OCCASION

This publication has been made available to the public on the occasion of the 50th anniversary of the United Nations Industrial Development Organisation.

DISCLAIMER

FAIR USE POLICY

CONTACT

Please contact publications@unido.org for further information concerning UNIDO publications.

For more information about UNIDO, please visit us at www.unido.org

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
Vienna International Centre, P.O. Box 300, 1400 Vienna, Austria
Tel: (+43-1) 26026-0 · www.unido.org · unido@unido.org

06844

Distr.
RESTRICTED

UNIDO/ICIS.15
2nd December 1975

ORIGINAL: ENGLISH

REPORT 1/

of

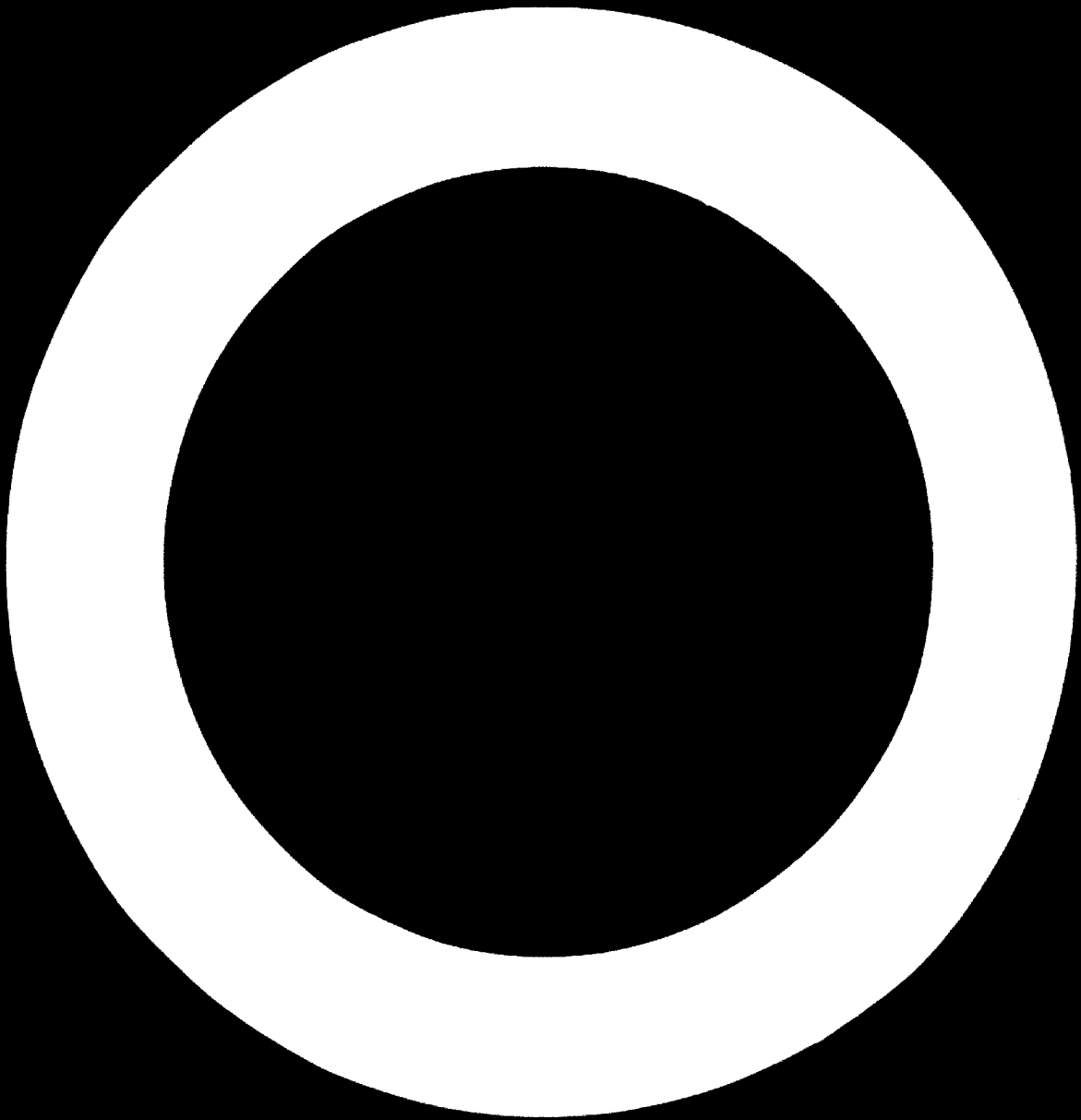
[illegible]

FOR THE [illegible]

OF [illegible]

[illegible]

1/ This document has been reproduced without formal editing.



C O N T E N T S

Preface

0.01 This report presents the findings of a UNIDO programming mission for the industrial sector of Uganda undertaken in November 1975. The specific purpose of the mission was to provide guidance to the Government in the formulation of the industrial sector of the country programme for UNDP assistance 1977-81. In doing this, the mission would also consider the currently programmed UNDP assistance for 1976 with a view to suggesting modifications and adjustments, leading into the 1977-81 programme. The mission was furthermore to take into account in its proposals other forms of assistance from the United Nations system in the industrial sector, such as the Special Industrial Services (SIS) programme, UNIDO's Regular Programme and Voluntary Contributions Fund and its programme for Co-operation among Developing Countries (CDC).

0.02 These specific tasks for the mission were to be tackled on the basis of an analysis of the country's industrial sector with specific attention paid to selected key industrial sub-sectors, and in the context of an identification of overall technical assistance requirements in the field of industry, regardless of the likely source of assistance.

0.03 The detailed terms of reference for the mission were as follows:

(i) To prepare a basic analysis of the present industrial structure;

(ii) To make an assessment of industrial development potentials within the framework of overall economic development and on the basis of the Government's development objectives and policies;

(iii) To make an analysis of major techno-economic problems prevailing in industry;

(iv) To identify overall technical assistance requirements in the field of industry, regardless of the likely source of assistance, with an indication of relative priorities;

(v) Arising out of the preceding, to prepare a draft long-term plan of action for industry covering inter alia, the following areas:

- detailed techno-economic investigations of specific industries;
- technological trouble-shooting;
- training programmes of various industrial staff categories;
- operational support to industrial plants;
- operational support to authorities responsible for industrial development; and
- assistance in establishing and/or strengthening various industrial institutions;

(vi) To prepare proposals for appropriate forms of assistance from the UN System in the industrial sector under UNDP Country Programme, the Special Industrial Services Programme, the UNIDO Regular Programme as well as the UNIDO schemes pertaining to Investment Promotion, Co-operation among Developing Countries and Voluntary Contributions;

(vii) To make recommendations for appropriate timing of technical assistance delivery by the UN System; and

(viii) To make proposals for follow-up action in the formulation of specific technical assistance projects.

O.04 The mission comprised the following UNIDO staff members:

Nils Ramm-Ericson, Senior Industrial Development Officer, Office of the Director, Industrial Policies and Programming Division, Vienna, team leader

F. Arthur Blumeris, Programme Management Officer, Section for Programme Co-ordination, Technical Co-operation Division, Vienna

William Villager, Senior Industrial Development Field Adviser (UNIDO), Nairobi.

O.05 The field work in Uganda was carried out between 3 and 16 November 1975. A tour to some of the country's industries in Jinja - Tororo - Mbale area was made between 6 and 10 November, arranged by the Ministry of Industry and Power in cooperation with the local authorities. At the country's major industrial town, Jinja, the mission was given the opportunity to meet with the Governor of the Province.

O.06 Discussions were held with senior officials of the Ministry of Planning and Economic Development, the Ministry of Industry and Power, the Ministry of Commerce and the Ministry of Works and Housing as well as with general managers or senior officers of a number of parastatal bodies. Some 14 industries, from both the public and private sector, were visited in Kampala, Jinja, Lugazi, Kakira, Tororo and Mbale. A listing of the persons contacted and the industries and institutions visited is appended as Annex 1.

0.07 Specific mention should be made of the very comprehensive discussions held towards the end of the mission's stay with senior officers at the Ministry of Planning and Economic Development. During these meetings, in which the UNDP representative concerned with the UNIDO programme, Mr. B. Khader, also took part, the various findings and proposals of the mission were presented and discussed in detail.

0.08 The mission has chosen to present a fairly voluminous report on its findings bearing in mind that its work should be considered primarily as one step in the development and formulation of a comprehensive assistance programme for the industrial sector of Uganda; the required refining of the programme would be made possible through the Industrial Survey planned for early next year and the various missions in the fields of repair and maintenance, the iron and steel industry development, the building materials industries development, the textile industry rehabilitation, the preparatory mission on the establishment of a Food Industries Development Centre, etc. proposed to be undertaken during the first half of 1976.

1. SUMMARY OF FINDINGS AND RECOMMENDATIONS

1.01 The present economic situation of Uganda is characterized by the 'economic war' that was declared in late 1972 in connexion with the transfer of the entire control of the country's economy into the hands of the nationals, with the resulting mass exodus of the non-nationals who until then had constituted almost the entire experienced management and technical cadre of the country. At the same time, major financial and technical assistance was withdrawn from Uganda and international trade channels were disrupted making it difficult for the country to purchase capital equipment, raw materials and spares needed for i.a. the industrial sector; the result being that today most of Uganda's major industries are in very poor state of repair and maintenance. In short, the two major factors contributing to the problems of the country's industry are (i) lack of foreign exchange for necessary imported industrial inputs and (ii) shortage of qualified and experienced manpower necessary in the running of modern industrial organizations. The foreign exchange problem was compounded by the world inflation with its adverse effects of Uganda's term of trade.

1.02 Presently the Ministry of Planning and Economic Development is preparing a two-year programme for rehabilitation of the productive sector of the economy; the agricultural and industrial sectors. This programme, to be finally formulated by April 1976, is intended to constitute the early phase of the next Five-Year Development Plan, 1976/77-1981/82.

1.03 A preliminary assessment indicates the following key areas for the rehabilitation programme:

- They should be commodity producing sectors (or service sectors facilitating production of commodities).
- The specific projects should have been previously developed with physical installations and necessary infrastructure already established.
- They should, as far as possible, economize on imports and generate secondary development.

- Their products should have good export prospects.
- They should be capable of generating employment for the local labour force.
- The projects should mature within a short period.

1.04 It was indicated to the mission that included among the priority areas would be the processing of agricultural commodities such as cotton, coffee, tea and sugar, as well as almost the whole manufacturing sector.

1.05 Given these general guidelines, the rehabilitation and further development of the manufacturing sector might be expected to concentrate during the next two years on (i) the foreign exchange earning agro-based processing industries (including supporting industries like jute bag manufacturing), (ii) industries meeting domestic market demands of basic consumer products, such as food and textiles, (iii) local raw material based production of intermediate industrial inputs, to conserve foreign exchange and (iv) metal-working and engineering industries, producing spare parts, agricultural tools and implements, etc., and providing repair facilities.

1.06 At the same time particular attention would be expected to be paid to various other, as yet unused, possibilities for the utilisation of local raw materials, such as large-scale charcoal manufacturing, pig iron production based on available high quality iron ore, production of sulphuric acid in conjunction with cobalt extraction, salt and potassium chloride production at Lake Natwe, paper pulp production based possibly on bagasse, etc.

1.07 The possibilities of fulfilling the rehabilitation task, with the general aim at bringing up the key industries to roughly the production level of 1971/72, will of course vary between the individual plants. An examination of development problems and potentials in respects of the various sub-sectors is given in Chapter V. In parallell with this analysis the mission has looked into (in Chapter IV) the problems and requirements at the industrial sector programming level - macro and micro - as well as at the institutional side.

