participation of the Government/industry/public on the governing body. This workshop can introduce the engineering industry to a new era of precision production and catylise progress in this direction.

Environmental Impact. Adequate provision will have to be made for the proper disposal of waste and affluent arising out of heat treatment and electroplating sections. After this provision is made there will be no significant harmful effects on the environment. In fact, this equipment will create awareness in the industry for installing such facilities wherever harmful affluents are discharged.

Risks. The placement of local management personnel and others will have to be done very carefully so that only those with aptitude for precision work would be employed in this workshop. It should receive support of the Government and industry to run on commercial lines. A departure from this concept can lead to failure in providing the desired services.

Implementation Schedule

Phase	Year 1/Quarters				Year 2/Quarters				Year 3/Quarters			
	/ 1 /	/ 2 /	/ 3/	4 /	/ 1 /	/ 2 /	/ 3/	4 /	/ 1 /	/ 2 /	/ 3/	4 /
Preparatory phase	xxx											
Evaluation and negotiations		xxx										
Contract signature			x									
Procurement			xx	xxx		xxx	x					
Civil work/ erection/commissioning				xxx		xxx	xxx					
Production and Training								xxx	xxx	xxx	xxx	xxx

Budget

I UNDP/UNIDO - Estimated cost of the project of duration 3 years will be as follows:

		US$
-International experts		
(i)	Preparatory phase 3-man months	22,500
(ii)	Chief technical advisor 36 mm	342,000
(iii)	Designer 24 mm	228,000
(iv)	Works manager 30 mm	285,000
-Equipment		3,200,000
-UNIDO staff travel		20,000
-Miscellaneous		80,000
		4,177,500

II. The Government of Uganda Estimate is based on the assumption that the centre will use existing facilities of the Management Training and Advisory Centre. Cost of additional work has been roughly estimated.

-Extension of the workshop building.	
-Air-conditioning a part of the building for housing jigboring and inspection machines	
-Additional electrical work	1,000,000
-Administrative support service	
-Operating cost, working capital for three years till the workshop becomes self-supporting	
-Local costs of erection and commisssioning	
COST OF THE TOTAL PROJECT	US$ 5,177,500
	say US$ 5,2 million

7.2 Assistance to Uganda Polytechnic Kyambogo

Project Identification. It was revealed during the discussions with the managers of various industries that the students coming out of technical training institutions lack practical knowledge. This project was identified after visit to the Uganda Polytechnic at Kyambogo and discussions with officials of the Ministry of Education.

Problem Identified. This institution provides theoretical and practical training to students in construction, service and manufacturing disciplines. It does not have all the necessary facilities in the mechanical engineering workshop to give practical training to students. Gaps were particularly visible with regard to the foundry, sheet metal shop and quality control equipment. They also have no facility to introduce students to computer numerical control (CNC) technology. There is also a need to train lecturers in CAD/CAM techniques.

Project Objective. The project objective would be to provide the polytechnic with facilities for training students in foundry and sheet metal trade properly. Additionally, since the use of CNC machines is increasing in the world, it would be appropriate that the students are given introduction to this subject -both by way of theoretical and practical inputs. CNC training machines and kits are available now for this purpose. Special Attention would also have to be given to the aspect of quality control.

Project Description. The project would comprise the following activities:

(i) preparatory phase, in which detailed specifications of the project will be defined with regard to the requirement of machinery and infrastructure and the nature of training to be provided to the teachers;

(ii) putting up the infrastructure including civil and electrical works;

(iii) procurement and installation of plant and machinery;

(iv) deputation of an international expert for preparing training programme on CNC machines and technology and training the local teaching staff on the spot;

(v) training of the teaching staff in the country and abroad;

(vi) to ensure that the practical training is taken seriously by the students, certain number of hours will have to be put in by them in the workshop before they are given the diploma.

Project Outputs. The important feature of the output would be, supply of manpower to the industry with better practical orientation and the up-to-date knowledge of engineering. This would help the industry in improving quality of their products, reduce dependance on imports and enter the export market.