1.08 The capital requirements of the rehabilitation programme are now being assessed at the Ministry of Planning and Economic Development, the technical ministries and the respective parastatal companies, and contacts maintained or developed with various financing institutions, such as the World Bank, the African Development Bank and the East African Development Bank as well as with various bilateral sources of finance. In discussing and developing the comprehensive industrial sector technical assistance programme the mission aimed at ensuring that this programme would be fully complementary to the capital input planning at project level.

1.09 The comprehensive programme proposed by the mission for technical assistance in the industrial sector is presented in the following table (pages 8 - 12) in summarized form; further details being provided in Chapters IV and V. The programme deals, firstly, with the requirements of various key industrial sub-sectors and, secondly, with requirements to institutions and in the industrial infrastructural field.

1.10 Among the industrial sub-sectors, particular attention has been paid to a rehabilitation and development of the metalworking and engineering industry, with emphasis on a strengthening of repair and spare parts manufacturing capabilities, an integrated development of the building materials industry including utilization of locally available materials (such as agricultural wastes), and, above all, a speedy rehabilitation of the major agro-based processing industries, cotton, coffee, tea and sugar. Also the textile industry sector has been looked into in detail.

1.11 The assistance proposed for the two-year rehabilitation period is largely concentrated at the enterprise level. The only major institutional type of assistance foreseen in that immediate period is assistance to the Ministry of Industry and Power in the building up of an Industrial Planning and Programming Unit

at the Ministry, and to the Uganda Development Bank, while the large scale assistance envisaged in the fields of small scale industries promotion and development, applied industrial research, and industrial standardization is scheduled to be provided mainly during the later half of the coming five-year period. The reasons for this, in addition to the overriding priority given to rehabilitation of productive facilities, are the very severe shortage, as yet, of qualified counterpart staff as well as budgetary constraints on the institutional side.

1.12 Finally, on page 13 an indicative timetable for the envisaged assistance during 1976 is given. Some of this assistance is of a preparatory nature aiming at defining in detail the longer term requirements of technical assistance in various key areas, and will thus inter alia provide vital inputs to the industrial sector programme of Uganda's Second Country Programme which is scheduled to be considered by the UNDP Governing Council at its June 1977 session.

SUMMARY OF TECHNICAL ASSISTANCE REQUIREMENTS TO THE INDUSTRIAL SECTOR

Project	Government co-operating agency	Est.cost ('000 $) 1976	1977/78	1979/81	Type of assistance programme	Remarks
I. REQUIREMENTS FOR SPECIFIC INDUSTRIAL OPERATIONS						
A. Metallurgical, meta.working and engineering industries						
(i) Rehabilitation phase:						
a Repair and maintenance prep.mission (UGA/74/044)	Min. of Industry	21			IPF	Mission expected to be in the field in Jan.76
b) Implementation of prep.mission's recommendations		30	600	450	IPF,CVC	
c Repair and maintenance of electronic lab.equipment	Geol.Survey and Mines Dept.	11			SIS	
d Assistance to the Uganda Steel Corp. (experts and fellowships)	USC	20	100		IPF,CDC	To supplement capital aid under discussion
e Assistance to Teso Co-op.Union on prod. of low cost agricultural equipment (UGA/74/015)	Teso Coop. Union	180	200		SNP	Expert expected to be in the field in Jan.76
(ii) Long-term programme to develop the iron and steel sector:						
a Preparatory mission (UGA/74/044)	Min.of Industry	3			IPF	Mission expected to be in the field in Jan/Feb 76
b Development of a long-term programme for the iron and steel industry		60			IPF	A prerequisite for this study is that the planned survey to assess the high grade iron ore in Southwest Uganda will be carried out (est.cost 4 million shs; 50% in foreign currency)
c Pre-feasibility study to examine the possibilities of producing pig iron						
d Pilot plant for intermediate pig iron production technology			500 - 1.000		CVC	
e Upgrading of foundry and heat treatment capability:						
- establishment of central foundry and heat treatment facility			500 - 1.000		IPF,CVC	Includes steel foundry, iron foundry, and laboratory testing facilities
- advisory services to other foundries by expertise attached to the central facility						
(iii) Long-term development of production of low-cost agricultural machinery						
a Projects for centralized production e.g. at Lira Kisington Soda	USC to be determined		100		IPF,CVC	
b Application of the Teso project to other provincial centres			20	500	CVC	
B. Building materials industries						
(i) Preparation of an integrated programme for the production of materials for the construction industry	Min. of Planning	7			SIS	To compris evaluation of existing plans for development of building materials within the framework of the country's long-term requirements of such materials. Proposed to be carried out in conjunction with the above preparation of an integrated programme
(ii) Programme for utilisation of industrial rocks and minerals (IS/UGA/75/023)	Geol.Survey and Mines Dept.	11			SIS	
(iii) Assistance to the Uganda Cement Corporation						
a) Expert assistance (UGA/74/010)	UCC	140	140		IPF	
b) Comprehensive training programme		32	96		IPF,CDC	
c) Feasibility study for the proposed third cement factory				150	IPF,bilateral	
d) Assistance to the asbestos cement plant			56		IPF	Provided that its economic viability is confirmed in view of the high import content of raw material and possibilities of substitution by other locally produced products.
(iv) Rehabilitation and Development of wood processing industries:						
a) Rehabilitation of saw mills, particle board and plywood industry and development of parquet industry (UGA/74/026)	Wood Ind. Corp.	150	340		IPF	Project under preparation by FAO
b) Development of furniture production	Wood Ind. Corp.		n.a.	n.a.	IPF,SIS	Assistance to be defined inter alia on basis of small-industry survey recommendations.

SUMMARY OF TECHNICAL ASSISTANCE REQUIREMENTS TO THE INDUSTRIAL SECTOR

Project	Government co-operating agency	Est.cost ('000 $) 1976	1977/78	1979/81	Type of assistance programme	Remarks
REQUIREMENTS FOR SPECIFIC INDUSTRIAL SUB-SECTORS (Cont'd)						
Application of modular engineering techniques and prefabrication to bridge construction and agricultural/industrial buildings	Min.of Works and Housing		50		CDC,CVC	Pilot installation for field evaluation
h) Pilot plant for prefabricated construction	Wood Ind. Corp.		200		CDC,CVC	For houses, schools, commercial structures
i) Development and pilot production of low cost building materials	Control Research Lab.	15	80		CVC,SIS	Particularly, development of materials based on agricultural waste (e.g.asphaltic corrugated roofing panels based on bagasse)
Chemicals and chemical products etc.						
(i) Assistance to Tororo Industrial Chemicals and Fertilizers Ltd (TICAF):						
a) Rehabilitation of plant export	TICAF	n.a.	n.a.		bilateral	Bilateral negotiations under way
b) Training and study programme for technical and managerial personnel		10	40		RP, CDC	
c) Establishment of ore roasting contact plant for sulphuric acid		n.a.	n.a.		bilateral	Current sulphuric acid production is based on imported sulphur; to be replaced by new plant using pyrites ore from Kilembe copper mine.
j) Salt project and Lake Katwe (feasibility study completed)	Min. of Industry		n.a.	n.a.	multi- or bilateral	For salt production and potassium chloride (fertiliser) production
k) Further investigation of local production of triple super phosphate	Min. of Industry			n.a.	bilateral	
l Formulation and packaging of pesticides and insecticides	Min. of Industry		10		IPF or SIS	
Development of indigenous pesticides production				n.a.	IPF,CVC,UNEP	e.g. pyrethorum
m) Rehabilitation of E.A.Glass Works Ltd.	Min. of Industry		n.a.		bilateral	On basis UDC Consultancy Group Study
n) Pharmaceutical industries:						
a) Rehabilitation of existing industry (UGA/74/031)	Min. of Health	175	103		IPF	As recommended by UNIDO prep. mission Sept. 1975
b) Further development of the industry			100	300	IPF,CVC	
o) Establishment of a paper pulp mill:						
a) Feasibility study (UGA/74/009)	Min. of Industry	75			IPF	Includes advice on possible expansion of Papco; on possible uses of bagasse and papyrus as alternatives to wood
b) Implementation (incl.training prog.)			n.a.	s.a.	bilateral,RP	
p) Charcoal:						
a) Feasibility study for the production of charcoal to supply Tororo cement plant	Min. of Industry	50			IPF	Deserves high priority as the cement plant is prepared for immediate use of charcoal (instead of imported fuel oil)
b) Feasibility study for replacement of other fuels in additional major industries			50	50	IPF,CVC	Such as additional cement plant, reduction of iron ore and foundry operations, and lime production
(q) Evaluation and pilot plant operation for pyrolytic conversion of "fluffy" agricultural waste, e.g. bagasse, groundnut shells, coffee husks, saw dust etc.	Central Materials Lab.		50		CVC,UNEP	
Textile industries						
(i) Maintenance and repair - see A.(i) (a) and (b) above						
(ii) Comprehensive training programme	Nat'l Textile Board	32	96		IPF,CDC	Along same lines as the 12 UNIDO fellows being trained in Italy
(iii) Definition of overall industry development programme		7			SIS	Incl.regional decentralization of weaving capacity, establishment of indigenous design capabilities, integrated capability/facility for photographic rendering of design, experimentation on import substitution of dye stuffs and chemicals, possible expansions of garment product lines and export oriented production capacities, quality testing etc.
(iv) Implementation of above programme			n.a.	n.a.	IPF,CVC,CDC	
(v) Fibre bag production (rehabilitation and dev.)		n.a.	n.a.	n.a.	bilateral	Saudi Arabia has provided loan for jute bag production

SUMMARY OF TECHNICAL ASSISTANCE REQUIREMENTS TO THE INDUSTRIAL SECTOR

Project	Government co-operating agency	Est.cost ('000 $) 1976	1977/78	1979/81	Type of assistance Programme	Remarks
I. REQUIREMENTS FOR SPECIFIC INDUSTRIAL SUB-SECTORS (Cont'd):						
E. Agro-based industries						
(i) Sugar industry						
e) Expert resources to define comprehensive fellowship progr. for Kakira and Luzazi sugar mills	Min. of Industry	7			SIS	In line with detailed training requirements indicated by the two factory managers
b) Fellowship programme implementation		12	80		CDC,IPF	
c) Implementation, as appropriate, of recommendations of the report on the Sugar Industry in Uganda by the East African Development Bank			n.a.	n.a.	bilateral	Bilateral agreements are currently being negotiated with the Kuwait Fund etc.
d) Repair and maintenance for the Kakira and Luzazi factories (see A (i) (a) and (b) and (ii) above						
(ii) Tea processing industry	Uganda Tea Authority					
a) Assistance to tea processing factories (UTA "1")		67	66		IPF	To be implemented in coordination with repair and maintenance programme under A (i) (a) and (b) above
(iii) Coffee processing industry						
a) Repair and maintenance - see under A (i) (a) and (b) above	Uganda Coffee Board					
b) Development of instant coffee production			n.a.	n.a.	multilateral	East African Development Bank
(iv) Cotton processing industry						
a) Repair and maintenance - see under A (i) (a) and (b) above	Central Coop. Union					Incl. possible provision of mobile workshops
b) Establishment of 3 new and full rehabilitation of 4 old ginneries					multilateral loan	African Development Bank loan of USh 42 million (1976)
c) Improvement of storage and transport	Uganda Lint Marketing Board				multi- or bilateral	
v. Establishment of a food industries Development Centre	(to be determined)					
a) preparatory mission		11			IPF	Joint UNDP UNIDO/FAO mission
b) implementation of its recommendations			n.a.	n.a.	IPF	
vi. Fruit and vegetable canning:						
a) Investigation regarding export potential	Min. of Industry		(11)		(IPF)	UDC Consultancy Group; Food Ind. Dev. Center
b) Feasibility of local tin working	Min. of Industry		(11)		(IPF)	UDC Consultancy Group
c) Quality control (see item A.i.(e) (b) below)	Min. of Industry					In coord. with Food Ind. Dev. Center
(vii) Meat and meat products processing industry						
a) Rehabilitation of Uganda Meat Packers Ltd.	Min. of Industry				bilateral	On basis of study recently completed by UDC Consultancy Group
(viii) Tannery and leather industry:						
a) Establishment of tannery	Min. of Industry	n.e.	n.e.	n.a.	bilateral	To be financed under bilateral loan (Libyan Areb Bank and Arab in Kuwait)
b) Promotion of increased local production of leather goods			(to be determined)		IPF, CDC	In coop. with FAO Livestock Programme
c) Establishments of leather research and testing facilities				n.a.	IPF,CDC,CVC	
(ix) Animal feeds production:						
a) Establishment of pilot plants for manufacture of low-cost feeds for poultry	Min. of Agricult.	45			SIS	To be co-ordinated with the FAO executed Poultry Project
b) Feasibility study for the industrial production of animal feedstuffs	Min. of Agricult.	36			SIS	
c) Crushing of cotton seed	Uganda Lint Marketing Board				bilateral	Project has been studied by the East African Development Bank; now under bilateral discussions
d) Fish meat production	Min. of Industry					To be looked into by the UDC Consultancy Group and Food Ind. Dev.Center. Project Proposal already with East African Development Bank
(x) Other products:						
a) Breweries - feasibility study on establishment of malting facilities	Min. of Industry				IPF,SIS	Experimental cultivation of barley on-going. Use of millet and sorghum as alternatives under investigation by E.A. Industrial Research Org. in Nairobi has done some work on this
b) Cassava starch production - rehabilitation of the Lango Development Corp.	Min. of Industry					To be undertaken under UDC Consultancy Group project. Also to be considered within the Textile Industry Pro