Project Inputs. The project would be implemented over a period of four years.

Human Resources. A consultant would be required in the preparatory phase for a period of three man-months to prepare detailed specifications of the project. Once the equipment is in place, an expert on CNC machines would be required to prepare study material for students, prescribe curriculum and give practical training to teachers initially and then the students on operation of CNC training machines for a period of six man-months.

Equipment and Materials. Training materials and plant and equipment would be involved in the project.

Counterpart Body. It would be Uganda Polytechnic Kyambo, under the Ministry of Education.

Allied Projects. The project would be of value on its own, but will be more useful in general technological upgrading of industry, if implemented along with the technical assistance to vocational training institutes proposed later at section 7.3.

Project Beneficiaries. They would be the manufacturing industry and in particular the engineering industry.

Situation Post-Project. It is expected that on completion of this project, industry will get skilled technicians with more up-to-date theoretical and practical knowledge. This in turn would help them in improving quality of their products and in being competitive in the market.

Environmental Impact. The project should have a positive environmental impact, by introducing to the students to the current, better environmentally acceptable technologies.

Risks. Benefits out of the project would accrue if there is strict adherence to the requirement of practical work by the students.

Policy Issues to be resolved. They relate to acceptance of curriculum with practical work being the essential component of the course. Further, a mechanism should be set up vide which there is a co-ordination between the Ministries of Education and Labour on one hand and the Ministry of Industry on the other for effective monitoring and utilisation of the programme.

Implementation Schedule

Phase	Year 1/Quarters				Year 2/Quarters				Year 3/Quarters				Year 4/Quarters			
	/ 1 /	/ 2 /	/ 3/	4 /	/ 1 /	/ 2 /	/ 3/	4 /	/ 1 /	/ 2 /	/ 3/	4 /	/ 1 /	/ 2 /	/ 3/	4 /
Proposals	xxx															
Evaluation and negotiations		xxx														
Contract signature			x													
Procurement			xx	xxx	xxx	xx										
Civil work/erection/ commissioning					xxx	xxx	xx									
Expert services							x	xxx	xx							
Training of teachers locally and abroad							xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx

Budget

UNDP/UNIDO		US$
-Consultant/expert 9 mm		85,500
Air ticket twice		6,000
-Equipment for Foundry, Sheet Metal Shop, quality control instruments and balancing equipment for machine shop		200,000
-Training expenses local and abroad		75,000
-UNIDO staff travel		15,000
	TOTAL	381,500

Polytechnic/Government		
-Civil work alterations/repairs		
-Electrical work		40,000
-Administrative expenses		
-Local training		
	GRAND TOTAL	421,500

7.3 Technical Assistance to vocational training institutes (VTI)

Project Identification. During the discussions with managers of various industries, it was revealed that the quality and range of education and training received by the students needs improvement. This view and visit to the VTI's led to the identification of this project.

Problem Identified. Though VTI's exist in Uganda, quality of students coming out of them needs improvement. Moreover, there are certain trades which are not effectively covered. While the problem may to some extent lie in the effectiveness of the management of the VTI's, the periodic retraining of teachers is also lacking to update their knowledge. This is particularly important now since emphasis will have to be laid on certain trades like foundry, pattern making, heat treatment, etc.

Project Objective. It would be to provide retraining to the teaching staff in certain trades mentioned above so that the quality and rage of knowledge of students coming out of the VTI's is such that the industry finds them useful in the new challenges it is facing, that is competition from abroad and the need to improve quality and reduce costs.

Project Description. The project would comprise the following activities:

(i) A preparatory phase of two months would consist of identifying the priorities with regard to the training needs and working out details of the training to be provided locally and abroad;

(ii) In the next phase the project will be implemented as per programme worked out in the preparatory phase. The training in Uganda could be provided by the local experts. The training abroad would involve attaching some teachers to similar institutions overseas for a period of three months each.

Project Outputs. The main output would be availability of artisans of better quality, in a wider range of subjects, to the industry. This would help the Government in rehabilitation and growth phases of the economy.