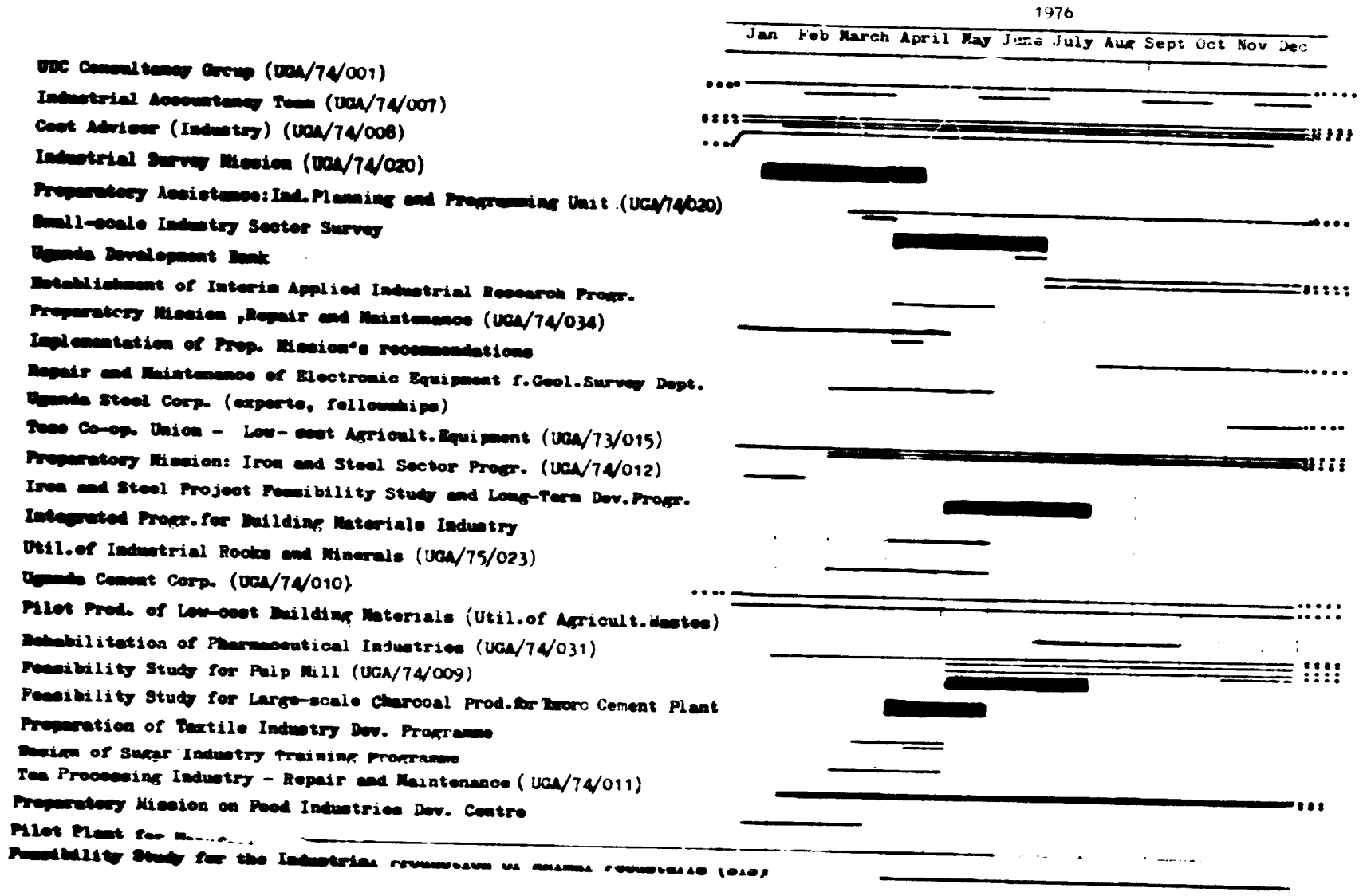
SUMMARY OF TECHNICAL ASSISTANCE REQUIREMENTS TO THE INDUSTRIAL SECTOR

Project	Government co-operating agency	Est. cost ('000 $) 1976	1977/78	1979/81	Type of assistance programme	Remarks
REQUIREMENTS TO INSTITUTIONS AND IN THE INDUSTRIAL INFRASTRUCTURAL FIELD						
Industrial planning, programming and promotion						
(i) Ministry of Planning and Economic Development:						
(a) Planning team	Min. of Planning	150	300		IPF	- Overall planning team (world Bank)
(b) Rationalization study on parastatal companies		200			IPF	- To be sub-contracted to consultant firm
(ii) Industrial Planning and Programming Unit at the Ministry of Industry and Power:						
(a) Industrial Survey Mission (UGA/74/020)	Min. of Industry	50			IPF	- Consulting firm, expected start Jan. 76
(b) Prep. assistance/Ind. planning and analysis adviser (one year, from March 76)		34	11		IPF	- Also include UNIDO staff member for 2 weeks in March/April 76 for project formulation
(c) Longer term assistance to the Unit			250-400	300-600	IPF	
(iii) Industrial exports development	Min. of Industry (in coop. with Export Prom. Council)				IPF, SIS	- Detailed requirements to be determined. Need for [illegible] assistance to specific industries indicated as supplement to possible ITC assistance [illegible] programming missions scheduled to visit Uganda early [illegible]
Industrial development financing						
(i) Uganda Development Bank:						
(a) Adviser on industrial project preparation and evaluation	UDB	21	63		IPF	- In addition, the world bank is to provide a financia[illegible] adviser to [illegible], [illegible], FAO will provide an agricultural projects adviser
(b) Adviser on small scale industries promotion and financing scheme (see following item C(ii))		21	64	21	IPF	
Integrated development of small-scale industry						
(i) Small-scale industry survey and preparatory mission	Min. of Industry	87			IPF	- As recommended in connection with the recent review Mission on the MTAC project [illegible]
(ii) Comprehensive programme based on the recommendations of the survey mission			250-400	600-800	IPF	- This programme would be expected to include the above-mentioned [illegible] small industries financing adviser to UDB
Consultancy services to industry						
(i) UDC Consultancy Group (UGA/74/001)	UDC	121	200	200	IPF	- On-going project; detailed further requirements to be determined; however, heavy reliance expected on short-term specialists for various industries, combined with services of one long-term expert for management and continuity
(ii) Consultancy services to enterprises directly attached to the Ministry of Industry and Power	Min. of Industry					
(iii) Industrial Accountancy Team - development of industrial accounting systems and staff (UGA/74/007)	UDC/Min. of Industry	239	570	368	IPF	- On-going project; recent tripartite review approved expansion of scope and resources to serve entire industrial sector
(iv) MTAC Consultancy Division (part of UGA/71/526)	MTAC	42	42		IPF	- On-going project; provides management consultancy services to all sectors of the economy; major emphasis is on consultancy training. Also, MTAC draws upon its Consultancy Division to assist in defining requirements for its training course progr. (ILO executing
(v) Cost adviser (industry) (UGA/74/008)	Min. of Planning	42			IPF	- On-going project; according to the tripartite review held in Oct. 75, consultations to take place within Gov't to determine whether or not the costing function of the project would be absorbed by another ongoing UNDP/UNIDO project.

SUMMARY OF TECHNICAL ASSISTANCE REQUIREMENTS TO THE INDUSTRIAL SECTOR

Project	Government Co-operating Agency	Est. cost ('000 $) 1976	1977/78	1979/81	Type of assistance programme	Remarks
B. [illegible]						
Training for industry						
(i) Comprehensive training programmes for major industries in addition to sectoral projects listed above						
(ii) MTA Training Division [illegible]	MTA	80	200		IPF	- On-going project (ILO exe
(iii) Na[illegible] Industrial Training Scheme [illegible]	Min. of Labour	34	n.a.	n.a.	IPF	- On-going project;vocation training (ILO executing)
(iv) Faculty of Technology at Makerere University [illegible]	Min. of Education	43	n.a.	n.a.	IPF	- On-going project; (UNESCO executing)
(v) Development of the Department of Technical Teacher Training at Kyambogo [illegible]	Min. of Education	23	n.a.	n.a.	IPF	- On-going project; (UNESCO executing)
(vi) Comprehensive manpower requirements and development survey and [illegible]						
a Overall framework for Uganda's manpower requirements	Min. of Labour	n.a.	n.a.		IPF	- This survey to cover the as a whole; ILO prep.miss presently in the field
b Industrial sector manpower requirements and consistent manpower development [illegible]	Min. of Industry		21		IPF	
Industrial research and standardization						
A. Applied industrial research						
a Establishment of an integrated programme for applied industrial research, including sponsored long-term fellowships	Min. of Planning	5			RP(LDC)	- To be based on findings of industrial survey mission item II.A.(iii) a above would pay attention to imm ate research needs and sur existing facilities. The gramme to be formulated by Scientific and Industrial search Committee under the Nat'l Research Council
b Development and pilot production of low cost building materials	Central Materials Laboratory	[15]	[60]		CVC, BIC	- Assistance to be formulated planned mission on integrat progra of materials for con struction industry (see ite I.B(i) and (vi) above)
c Other respective research projects ready to be undertaken immediately either at existing Uganda facilities or at facilities outside the country with direct Uganda participation	(to be determined	n.a.	n.a.		CDC,CVC	
(d) Study Tours and long-term fellowship training in preparation for the future establishment of an industrial research institute	Min. of Planning		30		RP,CBC	
(e) Establishment of a national research institute	Min. of Industry		21	600-800	IPF	
(f) Establishment of a Food Industries Development Centre (see under item I.E. (iv) above).						
(ii) Industrial standardization:						
(a) Preparatory work for the establishment of a national standardization body, possibly in the context of East African co-operation	Min. of Industry		10	200	IPF, Inter-country-programme	Central Materials Laborat ie presently carrying out certain standard work on building materials
(b) Establishment of quality control certification marking scheme, in particular for manufactured exports			10	150	CDC, IPF	

(UNIDO inputs)



II. BASIC ANALYSIS OF THE PRESENT INDUSTRIAL STRUCTURE

A. The economic setting

2.01 The period 1970-1974 was marked by fundamental economic and social changes in Uganda. These changes have had far-reaching effects on the performance of the economy during the period; and it will take some time before the economy adjusts itself to the new conditions. The first significant change occurred in May 1970 when the former political regime took controlling interest over many privately owned businesses in the industrial, commercial, agricultural, financial and transportation sectors. That partial nationalization measure considerably weakened the confidence of private investors in Uganda, particularly foreign investors, who were at the time in control of the greater part of the country's economy. Plans for new private investments were stopped, and large sums of money transferred out of Uganda. The second significant event was the change in Government in January 1971, a change which brought the armed forces into Government. In August 1972, the Government decided to transfer the entire control of the country's economy into the hands of the nationals, with the resulting mass exodus of the non-nationals who until then had constituted almost the entire experienced management and technical cadre of the country. At the same time major financial and technical assistance was withdrawn from Uganda and international trade channels were disrupted making it difficult for Uganda to purchase capital equipment and spares needed for the industrial, agricultural and transportation sectors; the result being that today most of Uganda's major industries are in very poor state of repair and maintenance. The problem is further compounded by the desperate shortage of qualified and experienced manpower necessary in the running of modern industrial organizations.

2.02 Another event of economic significance which affected Uganda's economic development during the period 1970-1974 was, and continues to be, world inflation. Uganda's economy is an open one, in the sense that it relies on foreign sources for the supply of most of the capital and intermediate goods used in industry, agriculture, mining, transportation and communication. It also relies heavily on external demands for its

major exports. The world inflation which prevailed during the period inflated the prices of Uganda's imports, and intensified the adverse terms of trade against Uganda. Although the volume of Uganda's exports was to a large extent maintained during the period, the value derived from exports was drastically reduced by increased import prices.

B. The present industrial sector output

2.03 Adequate and comparable data were not readily available - and the time at the disposal of the mission was too short - to permit a systematic analysis of trends in production, size, diversification, geographic dispersion, productivity and other characteristics of the manufacturing industries in Uganda. Notwithstanding, an attempt has been made to provide as good a picture as possible of the industrial sector performance.

2.04 Industrial production accounted for about 10 % of the Gross Domestic Product (Monetary Economy) in 1974. This percentage share has been practically the same during the last five years, as indicated in following table:

Gross Domestic Product at Factor Cost (1966 Prices). (Million Shs)

	1970	1971	1972	Est. 1973	1974	% (1974)
MONETARY ECONOMY						
Agriculture, forestry, fishing	1,965	1,920	1,966	2,060	1,828	37.0
thereof cotton ginning, coffee curing and sugar manuf.	(114)	(99)	(95)	(92)	(75)	(1.5)
Mining and quarrying	119	112	100	72	69	(1.4)
Manufacturing	517	539	545	511	519	10.4
Other activities (i.a. electricity, construction, commerce, transport, government services, etc.)	2,491	2,715	2,696	2,497	2,531	52.2
TOTAL MONETARY ECONOMY	5,092	5,246	5,307	5,140	4,947	100.0
NON-MONETARY ECONOMY	2,187	2,246	2,385	2,438	2,490	
GRAND TOTAL	7,279	7,492	7,692	7,578	7,437	

Source: Statistics Division, Entebbe

2.05 Although it is recognized that Uganda's industry has been subject to considerable changes during the last years, its basic characteristics are similar to those of 1970/71 from which time more detailed information concerning the country's industrial sector stems. Thus, although the current production in many cases is much lower than in 1971 while in other cases it is about the same, the basic capacity of the industry (given required rehabilitation) is essentially the same as in 1971. Bearing this in mind it might, firstly, be noted that the industrial sector in Uganda is relatively well developed and quite diversified. Secondly, although the East African Common Market along with the markets of other neighbouring countries (Rwanda, eastern Zaire, southern Sudan) provides, in many cases, a significant enlargement of the relatively small domestic market, the pattern of industrialization has been largely one of import substitution. Thirdly, an important characteristic of the industry's development has been its linkages with the major agricultural processing industries, in particular the sugar industry, and the high quality cotton production.

2.06 As a detailed account of the development of the major industries and industrial sub-sectors is given below in Chapter V, it may suffice here to present the following tabulations which give a picture of recent production in Uganda of various industrial products.

2.07 The processing of agricultural products accounts for a large part of manufacturing industry. The output of major crops in the years 1969 - 1974 was as follows:

	1969	1970	1971	1972	1973	1974
Coffee ('000 tons)	247	202	175	134	213	199
Cotton (lint) ('000 bales)	n.a.	467	431	411	429	270[1]
Sugar ('000 tons)	140	144	141	121	69	41
Tea ('000 tons)	17.6	18.2	18.0	23.4	22.0	22.0

Source: Statistics Division, Entebbe

1) A still lower forecast is made for 1975, due, inter alia, to shortage of rain in the planting season and difficulties at the ginneries due to lack of maintenance. An African Development Bank loan of Uganda Shs 42 million, has been announced recently for establishing new ginneries and repairing existing ones.

2.08 The output 1970-74 of the most important industrial products is indicated in the following table:

		1970	1971	1972	1973	1974
Maize flour	(tons)	n.a.	32,093	31,558	59,395	n.a.
Wheat flour	(tons)	n.a.	37,942	37,972	52,800	n.a.
Edible oil	(tons)	n.a.	15,400	13,000	12,508	n.a.
Beer	('000 litres)	27,767	34,962	37,945	45,591	43,487
Spirits (Uganda Waragi)	('000 litres)	563	598	729	910	773
Cigarettes	('000,000)	1,536	1,583	1,652	1,861	2,009
Cotton and rayon fabrics	('000 sq metres)	49,555	46,178	n.a.	38,068	35,556
Blankets	('000 pieces)	1,164	1,396	n.a.	n.a.	824
Shirts	(doz.)	n.a.	65,000	46,000	14,450	n.a.
Jute bags	(tons)	n.a.	2,357	1,600	3,253	n.a.
Plywood	(tons)	1,139	1,163	1,071	500	n.a.
Chipboard	(tons)	n.a.	1,351	1,691	565	n.a.
Kraft, printing, writing and wrapping paper	(tons)	n.a.	1,238	1,200	1,149	n.a.
Matches (small size)	(cartons of 10)	49,269	55,032	42,886	39,310	25,077
Matches (large size)	(cartons of 200)	n.a.	4,399	6,730	4,575	4,639
Cement	(tons)	131,072	205,110	166,084	142,675	153,000
Asbestos-cement sheets	(tons)	n.a.	12,420	10,000	n.a.	n.a.
Single superphosphate	(tons)	24,761	23,888	22,564	13,575	14,141
Sulphuric acid	(tons)	n.a.	10,617	9,553	8,542	n.a.
Magadi soda	(tons)	n.a.	2,300	1,000	1	0
Oxygen	('000 in 3)	n.a.	225	210	161	n.a.
Soap	(tons)	12,925	13,613	n.a.	6,331	5,063
Paints	(tons)	1,660	1,777	1,622	1,443	1,395
Bottles	(tons)	n.a.	5,191	4,510	2,999	n.a.
Steel ingots	(tons)	19,521	16,435	11,065	14,295	11,513
Corrugated iron sheets	(tons)	11,914	14,341	12,630	5,139	3,964
Hoes	('000 pieces)	n.a.	1,602	1,584	1,240	n.a.
Steel furniture and joinery	('000 shs)	n.a.	4,592	3,000	2,601	n.a.
Enamelware	('000 doz)	n.a.	310	311	210	n.a.
Electric cables	('000 shs)	n.a.	7,460	8,851	6,677	n.a.
Automobile batteries	(pieces)	n.a.	8,306	13,035	7,450	n.a.
Radio sets (assembly)	(pieces)	n.a.	61,345	31,537	6,126	n.a.
Blister copper	(tons)	16,958	15,731	14,071	9,643	8,215

Source: Statistics Division, Entebbe, and Planning Division, Ministry of Industry and Power, Kampala

2.09 It is evident that the industrial sector is facing very serious problems. In addition to the basic managerial and technical ones, an increasingly felt negative impact is derived from the poor state of some machinery and lack of raw material [1] and spare parts. As a result, as noted by the Minister of Finance in his Budget Speech of 12.6.75, closures of industries have been somewhat frequent and some industries have operated at far below capacity.

C. Industrial exports

2.10 In addition to its main exports - processed agricultural products such as coffee, cotton, tea and tobacco and processed minerals such as blister copper - Uganda has had, in spite of its land-locked position, a significant export of industrial goods. Thus Uganda's industry has, in the case of many industrial products, been successful in penetrating the markets of its East African Common Market partners as well as, to lesser extent, those of the other neighbouring countries Rwanda, eastern Zaire and southern Sudan.

---

1) A recent analysis prepared by the then Ministry of Commerce and Industry (now Ministry of Industry and Power) illustrates the Uganda industry's relatively large dependence upon imported raw materials:

Value of raw material inputs by origin 1973

(Million Shs)

Branch of industry	Total	Local	Transferred from East African Common Market	Imported from other countries
Food	282	163	102	17
Beverages and tobacco	52	22	6	24
Textiles	129	75	2	53
Leather and shoe	25	8	3	14
Wood	17	15	1	1
Paper, printing and publishing	15	1	1	13
Chemical	68	23	24	21
Non-metallic, mineral products	8	2	6	0,4
Steel, metal and electro	137	1	2	134
Total	732	311	145	277

2.11 The main industrial export items 1971-74 have been:

(Million Shs)

	To E.A. Common Market				To other countries			
	1971	1972	1973	1974	1971	1972	1973	1974
Coffee	-	-	-	-	982	1,128	1,424	1,651
Cotton	-	-	-	-	352	369	336	272
Tea	0.3	-	-	-	95	126	110	110
Copper, unwrought	-	-	-	-	138	113	110	121
Animal feeding stuff	3.0	2.3	3.5	1.5	35	31	44	23
Un-manufactured tobacco	8.1	12.3	2.0	1.9	13	7	12	3
Hides and skins	-	-	-	-	21	43	33	27
Oilseeds, nuts and kernels	4.0	1.9	2.5	n.a.	6	6	12	12
Margarine and shortening	13.9	8.8	2.3	3.0	-	-	-	-
Sugar	0.4	0.2	-	-	-	-	-	-
Vegetable oils (cotton seed oil)	19.2	9.4	3.6	3.9	-	-	-	-
Textile yarn	n.a.	1.5	3.4	0.8	-	-	-	-
Cotton piece goods	43.0	45.7	33.4	13.4	-	-	-	-
Clothing	n.a.	3.2	-	-	-	-	-	-
Footwear	3.5	2.7	0.3	-	-	-	-	-
Fertilizers (single superphosphate)	6.1	7.6	6.0	-	-	-	-	-
Articles of asbestos cement	6.7	5.7	3.3	-	-	-	-	-
Bars and rods of iron/steel	7.3	1.5	4.9	1.3	-	-	-	-
Tubes and pipes of iron/steel	n.a.	1.0	1.0	-	-	-	-	-
Enamel hollow-ware	1.3	1.0	-	-	-	-	-	-
Insulated wires and cables	n.a.	1.8	0.5	-	-	-	-	-

Source: Ministry of Commerce, Kampala, and Statistics Division, Entebbe

D. Industrial employment and geographic dispersion

2.12 In respect of the Uganda economy as a whole, the total number in recorded employment as at 30 June 1974 was about 354.000 persons which represents a small increase over the 1973 figure. The total recorded employment for the years 1970 - 1974 is:

	Private sector	Public sector	Total
1970	183,537	128,815	312,352
1971	190,508	134,759	324,759
1972*	180,662	149,105	329,767
1973*	164,328	183,975	348,303
1974*	163,679	191,009	354,688

* Provisional figures

Source: Statistics Division, Entebbe

2.13 It might be noted, as particularly relevant to the industrial sector employment, that in the Minister of Finance's speech on 12 June 1975 it was observed that in 1974, as in the previous two years, the increase in total employment was the result of the expansion in employment in the public sector, and that "in light of the performance of the economy ... and in line with the need to apply breaks where necessary it may become inevitable to relate labour strictly to productivity."