Project Inputs. The project would be implemented over a period of three and a half years.

Human Resources. A consultant would be required in the preparatory phase for a period of two months to prepare detailed specifications of the project. He should have experience of teaching in a similar kind of institution which has a modern workshop and teaching aids in trades mentioned above.

Counterpart Body. It would be the Ministry of Labour.

Allied Projects. The project would be of value on its own, but will be more useful in general upgrading of industry, if implemented along with the assistance to Uganda Polytechnic as described in Section 7.2.

Project Beneficiaries. They would be the manufacturing industry and in particular the engineering industry.

Situation Post-Project. It is expected that industry will get artisans of better quality with knowledge of wider range of trades. It will help the industry in improving their performance and meet new challenges in rehabilitation and growth phases of the economy.

Environmental Impact. The project should have a positive environmental impact, by introducing to the students, the current, environmentally acceptable technologies.

Risks. No particular risks are attached to the project, if choice of the consultant and the training places is made with care.

Policy Issues. They would involve setting up a mechanism vide which there is a co-ordinated effort between the Ministries of Education and Labour on one hand, as suppliers of manpower to industry, and the Ministry of Industry and Technology as a user. This is essential for the success of the project.

Implementation Schedule

Phase	Year 1/Quarters				Year 2/Quarters				Year 3/Quarters				Year 4/Quarters	
	/ 1 /	2 /	3/	4 /	/ 1 /	2 /	3/	4 /	/ 1 /	2 /	3/	4 /	/ 1 /	2 /
Proposal	xx													
Evaluation and negotiations		x	x											
Contract signature			x											
Implementation			xx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx

Budget

UNDP/UNIDO	US$
-Consultant 2 mm	19,000
Air ticket 1	3,000
-Air tickets 10 persons at US$3,000 each	30,000
DSA 30 mm at 3000 US$/month	90,000
-Training cost 30 mm at 500 US$/mm	15,000
-UNIDO staff travel	10,000
GRAND TOTAL	167,000

7.4 Establishment of a Common Facility -cum- Training Workshop in Katwe

Project Identification. This project was identified during discussions with the Minister of Industry and Technology and subsequent visit to Katwe where several artisans and craftsmen are involved in basic engineering activities. The artisans/craftsmen appear to have acquired considerable skills although most of them lack adequate formal education.

Problem Identified and Project Context. The level of formal education of artisans/craftsmen in Katwe and other locations and lack of proper tools limits the quality of products produced by this informal sector. Financial constraints hinder the purchasing of proper tools by the entrepreneurs. A common facility -cum- training workshop equipped with basic machine tools such as a lathe, a milling machine, a drilling machine and a grinding machine and heat treatment facilities could serve the dual purpose of improving quality of products while at the same time train the artisans/craftsmen on new production methods. As the artisans gain new skills and quality of products improve, it is anticipated that their enhanced income will enable some of them purchase some machine tools for their own needs.

Project Objective. The main objective of the project is to upgrade technical skills of artisans/craftsmen in Katwe, Kampala and thus improve quality of spare parts and other prouects they produce.

Project Description. The project would comprise the following activities:

(i) A preparatory phase of one month for determining detailed project parameters including exact project site and equipment to be purchased;

(ii) Construction of the workshop building (6 months);

(iii) Procurement and installation of the machinery (3 months);

(iv) Training of local experts who would operate the workshop (3 months;

Budget

UNDP/UNIDO	US$
-One Consultant for Preparatory phase 1 mm	9,000
Air travel	3,000
-Equipment	200,000
-International Experts One Workshop Supervisor for 6mm	48,000
-One training engineer 3 mm	24,000
-Air Travel	6,000
	290,000
Government	
-Civil Construction of Workshop including infrastructure	40,000
GRAND TOTAL	330,000

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5. UNIDO Report of the Mission to Uganda, 27-31 May, Soroti Agricultural Implements and Manufacturing Company, UNIDO-Vienna 13 June 1991, Mr. Yuri Gladilov and Mr. A.A. Swamy Rao

6. Rural Small Scale Enterprises and the Role of Technology: Key Constraints and Strategy Options - Reconnaisance Mission, World Bank, 31 may 1991

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Annex A

PROJECT APPENDIX

MANUFACTURING

IT-01 EAST AFRICAN STEEL CORPORATION

Description

The Project aims at rehabilitating the productive capacity of East African Steel Corporation and restoring its capacity to 20000 tonnes of steel per annum.