2.14 At the same time it should be mentioned that the employment in industry has been relatively static in spite of the serious difficulties experienced by most of the plants during the last years. According to statistics provided by the Ministry of Industry and Power the number of persons employed in industry from 1969 to 1973 were as follows:

(number of persons)

BRANCH OF INDUSTRY	1969	1970	1971	1972	1973
Food.....	9,100	8,276	8,079	7,210	7,719
Beverages and tobacco	1,227	1,503	1,535	1,558	1,941
Textile	8,248	9,678	10,793	7,648	11,198
Leather and shoes ...	517	613	575	702	306
Wood	1,693	2,428	1,172	1,712	640
Paper, printing and publishing	775	1,206	1,256	886	1,113
Chemical	1,157	1,269	1,159	1,212	1,997
Non-metallic, mineral	2,102	2,739	3,218	1,961	3,305
Steel, metal and electro	1,856	2,377	2,700	2,495	1,745
TOTAL	26,945	30,089	30,669	25,384	30,464

2.15 Most of the industrial activity is concentrated in Buganda, with about 50 % of the gross production (12% in Kampala) and the Eastern Region 46 % (16 % in Jinja, 2 % in Tororo).

2.16 Although (according to available statistics) 3/4 of the manufacturing firms(with 10 or more employees) employ fewer than 50 workers each, they account for less than $\frac{1}{4}$ of manufacturing employment and less than 1/5 of manufacturing output:

Size of establishments by number of employees

	10-19	20-49	50-99	100 or more
No. of establishments	35.4	33.5	13.2	12.9
Gross production	5.2	14.2	12.4	68.2
Number of employees	7.2	17.4	13.5	61.9

2.17 The smaller plants include numerous furniture, clothing and footwear manufacturers. Production is most concentrated in large establishments in non-food consumer goods, particularly textiles, and tobacco, and in wood products (other than furniture), metal products and non-metallic mineral products. "Capital goods" production - appliance assembly and machinery repair, mostly - is carried out in numerous workshops engaging only a handful of employees.

2.18 There are also a number of smaller-scale manufacturing establishments in Uganda employing less than 10 persons, but little quantitative information is available on them. Indications from available data suggest that the addition of these firms to the total gross manufacturing output referred to above, would have increased the figure only by between 2 and $2\frac{1}{2}$ per cent.

E. Investment

2.19 Gross investment in plant, machinery and equipment in manufacturing industry, which grew at an average rate of about 15 % during the 1960's up to a record of 105 million shillings in 1969, declined to 79 million in 1971. Very little new investment was undertaken during initial months of the 'economic war'; however, latest available statistics (provided by the Ministry of Industry and Power) indicate a total investment in fixed assets in the manufacturing sector in 1973 of Shs. 41 million broken down as follows:

('000 Shs)

BRANCH OF INDUSTRY	TOTAL	MACHINERY AND EQUIPMENT	FACTORY BUILDINGS	MOTOR AND OTHER VEHICLES	FURNITURES AND FIXTURES AND OTHER ASSETS
Food	9,199	3,706	3,297	1,614	582
Beverages and tobacco...	5,906	3,674	1,126	932	174
Textiles.....	16,324	14,682	490	730	422
Leather and shoes.....	834	551	19	191	123
Wood	3,099	3,031	2	32	34
Paper printing and publishing	3,026	2,743	35	149	99
Chemicals.....	495	69	34	366	26
Non-metallic, mineral...	816	223	209	296	88
Steel, metal and electro	806	434	220	95	57
TOTAL	40,555	29,113	5,432	4,405	1,605

III. INDUSTRIAL DEVELOPMENT POTENTIALS AND PRIORITIES

3.01 Import substitution has been and remains the major characteristic of Uganda's industrialization strategy. Certain other policy influences, however, have been in practice so pronounced that they have constituted essential components of an integrated industrialization strategy. These include the dynamic role which has been assigned to the public sector and the Ugandanization policy, within the overall framework of the basic economic theme for the country's development efforts, namely, development on the basis of self-reliance. Another relevant and important objective is the promotion of a more equitable distribution of income and wealth particularly through emphasis on rural development. Note should also be taken of the motivation to redress, within the framework of the East African Community co-operation, the historical industrial imbalance with Kenya.

3.02 Public sector intervention in the economic development process in Uganda goes well back into the colonial period with the establishment of the Uganda Development Corporation (UDC) in 1952. Through this corporation the State has been playing a leading role in the promotion and development of the industrial sector. The industrialization process in Uganda during the late 1950's and the 1960's was furthermore stimulated and shaped importantly by a number of economic policies, more specifically a combination of protectionist-incentive policies. These fueled the import substitution thrust and more than doubled the value of manufacturing output during the 1960's.

3.03 In late 1969 the Common Man's Charter was adopted and became a basic statement of economic principles and strategy. It placed great emphasis on the importance of the way in which national income is distributed, and held that a redistribution of income which put more purchasing power in the hands of the people would give an impetus to the development of local industries. These efforts would be intensified through collective ownership, namely, through co-operatives and State enterprises. An important aspect in this connexion would be the increased need for domestic savings mobilization. The ultimate step, aiming at national economic independence on the basis of self-reliance, was taken in August 1972 when the Government decided to transfer the entire control of the country's economy into the hands of the Uganda nationals. As noted earlier, this led to serious disruptions in the production in the manufacturing sector due to the acute shortage

of qualified and experienced manpower necessary for the operation of the industrial enterprises, and to lack of foreign exchange resources needed to ensure an adequate supply of imported raw materials and spare parts.

3.04 Presently the Ministry of Planning and Economic Development is preparing a two-year programme for rehabilitation of the productive sectors of the economy, particularly the agricultural and industrial sectors. This programme, now under preparation to be finally formulated by April 1976, is intended to constitute the early phase of the next Five Year Development Plan, 1970/77 - 1981/82. A preliminary assessment indicates that the key areas which may be given top priority, are likely to have the following characteristics:

(i) They will be either commodity producing sectors or service sectors which will facilitate the production of commodities.

(ii) In a majority of cases, they should have previous development in the form of physical installations and the necessary infrastructure, so that only a relatively small amount of further investment would be needed to enable them to restore a sustained level of output.

(iii) They should, as much as possible, economise on imports and generate secondary development in other sectors to which they are related either as suppliers or users of raw materials. The output of the selected key sectors should be able to meet basic domestic consumption and investment demands.

(iv) Their products should have good export prospects in order that their rehabilitation may contribute to Uganda's foreign exchange earnings, thereby enabling the country to meet its future import requirements.

(v) The key areas should be capable of generating employment for the local labour force either directly or indirectly.

(vi) The projects in these key areas should mature in a short time.

3.05 It was indicated to the mission that the key areas or sectors which fulfill these conditions would include in the agricultural sector, the cotton, coffee, tea, sugar, tobacco, grain, forestry and wood and livestock industries. Also included would be almost the whole of the manufacturing sector.

3.06 The capital requirements of the rehabilitation programme were now being assessed in detail and contacts maintained or developed with various financing institutions, such as the World Bank, the African Development Bank, and the East African Development Bank, as well as with various bilateral sources of finance. With regard to skilled manpower, a preliminary assessment indicated that some further direct external assistance would be required while Ugandans are being trained. The exact number of manpower in the various categories was, however, still being assessed.

3.07 Given these general guidelines, the rehabilitation and further development of the manufacturing sector might be expected to concentrate during the next two years on (i) the foreign exchange earning agro-based processing industries (including supporting industries like jute bag manufacturing), (ii) industries meeting domestic market demands of basic consumer products, such as food and textiles, (iii) local raw material based production of intermediate industrial inputs, to conserve foreign exchange and (iv) metal-working and engineering industries, producing spare parts, agricultural tools and implements etc., and providing repair facilities.

3.08 At the same time particular attention would be expected to be paid to various other, as yet unused possibilities for the utilisation of local raw materials, such as large-scale charcoal manufacturing, pig iron production based on available high quality iron ore, production of sulphuric acid in conjunction with cobalt extraction, salt and potassium chloride production at Lake Katwe, paper pulp production based possibly on bagasse, etc.

3.09 The possibilities of fulfilling the rehabilitation task, with the general aim at bringing up the key industries to roughly the production level of 1971/72, will of course vary between the various industry sub-sectors and between the individual plants, and a more detailed examination of development problems and potentials in respect of the various industrial sub-sectors is given in Chapter V below. However, many problems and bottlenecks seemed to the mission to be common in most industries, such as :

- acute shortage of experienced managerial, engineering and technical staff
- inadequate information or records in respect of production, sales, stock of raw materials and spares, budgeting projections etc.
- lack of production costing systems (and shortage of qualified production cost analysts)
- lack of maintenance and not quite adequate repair facilities
- shortage of local funds for working capital and, in particular, scarcity of foreign exchange to ensure continuous availability of essential items such as raw materials, chemicals, spares, accessories etc.
- price fluctuations of local raw materials
- inadequate local transport facilities.

3.10 Technical assistance activities aiming at alleviating these problems are dealt with below both in Chapter IV (i.a. concerning management and training needs) and Chapter V (in respect of specific programmes for various industrial sub-sectors).

3.11 Parallel with the development of a programme for the immediate rehabilitation and improvement of the existing industries, a longer-term programme for the country's industrial development should be formulated. This programme, being an integral part of an overall economic and social development planning effort, based on objectives such as development on the basis of self-reliance, should provide necessary guidance for industrial strategies and policies; it should indicate priorities in respect of industries or sectors to be developed, and the resources - manpower, raw materials, financial - which will be required. Furthermore, the adequacy of the existing machinery, procedures and criteria to be used for the project identification, evaluation and implementation should be considered.

3.12 In the longer run the expansion of industrial production would of course depend not only upon the realisation of larger output from establishments at present operating at less than full capacity but also upon the selective establishment of new industrial units (or expansion of existing ones) to meet the long term growth in demand. The strategy for achieving this expansion would depend upon the expansion of markets, upon the generation of sufficient investment in new productive capacity and, above all, upon the improvement (increased experience) of the labour force and management in the industrial sector, towards the objective of technical and managerial self-reliance.

3.13 The need to achieve the most rapid possible expansion of the domestic market was emphasized in the Third Development Plan, 1971/72 - 1975/76, and a strategy comprising:- (i) minimisation of the import cost of economic expansion through import restraint, (ii) increased production of import substitutes and (iii) the improvement of income distribution. This reasoning is, of course, even more relevant for today's situation.

3.14 However, although every effort should be made to expand the domestic market, this may, in the long run, not be enough. Exports of manufactured goods - to the East African Common Market partners as well as to other countries - should also be most actively promoted, both in order to directly provide an enlarged market for manufactured output and to contribute towards the increased foreign exchange requirements which the expansion of the domestic economy as a whole entails. Some potentials for manufactured exports are noted in Chapter IV, para 4.14 below.

3.15 The expansion of domestic manufacturing production based on an expanding local market and increased exports, where possible, will itself generate further production possibilities as a result of inter-industry linkages which often to a large extent will be of an import substituting nature. The mission has tried in Chapter V to identify several areas for such inter-industry linkages.

IV. ANALYSIS OF PROBLEMS AND PRIORITIES IN THE AREA OF INDUSTRIAL DEVELOPMENT PROGRAMMING AND PROMOTION, AND TECHNICAL ASSISTANCE REQUIREMENTS IN THAT CONTEXT

A. Industrial planning, programming and promotion

(i) Industrial sector planning as part of the overall economic planning

4.01 As noted above the Ministry of Planning and Economic Development is presently preparing an interim two-year rehabilitation programme to be integrated in the fourth Five Year Development Plan (1974/7 - 1981/2). The task of preparing the Five Year Plan will tax heavily on the personnel resources of the Ministry of Planning and Economic Development and a comprehensive assistance project is being envisaged. A request is under preparation for the provision during three years under the Country Programme, of a planning team, initially consisting of a macro-economic analyst, a project planner and a fiscal planner. The executing agency will be the World Bank. It is expected that the team will be in the field by March/April 1976.

4.02 One specific aspect, namely a possible rationalization of the present structure and functions of the numerous parastatal companies, producing as well as commercial, is envisaged to be, subject to priority attention, through a UNDP-financed study by a consulting firm.

(ii) Industrial Planning and Programming Unit - Ministry of Industry and Power

4.03 As an important complement to the planning work of the Ministry of Planning and Economic Development, a strengthening of the sectoral programming capacity in various technical Ministries is foreseen. Thus, already in the Third Development Plan (1971/2 - 1975/6) it was proposed that each Ministry establish its own 'planning unit'. Subject to the special interests of each individual Ministry, such a unit was to have the following functions:

a. the formulation of development policies;

b. the establishment and recommendation of priorities for allocation of resources and of the regional distribution of these resources;

c. the preparation and design of projects, including any necessary pre-investment studies;

d. the preparation of the annual development estimates;

e. the establishment and operation of a reporting scheme concerning the implementation of projects within the sector;

f. the evaluation of completed projects;

g. integration of the development proposals of the relevant parastatal organisations into the overall sector programmes;

h. the compilation and distribution of statistical data relevant to the sector.

4.04 In accordance with the intent of this proposal, and in response to the Ministry's assessment of needs and priorities, the Uganda/UNDP Country Programme for 1972-1976 contained provision for assistance in connexion with the establishment of an "Industrial Programming and Project Promotion Division" within the then Ministry of Commerce and Industry. At the time it was intended to emphasize the promotion of new industry as one of the unit's main activities. But the economic picture has changed substantially since mid-1972 and priorities have shifted. The immediate top priority is now assigned to accumulating and analysing information on the existing industries to support the Ministry's planning, regulatory, and allocation functions. The name of the unit has been changed to Industrial Planning and Programming Unit and a nucleus of staff from within the Ministry has already been identified. In fact a start has been made on the programme of data collection and analysis. The Government attaches very high priority to strengthening and extending the scope of the Unit's work.

4.05 The new Unit is intended to be the Ministry's principal "technical" arm in carrying out its development responsibilities. As a first step in this direction UNDP/UNIDO assistance is being provided in the carrying out of a comprehensive Industrial Survey of Uganda, to be undertaken by a consulting firm. This Survey which is

expected to be carried out during the first three months of 1976, will be made by a three-man team comprising an industrial economist, an industrial engineer (specialist in mineral-based industries) and an agro-industry expert.

4.06 The Survey should provide valuable guidance for the future work for the Industrial Planning and Programming Unit. The next immediate step in assisting the new Unit will be the provision of the services, initially for one year, of an industrial economist/planner. His first action should be (together with a UNIDO staff member, as required) to assist in identifying, designing and preparing the envisaged longer-term assistance to the new Unit.

4.07 The number of officers at the new Industrial Planning and Programming Unit is expected to remain limited in the initial stages - the next year or so - especially when taking into account the desirability of sending some of them on fellowship training overseas at an early phase. It is therefore suggested that during 1976/77 one or two United Nations volunteers might be recruited to assist in the building up and initial operations of the new Unit.

4.08 Without prejudging the findings of the Industrial Survey it might be indicated that the industrial planner/economist in his initial consideration of the work of the new Unit and the assistance required in that context, would be expected to:-

- assess short and long term needs for data collection and analysis;
- prepare a training plan for counterpart staff with an indication of the specific needs of each member;
- programme the undertaking of special sub-sector surveys and development studies selected e.g. in the light of the Industrial Survey (see also paragraph 4.12 below)
- programme the undertaking of micro-studies or assessments of specific projects (see paragraph 4.12 below).
- assess the short and long term needs for industrial promotion and for industrial information services.

4.09 Immediate tasks of the Ministry of Industry and Power which the mission considers of direct relevance to the programming work of the new Unit were understood to be :

(i) rehabilitation of existing industries to a production level of at least that of 1971/72;

(ii) review and implementation, as suitable, of industrial projects which were in the pipeline at the start of the "economic war";

(iii) commencement of preparatory work for selected new industrial projects.

4.10 The rehabilitation work was being based on the following priorities :

a) rehabilitation of food industries;

b) rehabilitation of industries earning foreign exchange (or saving foreign exchange through substitution of vitally needed imported goods);

c) a critical review of other industries in order to determine whether or not they should be subject to specific rehabilitation efforts.

4.11 It was further indicated to the mission that projects in the following sub-sectors were among those presently given special attention towards urgent rehabilitation: textiles, sugar, meat processing, iron and steel and metal- working industry. [An analysis of each of these sub-sectors, including specific technical assistance requirements, is given in Chapter V below.]

4.12 Among the pipeline projects and possible new projects the following were currently being reviewed or planned to be considered by the Ministry of Industry and Power :

- Lake Katwe project (salt and potassium chloride)
- Tannery project
- Pharmaceutical production
- Pulp mill (use of bagass as first alternative)
- Iron and steel project (utilizing high grade ore)
- Production of triple superphosphate
- Production of nitrogenuous fertilisers
- Extraction of cobalt
- Third cement plant (if suitable raw material deposits are found)
- New sugar factory at Sango Bay
- New weaving plants

(iii) Industrial exports development

4.13 The Uganda Export Promotion Council was established in 1969. It received assistance from the International Trade Center (ITC) in 1971-72 when two experts - on trade promotion and international marketing - were attached to the Council's secretariat. Thus a basic infrastructure is there, although the number of officers at the secretariat at the moment is very limited. (An ITC programming mission is expected in early December 1975 to i.a. consider possible further assistance to EPC.)

4.14 The major immediate task, it would seem, is now to firstly identify a few real possibilities of industrial goods exports, and secondly try to strengthen the production side as required in respect of those selected and viable industrial export products. Among the product possibilities which might be considered, can be noted:

- instant coffee
- cotton yarn (from Lira spinning mill)
- textile goods (high quality cotton goods; discussions are already under way between Nytil and a European firm)
- furniture (currently some export by one firm to Saudi-Arabia)
- cotton seed oil (for the East African market; this project has been looked into by the East African Development Bank)
- conduit steel pipes (E.A.Steel Products Ltd.Jinja) (to neighbouring countries)
- single superphosphate (to neighbouring countries)
- fishnets, enamelware, plastic products (to Rwanda, eastern Zaire, southern Sudan).
- hides and skins (new tannery - see para. 5.125 below)

4.15 It is expected that the Industrial Survey mission will pay special attention to the identification of potential export industries.

4.16 Furthermore, some comments are given in para 4.52 below regarding longer term needs for industrial standardisation and a quality certification marking scheme: the latter being of particular importance for possible export products.

4.17 It might finally be mentioned that, on the export packaging side, the mission's attention was, by way of example, brought to the difficulties experienced in the manufacturing of tea chests at the Kiira plywood factory at Jinja; the problem being bad quality aluminium foil inside the wooden tea chests. This had a serious adverse effect on the prices obtained for the tea exports.

B. Industrial Development Financing

4.18 The recently established Uganda Development Bank has the function inter alia to provide development financing resources to the industry sector. Their resources at present are limited to domestic funds; however it is expected that a channel of external credits might soon be established through a World Bank loan. Co-operation in this context is also maintained with the East African Development Bank. It is also planned that the World Bank will provide required expert assistance in the field of development banking operations and techniques.

4.19 Specific assistance is required in the field of industrial project preparation and, in particular, industrial project appraisal.[1] Thus the provision, for 2 years, of an adviser on industrial project preparation and appraisal is being proposed. Coupled to this would be specially designed training and study tour programmes, taking into account e.g. the UDB participation in the UNIDO sponsored Programme for Co-operation among Industrial Development Financing Institutions,[2] specifically the Scheme for the Exchange of Information on Industrial Projects in Developing Countries among Industrial Development Financing Institutions.

---

[1] It is expected that assistance on the agricultural project side will be provided by FAO.

[2] UDB took part for instance in the 6th Meeting on Co-operation among Industrial Development Financing Institutions held in Caracas, 30/6 - 4/7/1975.

4.20 The Uganda Development Bank is also responsible for providing, under special arrangements, loans to small industry. The services of an expert to advise on the operations of a small industry loans facility are being proposed for a period of 3 years. It is foreseen that the expert would give guidance inter alia regarding possible assistance to the small entrepreneur in preparing bankable projects and possible linkages with other small industry promotional activities (see paragraph 4.34 below). A fellowships component is also foreseen.

C. Integrated development of small-scale industry

4.21 Apart from the large industries in Uganda, such as the sugar, textiles, iron and steel, etc., there are very many small and medium sized industries located in the industrial zones of Kampala, Jinja, Mbale and Soroti and the Government of Uganda has given very high priority to the development of small-scale industries. The Ministry of Industry and Power has recently initiated plans to establish a small industries section from the middle of 1976. Two members of this section are already working within the Ministry on licensing for small-scale industries.

(i) Ntinda Industrial Estate

4.22 A co-ordinated visit was made by the mission to the Ntinda Industrial Estate just outside Kampala and to the workshops of the Management Training and Advisory Centre (MTAC), located nearby.

4.23 The Ntinda Industrial Estate was originally conceived as an estate to provide Uganda small entrepreneurs with suitable workshop accommodation and common service facilities, and one of its main purposes was to establish and operate a demonstration estate for small scale industries, as well as adjoining industrial area for industries of all sizes.

4.24 As part of a first - UNDP/UNIDO assisted - phase of the project, the Uganda Government undertook the construction of the Ntinda Estate which under Phase I includes the construction of a number of standard factories, as well as buildings for a mechanical workshop, a food laboratory, an administrative block and a canteen, at a total cost of U.Sh. 6.82 million. MTAC has recently formally taken over the estate, the infrastructural development aspects of which have not yet been fully completed, and it appears that the cost of finally completing the Phase I of the project will be much higher than the planned U.Sh. 6.82 million. At present, almost all available factory building space has been rented out although not all of the leaseholders have actually commenced operations. The mission visited several of these and, apart from the several dressmakers and tailors on the estate, whose operations do not merit serious consideration within the broad problems and requirements of the estate, some of the units were looked into in some detail:

4.25 Modern Bakery and Confectionery. This factory has a large space area, its equipment is very rudimentary, and on the day the bakery was visited, it was not operating because of non-availability of (wheat) mill flour. This normally comes from either Jinja or Kenya. The bakery pays rent to the Estate (U.Sh. 6,500) and was installed on a temporary basis.

4.26 Kijura Manufacturers. This is a fairly small workshop and although originally envisaged to produce barbed wire and fencing chain-link nets, is presently producing only barbed wire. On the day the workshop was visited there was only one machine operator and one semi-skilled labourer/assistant. It comprises one single very modern, almost computerised machine, producing the barbed wire. The machine was imported from West Germany and so is the galvanised wire it uses as the basic raw material. Compared to the New Steel Wire Industries Ltd. factory at Mbale (which the mission also visited, and which is referred to in Chapter V para: 5.17 - 5.21 below), it is felt that the foreign exchange component in the final product of Kijura Manufactureres is rather high and that its operations do not quite meet or fall within the original objectives of the Ntinda Industrial Estate. The plant does, however, have promise of export potential to neighbouring countries.