	Actual vs Plan/Budget, 1990/91		
	Foreign	Local	Total
(i) RDP (US $ m)	-	1.14	1.14
(ii) Budget (U Shs bn)	-	0.50	0.50
(iii) Estimated Actual (US $ m)	-	1.14	1.14
(iv) Disbursement Ratio (%)	-	100.00	100.00

Progress During 1990/91

Civil works are near completion and plant commissioning will be scheduled in the near future. There is need for international experts in steel making and rolling to train company engineers in the necessary technical skills in steel production.

Funding

EASCO and a UNIDO expert have drawn up an estimated budget of US $ 680,000 to cover the cost of the experts, but donor funds have not yet been identified.

IT-02(A) THE TEXTILE INDUSTRY (AFRICAN TEXTILE MILL).

Description

The objective of the project is to raise production from an output of 3 million to 12 million meters per year. The remaining project component covers construction of adequate factory foundations, replacement of roofing, and installation and commissioning of machinery which is already on site.

	Actual vs Plan/Budget, 1990/91		
	Foreign	Local	Total
(i) RDP (US $ m)	2.55	0.06	2.61
(ii) Budget (U Shs bn)	2.28	0.05	2.33
(iii) Estimated Actual (US $ m)	2.55	0.06	2.61
(iv) Disbursement Ratio (%)	100.00	100.00	100.00

Progress During 1990/91

The only remaining work is the installation of machinery which has been lying on site.

Funding

The project was slowed down by delays in servicing loans, leading to the suspension of loan disbursements. However, Abu Dhabi Fund confirmed receipt of US $ 578,000 in settlement of arrears and has now started disbursing.

Source: Background to the Budget 1991-92, Ministry of Planning and Economic Development, Uganda - June 1991

IT-02(B) THE TEXTILE INDUSTRY (NYANZA TEXTILES INDUSTRIES).

Description

The rehabilitation of Nytil so as to restore full production capacity in the spinning,weaving and finishing departments.

Progress During 1990/91

There was a severe cutback in production by Nytil during 1990/1991 when a number of employees were laid off due to financial problems. The plant also had to stop production for repairs.

Funding

So far US$ 8.958m has been disbursed through UDB. The outstanding financing requirement of US $ 1.279m is to be sought from donor assistance.

IT-02(C) THE TEXTILE INDUSTRY (LIRA SPINNING MILL).

Description

Restoration of the Mill to its original full capacity production of yarn. The target output of the Mill is 3600 metric tonnes annually.

	Actual vs Plan/Budget, 1990/91		
	Foreign	Local	Total
(i) RDP (US $ m)	-	0.02	0.02
(ii) Budget (U Shs bn)	-	0.10	0.10
(iii) Estimated Actual (US $ m)	-	0.11	0.11
(iv) Disbursement Ratio (%)	-	50.20	50.20

Progress During 1990/91

Sixty percent of the total work has been done. Delays in disbursing both local and foreign payments to the contractor forced work to stop. Roko is to submit through the project consultants an accurate (quantity and value) estimate of the remaining works. Rescheduling of these works is dependent on the availability and release of funds, especially of foreign exchange.

Funding

The outstanding payments to be made to Roko Construction by the Government are Ug.Shs.184m plus US $ 327,000.

IT-05(A) THE SUGAR INDUSTRY (KINYARA)

Description

Development of Kinyara Sugar Works Complex into a 1500 tc/d operation which involves the rehabilitation of some agricultural equipment, the factory and some buildings.

	Actual vs Plan/Budget, 1990/91		
	Foreign	Local	Total
(i) RDP (US $ m)	17.20	2.20	19.40
(ii) Budget (U Shs bn)	-	-	-
(iii) Estimated Actual (US $ m)	-	2.20	2.20
(iv) Disbursement Ratio (%)	-	100.00	11.34

Progress During 1990/91

About 340 ha of seed cane is available. Some 225 ha of cane became too old and had to be cut to allow the following ratoons to mature for commercial purposes in mid 1993. The rehabilitation of the Guest House has been completed.

Funding

So far two donors have signed loan agreements. The project is likely to start in 1991/92. Due to delays in implementing the project, cost estimates have increased from US$ 57.9m to US$59.8m, although the equity contribution from Government of Uganda has been reduced to US$ 8.3m.

IT-05(B) THE SUGAR INDUSTRY (KAKIRA)

Description

Restoration of Kakira Sugar Works to its original capacity of 3,000 tc/d. Rehabilitation will involve the main factory,overhead transmission lines,harvestors, and infrastructure development.

	Actual vs Plan/Budget, 1990/91		
	Foreign	Local	Total
(i) RDP (US $ m)	12.26	0.80	13.06
(ii) Budget (U Shs bn)	-	-	-
(iii) Estimated Actual (US $ m)	5.67	0.80	5.67
(iv) Disbursement Ratio (%)	46.24	100.00	49.76

Progress During 1990/91

The amount spent up to October 1990 was US$ 14.9m. After initial teething problems the plant stabilized its operations in November 1989. However the plant stopped production in August 1990 for capital repairs and planned maintenance. This period of shut down was scheduled to coincide with the temporary shortage of millable mature cane which was expected between November 1990 to March 1991.

Funding

The remaining US$ 21.2m is expected to be financed by IDA,ADB,and ADF.

IT-06 THE CEMENT INDUSTRY (HIMA)

Description

The objective is to rehabilitate and update the Hima factory to full capacity utilization beginning with line II.

Progress During 1990/91

The work, which had been scheduled to take only three months, has dragged on to date due to lack of funds and interruptions in UEB power supply.

Funding

The project cost has already been pledged by the African Development Bank, European Investment Bank and Danida. What is delaying disbursement of the funds is the power problem, which is not yet wholly resolved.

IT-07 INDUSTRIAL SECTOR DEVELOPMENT LOANS

Description

On-lending of funds to priority industries which satisfy overall Government objectives, to enable these industries to meet the foreign cost of priority programmes, expand their productive capacity and finance feasibility studies.

	Actual vs Plan/Budget, 1990/91		
	Foreign	Local	Total
(i) RDP (US $ m)	-	-	-
(ii) Budget (U Shs bn)	-	-	-
(iii) Estimated Actual (US $ m)	2.57	0.00	2.57
(iv) Disbursement Ratio (%)	-	-	-

Progress During 1990/91

Various international financial institutions have provided lines of credit to assist in the rehabilitation and expansion of the industrial sector. These loans have been channelled through Uganda Development Bank and Uganda Commercial Bank for on-lending to viable enterprises.

Funding

Currently only Government of Uganda financing has been secured and extra financing is being sought from donors. No studies have been carried out for the lines of credit and the implementing agencies therefore require feasibility studies for each project for which finance is soyght.

IT-12 PHOSPHATE PROJECT

Description

The Phosphate Project is based on the exploitation of phosphate deposits to produce 200,000 tonnes of single super-phosphate and 50,000 tonnes of triple super-phosphate.

	Actual vs Plan/Budget, 1990/91		
	Foreign	Local	Total
(i) RDP (US $ m)	0.03	-	0.03
(ii) Budget (U Shs br)	-	-	-
(iii) Estimated Actual (US $ m)	0.03	-	0.03
(iv) Disbursement Ratio (%)	100.00	-	100.00

Progress During 1990/91

The project has yet to commence due to inadequate funds.

Funding

The prospective investors, who indicated their commitment to provide funds, have yet to disburse them because the partnership agreement has not been signed. However African Development Bank is going to disburse US $ 0.100m in 1991/92 for consultancy services.