4.27 Modern Home Appliances Ltd. In the case of this unit, the operations, with a complement of ten workers, ar related exclusively to the assembly of electric table fans, electric kettles and electric domestic ironing appliances. Among its projected operations are also the assembly of refrigerators. The entire floor and table space in two rooms visited were covered with recently assembled, but unsold, large electric fans which are imported from Japan in pre-packed boxes and the few components assembled together on the estate. The selling price for these fans is very high - 1,400 U.Shillings of which there is a Government sales tax of 40% - primarily due to the high foreign exchange component of each item assembled. The plant's present assembly operations do not quite meet the basic objectives of the industrial estate; however, that situation would change if active consideration at a later stage were to be given to possible parts production, perhaps under guidance of the planned Product Design and Development Centre based on the workshops of the MTAC (see para.4.30 below)

4.28 Radio Africam Ltd. This enterprise is involved exclusively with the assembly of Philips Radios, the entire components for which are boxed and imported from Holland and Tanzania. The final products are finally displayed and sold at the Kampala sales offices of the Philips Company. The parent company is soon to provide a technical adviser to assist in the on the job training for the limited staff at the assembly plant. It would be desirable, of course, for a limited line of the basic components for the radios to be produced locally, particularly in view of the local availability of copper (there is a smelter at Kigezi), plastic moulding and production, excellent varieties of wood, glue etc. This enterprise's present operations - exclusively assembly - do not as yet meet original objectives of the Ntinda Estate.

4.29 If the Ntinda Estate is allowed to continue on its present growth pattern, the results will not be fully in line with the purpose of the original idea of the estate; because what it in fact is evolving into is an estate providing to a too large extent premises to small commercial enterprises whose operations have litte or nothing to do with manufacture or industrialisation. Such enterprises might well find it more convenient and profitable to rent accommodation in the commercial part of either Kampala or Jinja. There are no doubt very many small industrial enterprises scattered all over Kampala and Jinja whom one would expect to be accommodated at Ntinda.

4.30 The Mission welcomes the proposal now being considered to convert the present workshops of the NTAC (with all its modern and sophisticated machinery and mobile repair workshop) into a Product Design and Development Centre, with emphasis on metal and wood working, to serve NTAC, the Ntinda Estate and the neighbouring Vocational Training Centre. If this proposal does eventually materialise, there is, however, presently few of the operations at Ntinda that could use such a Product Design and Development Centre. Therefore, serious consideration should be given to attracting into the Estate such small industries whose operations would benefit from facilities that could be provided by the Design and Development Centre. The Government has invested substantially in the first phase of Ntinda, as well as into the impressive and fine buildings of the NTAC. The present operations of Ntinda do not justify or substantiate such levels of expenditure, unless a decision is made to make Ntinda's operations industrial rather than commercial; to make it an Estate devoted to the development and improvement of industrial skills rather than primarily relying on income from rented premises.

(ii) Small-scale industry survey and preparatory mission

4.31 One of the recommendations made in connexion with the recent ILO/UNIDO Review Mission on the NTAC was for a small-scale industry survey and preparatory mission to visit Uganda in early 1976. This survey should be carried out without much delay so that its recommendations can form the basis for the Government's preparations for the small-scale industry sector under its forthcoming National Development Plan.

(iii) Comprehensive programme based on the recommendations of the small-scale industry survey mission

4.32 It is envisaged that a comprehensive programme for small-scale industry development and promotion will follow and be based on the recommendations of the survey mission. In particular, the recommen-

dations of the survey mission may serve as the basis for expanding and focussing upon extension services rendered to particular small industry sectors in accordance with the priorities determined by the survey.

4.33 The mission feels that, based on its own observations and on indications given by the above mentioned Review Mission , it should be anticipated that for the year 1977/78 technical assistance of an amount of between $ 250,000 and $ 400,00 be required for implementation of the survey's recommendations, and that for the years 1979/81 between $ 600,00 and $ 800,00 be needed to implement the latter part of this long-term comprehensive programme. It is considered that this would be an optimum requirement for the small-scale industry sector, with a programme that could include further assistance to the Ntinda Estate, as well as support to activities, in addition to metal-working, in the field of building materials and ceramics, furniture and other wood products manufacture, food processing, and pilot plants for selected products, as well as the consolidation of small industry financing schemes and other operational finance.

(iv) Financing and credit scheme to small industries

4.34 As noted above (para.4.20) it is proposed to provide long-term services of an expert to advise on the operations of the small industry loans facility being established at the Uganda Development Bank. At present only a limited number of loans to small industries are granted by UDB and the commercial banks in Uganda. This is (as noted by the recent MTAC review mission) considered to a large extent to be due to difficulties in identifying and selecting possible projects and it is believed that the establishment of extension services to small industries can contribute effectively to identifying and carrying out the techno-economic studies necessary for the expansion of existing and establishment of new small industries. It is therefore proposed that the expert on small industry financing,

as a first step, should study and make recommendations in a comprehensive way regarding the feasibility and design of small industry credit schemes, investigating available opportunities for financing offered by various local commercial and development banks and co-ordinating the results of his findings with the Government's own efforts to promote the small industry sector. This initial study should be undertaken by the expert under the aegis of the Ministry of Industry and Power (in corporation with i.a. UNB).

D. Consultancy services to industry

4.35 Three UNDP-assisted projects are currently providing limited consultancy services to Ugandan industries. These are the industrial accountancy and consultancy teams based at the Uganda Development Corporation (UDC) - projects UGA/74/007 and UGA/74/001 - and the Consultancy Division of the Management Training and Advisory Centre (MTAC) - project UGA/71/526. There are also some private consulting firms offering various services in Uganda, but no detailed information on this subject is known to be available. Finally, the various new parastatals are beginning to establish internal consultancy services to take care of their own subsidiaries and their own development plans.

4.36 The basic advantage for consultancy services is that it can achieve direct economic impact at relatively low cost because it allows scarce skills to be applied where the need is greatest. It also has a long range impact through helping incumbent officers of the client organizations to become more skillful at problem solving in their own jobs. Achievement of these desirable results requires that consultancy assignments be selected with great care and that they be executed with full participation of the clients. It is also required that the consultancy team itself be capable of dealing with the range of technologies, and organizational and economic environments, which it will face.

4.37 According to the recent tripartite review, the industrial accountancy team has been able to establish its programme of surveying and installing accounting systems among a relatively large number of industries. Its future programme was accepted in principle, and enlarging the team was approved, subject to the normal project revision procedure. [It should also be noted that a separate tripartite review of the cost advisory project (UGA 74/008) has determined that consideration should be given to transferring its functions to the accountancy project. The Government is expected to make a decision shortly.]

4.38 Concerning the consultancy team, the tripartite review committee agreed that the Ministry of Planning and the Ministry of Industry and Power would together determine a system of priorities which would guide the establishment of a future programme for the team. This programme in turn would be a principle factor in considering the allocation of additional UNDP resources including the filling of current vacancies. Subsequently, it has become clear that the priorities being used by the Government in current planning activities can be used as a basis for programming discussions between the project manager and the Ministry of Industry and Power.

4.39 Although UNDP has not yet been formally notified, it appears that the Government will transfer both the accountancy team and the consultancy team from UDC to NTAC. No details have so far been announced but it is understood that the two projects would be transferred as distinct units under the NTAC umbrella.

4.40 Under the draft project revision prepared by the recent NTAC review mission, the NTAC Consultancy Division would be called upon to assist in identifying training needs within Rwandan enterprises, in order to permit the Training Division to design programmes in general and functional management disciplines.

4.41 The project revision document does <u>not</u> cover the subject of co-ordination between the NTAC programme and the work programmes of the two UNIDO consultancy projects. But the tripartite review committee discussed such co-ordination. It is understood that the accountancy team can assist in defining course material to be used by the NTAC Training Division. Both of the UNIDO projects would also feed information to the Training Division concerning training needs of their client organisations.

4.42 The mission believes that functions assigned to the existing UNIDO projects are worthy of the high priority accorded to them and that they deserve to be continued for at least several years. It is understood that the Government is giving careful consideration to the implications of changing the institutional framework in which they operate. No basic technical or co-ordination difficulties are expected to arise from such changes.

E. Training for Industry

4.43 In the context of the industrial rehabilitation programme, training of staff at all levels assumes a fundamental importance. This is reflected in the importance which the Government has attached to the establishment of educational and training programmes which contribute to the performance of industry.

4.44 Some of the joint Government/United Nations projects which assist in this effort are :

- Faculty of Technology, Makerere (UGA/71/523)
- Technical Teacher Training, Uganda Technical College (UGA/73/006)
- National Industrial Training Scheme (UGA/73/001)
- Management Training and Advisory Centre (MTAC), (UGA/71/526)
- Industrial Accounting Team (UGA/74/007)
- Industrial Consulting Team (UGA/74/001)

4.45 Elsewhere in this report (in Chapter V) reference is made to "comprehensive training programmes" which the mission is proposing for various key industries. Although all of these projects and programmes are complementary, it remains to be proven that they are adequate for the needs of the economy, and that they are "efficient" in their combined use of resources.

4.46 The mission understands that the overall manpower needs of Uganda's economy are to be assessed and an overall manpower plan prepared, under a UNDP/ILO project. However, it appears to the mission that the project envisaged will not provide the type of operational outputs which are needed in order to ensure that the industrial sector will approach technical and managerial self sufficiency within a reasonable time. Accordingly, it is proposed that an intensive manpower study and development planning exercise for the industrial sector be undertaken as soon as practicable. In addition to analysing needs for various skills now and for the coming years, the exercise would consider policy and action alternatives available to the Government and to industrial enterprises to control excessive unproductive turnover of employees in key positions so that training investments will be less volatile.

F. Industrial research and standardisation

(i) Industrial research

4.47 The National Research Council of Uganda has been in existence for a number of years. It is attached to the Ministry of Planning and Economic Development. The Council's assigned functions include, i.a., advising Government on the financing of research, preparing a five year national programme for research, monitoring research, and advising on its utilisation, and initiating research. Limited progress has been made, largely because of financial limitations. But the Council is active and is headed by a leading industrial executive.

4.48 The Council has various committees, one being the Scientific and Industrial Research Committee. The committee has a dozen members, including senior officers from industry, the University, private consulting and architects' firms, and Government technical organisations. The Committee is active and there is reportedly a strong desire to move ahead with programmes which will be of practical benefit to Ugandan industry during the present re-habilitation period.

4.49 After discussions with the Council Secretariat and with Government officials, the mission feels that it is timely to consider an "interim programme" concentrating on support to, and encouragement of applied industrial research and development and the application of industrial technology, appropriate to Uganda's current needs (RDT for short).

4.50 Such a programme could include the following elements, -

(a) Request the forthcoming UNIDO/UNDP industrial survey mission to pay particular attention to the identification of RDT needs and existing facilities capable of carrying out needed tasks.

(b) Consider separating the industrial and scientific functions of the Scientific and Industrial Research Committee so that one body could concentrate on industry alone.

(c) Identify a number of high priority RDT tasks which could be carried out, with moderate additional resources, by existing institutions. Encourage, assist and co-ordinate preparation of work plans and project support requests as appropriate; monitor progress and application of results. 1/ 2/

(d) In parallel, begin long range preparations for creation of a national industrial research institute, which might possibly be equipped to sponsor RDT tasks and also to carry out sponsored research itself.

(e) Develop a programme of fellowships and study tours to work toward Ugandan self-reliance in this field. Use of specialized study tours, i.a., should be considered: for example, a staff member of an institution developing low-cost roofing materials could visit several countries where good results had been already achieved. This might contribute directly to Uganda's own progress.

1/ The mission understands that the National Research Council of Uganda is in close touch with the East African Industrial Research Organization and would co-operate as closely as possible in the envisioned programme. However, the East African Industrial Research Board (under the Economic Affairs and Common Market Secretariat) is at present inactive.