IT-16(N) LIRA STARCH FACTORY.

Description

The objective is to rehabilitate the plant to produce industrial starch, liquid glucose,dextrine,and pharmaceutical starch.

Progress During 1990/91

UNIDO field experts recently carried out research, the result of which is being awaited, to update and adjust the financial estimates for the rehabilitation of the plant.

Funding

East African Development Bank has already committed itself to contribute US $ 1.8m and Government has committed itself to meet all the local financing requirements of US $ 0.88m. The foreign funding gap of US $ 3.20m is expected to be financed by a development bank loan or donor assistance.

Annex B

PERSONS CONTACTED

A. Ministry of Industry and Technology

1.	Mr. James F. Wapakabulo	Minister of Industry and Technology
2.	Ms. T. Kinalwa	Permanent Secretary
3.	Dr. S. P. Kagoda	Commissioner for Technology
4.	Mr. Martin Onyach-Olaa	Senior Industrial Officer
5.	Jr. Joathan Kapasi-Kakoma	Chief Industrial Officer

B. Ministry of Planning

1.	Mr. Tumebaze Happy James	Head, Industry Section

C. Ministry of Agriculture

1.	Mr. F.A. Ojacor	Commissioner for Agriculture
2.	Mr. G.A. Lematia	Deputy Commissioner for Agriculture
3.	Mr. S. Kisense	Principal Assistant Secretary
4.	Mr. Kaketo	Senior Agricultural Engineer

D. Ministry of Mines

1.	Mr. David Hadoto	Ag. Assistant Commissioner for Geological Surveys and Mines

E. Ministry of Education

1.	Mr. Ton Ogwal	Permanent Secretary
2.	Mr. Eric A. Karuhijie	Deputy Commissioner for Education
3.	Mr. Dan Sentamu	Director, National Curriculum Development Centre, Kyambogo
4.	Mr. Eria Twinomugisha	Project Manager, STEPU (Science and Technology Equipment Production Unit)

F. UGMA Engineering Corporation Ltd.

1.	Mr. M. R. Anand Rao	Resident Director
2.	Mr. M. Suryanarayana	Financial Controller

G. PABCO Enterprises Limited

1.	Mr. Nandlal H. Karia	Managing Director
2.	Pradip N. Karia	Director

H. H.S. Motay and Company

1.	Mr. H.S. Motay	Proprietor

I. Uganda Polytechnic Kyambogo

1.	Ms. Rose Mutalya	Dean of Studies
2.	Mr. Benda	Registrar
3.	Mr. Amos Okwanyi	Head, School of Mechanical and Production Engineering
4.	Mr. Mukenya Edward	Automotive Department
5.	Dr. Upande	Mechanical Engineering Department
6.	Mr. Musaazi Pascaal	Mechanical Engineering Technical Drawing
7.	Dr. Seng'onzi	Production Engineering Department

J. Management Training and Advisory Centre

1.	Mr. Aloysius O. Owor	Director
2.	Mr. Timoth L. Lubega	Secretary/Treasurer
3.	Mr. Albert G. Mukasa	Production Management Consultant

K. Sonoti Agricultural Implements Manufacturing Company

1.	Mr. Cornelius A. Aisu	General Manager

L. Lake Victoria Bottling Co. (A Government enterpise-produces Pepsi Cola)

1.	Mr. Patrick Kyoyetera	Mechanical Engineer
2.	Mr. Benedicto Ebangu Orari	Electrical Engineer

M. The Chillington Tool Company Uganda Ltd.

1.	Mr. Eustace Wasswa	Finance Director

N. Vocational Training Institute, Jinja

1.	Mr. James Mulowooza	Higher Executive Officer

O. Steel Rolling Mills Ltd.

1.	Mr. Rudy	General Manager

P. Makerere University

1.	Mr. Kariko Buhwezi	Lecturer, Mechanical Engineering Department

Q. M.C. Industries, Katwe

1.	Mr. E.N. Muwanga	Managing Director