2/ As possible examples of RDT tasks with which the Council might wish to concern itself, the mission has identified such items as stabilized soil building materials, large span modular timber structures, pre-fabricated timber bridges, pyrolytic conversion of coffee husks or bagasse to household fuel, uses of hydrocarbon distillates, local production of industrial glues, asphaltic corrugated roofing panels, small-scale labour intensive pig iron production, small-scale production of pulp from bagasse. (More details are provided in Chapter V below in connexion with the analysis of various industrial sub-sectors).

(ii) Industrial standardisation

4.51 Uganda has participated in an ad hoc East African Committee on Industrial Standardisation, but for the moment the proposed establishment of an East African standardisation body is not under active consideration. There is currently little action towards creating a Uganda national standards bureau as has been done in the other East African countries. The Central Materials Laboratory (Ministry of Works and Housing) does some standards development and testing for the construction industry, and there are other testing laboratories in Uganda but no co-ordinating body.

4.52 The mission concludes that creation of a standardization body may reasonably be deferred because of the current emphasis on basic rehabilitation of industry. However, towards the end of the planning period standardization priority may have increased greatly, as production rises and supplies are more plentiful. In the meantime it will be appropriate to make plans for the gradual implementation of a standardisation programme possibly beginning with a review of labelling legislation for foods, beverages, and chemical preparations, and a study of quality certification marking schemes for export.

V. ANALYSIS OF PROBLEMS AND PRIORITIES IN RESPECT OF SPECIFIC INDUSTRIAL SUB-SECTORS, AND TECHNICAL ASSISTANCE REQUIREMENTS IN THAT CONNEXION

A. Metallurgical, metal working and engineering industries

5.01 The metal products industry comprises the recently formed Uganda Steel Corporation with eight subsidiaries, a number of firms presently controlled directly by the Ministry of Industry and Power, and a number of - mostly smaller - enterprises owned by co-operatives and private investors.

(i) Uganda Steel Corporation (USC)

5.02 The Corporation operates a range of manufacturing units and an importing/marketing firm which handles products not made in Uganda, or quantities in excess of those being produced locally. 1/ (The following notes describe USC's operations):

(a) Steel Corporation of East Africa Ltd., Jinja

5.03 The firm basically manufactures rods, small sections, and wire from electrically-melted steel scrap. Capacity is about 30,000 tons per year, but current production is about 12,000 because of maintenance problems and lack of raw materials, spares and supplies. There is also some production of steel bolts. Most of the machinery is very old and requires constant attention.

5.04 There is a great need for renovating or upgrading equipment and adding a few items to the factory to reduce the drain of foreign exchange for spare parts and supplies. For example, lack of refractories and coke is restricting melting capacity of the iron foundry. There is also an unfulfilled requirement for steel casting and heat treating capabilities. The company would like to obtain a small induction furnace for steel casting.

(b) Chillington Tool Co. Ltd., Jinja

5.05 Chillington produces forged hoes, which are the principal agricultural implement used in Uganda. Production in 1972 was 1.5 million hoes. This was more than the Ugandan market required, and many were exported, e.g. to Kenya . Production is now considerably less and does not meet the domestic needs, which are currently

---

1/ USC also handles work on new projects such as the Iron Deposit Project at Kigezi and the Magnetite Project at Tororo (see para. 5.13 below).

estieated at one million. It is thought that some hoes are sold in Rwanda and Sudan where the market available to Chillington could also approach a million units, although currency exchange problems exist.

5.06 Because of the unsatisfied demand, distribution of hoes in Uganda was made a responsibility of the Ministry of Provincial Administration and the system involved provincial and district administrations. This led to delays in collections and a liquidity crisis ensued. Current negotiations look towards cash-on-delivery terms.

5.07 Hoes are made from steel bar stock, mostly imported, which costs about U Sch. 5,600 per ton, with a ton yielding 500 hoes. The ex-factory price per hoe is U Sch. 17/50. The plant has established an on-the-job training programme, but there is still a need for top level technical people and for fitters. Trained welders are available, and turners are now adequately trained.

(c) Uganda Baati Ltd., Kampala, and

(d) Uganda Steel Ltd., Tororo

5.08 Both firms manufacture galvanized corrugated steel roofing, using imported steel sheets. Zinc (from Zambia) and hydrochloric acid (for degreasing) are the other raw materials. Production is low because of foreign exchange limitations. Uganda Baati also manufactures cooking pots and saucepans.

(e) East African Steel Products Ltd., Jinja

5.09 The firm manufactures welded steel pipes up to two-inch diameter. The pipes are used primarily for structural purposes and furniture. By slowing down the welding speed, the seams could be made strong enough for water piping. But steel water pipes must be galvanised, and there is no pipe galvanizing facility in Uganda. The firm also makes exhaust pipes and steel furniture, including beds.

(f) Uganda Metal Industries Ltd., Jinja

5.10 The firm manufactures chain link fencing using imported galvanised wire. Wire from the steel plant in Jinja cannot be used because there is no wire galvanising unit in Uganda.

(g) The Uganda Metal Products and Enamelling Co. Ltd. (TUMPECO), Kampala

5.11 TUMPECO manufactures enamelware, beds and mattresses.

(h) USCO Steel and Metal Corporation Ltd., Kampala

5.12 This is the trading corporation which is considered to be the nucleus of a marketing unit for USC. In addition to importing and marketing products to supplement local production it has bought and imported steel scrap for sale to the steel plant.

(ii) The proposed integrated iron and steel plant

5.13 For some years there has been a tentative plan to manufacture iron from the magnetite which is produced as a by-product of the phosphate fertilizer production at Tororo. Lately, however, it has become quite certain that the magnetite contains too much titanium to be economically processed. An alternative plan is to exploit a haematite deposit at Kigezi, near Kabale in Western Uganda. The deposit is high grade (possibly 97 % Fe_2O_3) but estimates of its size vary widely.

5.14 Before committing itself to an exploitation plan, the Government wishes to have a detailed physical survey completed. Since the deposit is located in difficult terrain there are also numerous uncertainties about transport and infrastructure. It is hoped that a plan involving the use of locally produced charcoal as the reducing agent will be found feasible, since the foreign exchange benefits should be great. A United Nations expert has made a preliminary survey indicating that a feasibility study for industrial production of charcoal is warranted. 1/ The Ministry of Works and Housing is said to be studying the question of road access to the iron deposit.

5.15 A minimum objective for the project would be to make the Jinja steel plant independent of imported scrap or ingots, but more ambitious plans may prove viable.

(iii) Metal products enterprises attached to the Ministry of Industry and Power or independently owned

5.16 A partial list of other significant metal products firms is given below :

Firm/location	Products	Ownership
Paramount Manufacturing Ltd, Moale	Exhaust pipes, silencers	Ministry of Industry and Power
Machinery Manufacturers Ltd., Kampala	Industrial machinery	Ministry of Industry and Power

1/ E. Uhart, ECA Regional Adviser, "Potential Charcoal Development in Uganda", June 1975.

Firm/Location	Products	Ownership
Domestic appliances Co. Ltd., Kampala	Assembly of cookers and refrigerators	Ministry of Industry and Power
Agricultural Equipment, Kampala	Agricultural equipment	Private (?)
Kalasu, Tororo	Ball-point pens	Ministry of Industry and Power
Metal Container Factory, Kakira	Cans for vegetable oil,. etc.	Ministry of Industry and Power
Uganda Wire and Cables, Lugasi	Ieolated wire	Ministry of Industry and Power
Casements Africa Ltd., Kampala	Metal doors and windows	Private
Ugma Steel and Engineering Co., Lugasi	Machinery spares, structural steel	Ministry of Industry and Power
New Steel Wire Industries Ltd., Mbale	Barbed wire, nails, staples, bolts and screws	Private
Sembule Steel Mills, Kampala	Wire nails, barbed wire	Private
Wire Products (U) Ltd., Kampala	Barbed wire, nails	Private
Kijura Manufacturers, Ntinda Industrial Estates, Kampala	Barbed wire	Private
Engineering Division, Teso Co-operative Union, Soroti	Spares, repairs, and agricultural implements	Co-operative
Kampala Foundries, Kampala	non-ferreous moulded parts	Private (?)
Burns and Blair Ltd., Kampala	Steel products	Private
G. Campagne & Co. Steel Erecters Ltd., Kampala	Structural steel for buildings, storage tanks	Private
Joy Metal Products & Engineering Works, Kampala	Steel furniture, water tanks	Private
East African Aluminium Works, Kampala	Aluminium holloware steel karais	Private

5.17 The mission visited the wire products factory, New Steel Wire Industries Ltd., in Mbale and the Ugma plant in Lugazi. Ugma is referred to below under industrial repair and maintenance; a few notes on the wire products are included here .

5.18 The wire products plant in Mbale was allocated to private owners in 1973. Production is approximately 20 tons per month on one shift. Output is limited by raw material (foreign exchange) availability; otherwise a second shift would be added. The products are nails, staples, barbed wire, chain link fencing and wood screws. The market is national and the only domestic competition comes from two similar, but smaller, firms in Kampala.

5.19 Working capital is supplied through a loan from the Uganda Development Bank and most sales are for cash. There are 28 employees including 5 skilled workers who do repairs etc. The eight screw machines are very old and require constant maintenance. Some of the gears are repaired by using welding rod to build up a new tooth, but this doesn't last long. The six nail machines are in better condition. Some spares are made by artisans in Mbale (there is an extensive industrial area). Some more complicated pieces, like the sizing box which changes the size of nails, are made at Ugma. Brass bushings are obtained from Kampala Foundries.

5.20 There is an antiquated "manual" chain link fencing machine in operating condition and a more sophisticated (but second hand) one which has not yet been uncrated and installed. There are two Italian barbed wire machines, old but serviceable. Raw material for nails and rivets cost s roughly U Sch. 3,500/ - per ton, CIF Mombasa, and sells for about 5,000/- in finished form. Production of screws is about 100 gross per day at 5 to 32/- per gross.

5.21 Production of barbed wire is 15 rolls (25 kg. each), per shift per machine. It sells for 255/- per roll. The competitor in Kampala is one of two other firms known to be manufacturing barbed wire in Uganda. (The second is located at the Ntinda Industrial Estate and has an ultra-modern German machine). The Mbale firm would like to double its production since the apparent market for barbed wire seems nowhere near saturation. (The FAO beef industry team has made estimates of requirements for certain Government projects).

(iv) Agricultural implements

5.22 Among the firms considered by the mission only Chillington Tools, Teso Co-operative and Ugma are known to produce agricultural implements. Busitema Agricultural Mechanization School also produces a few plows etc., but mostly as a training device.

5.23 A UNDP/UNIDO project for the manufacture of low-cost farm equipment (UGA/73/015) at the Engineering Division of the Teso Co-operative Union (EDTCU) at Soroti is about to get under way. The project will be carried out in close co-operation with agricultural research and development activities which will strongly influence the selection and design of equipment to be produced. EDTCU will mainly serve a regional market and will emphasise ox-drawn equipment as well as hand implements. (There is also a sizeable capability for industrial repair and maintenance, concentrating on ginnery equipment).

5.24 It is expected that other similar regional manufacturing centres may need to be strengthened or created. It is hoped that the Teso "model" can be adopted for use elsewhere. The mission has been cautioned, however, that agricultural conditions and customs in other parts of Uganda differ markedly so that transferring such a project experience elsewhere must be considered carefully. It is suggested that the industrial survey mission give preliminary attention to the prospects for regional centres with a view to recommending more detailed study as appropriate. One objective should be to establish complementary manufacturing programmes between regional units and main factories. Also the planned repair and maintenance mission (see paragraph 5.32 below) should consider this matter.

(v) Industrial repair and maintenance

5.25 Without exception each of the industries visited by the mission has at least a maintenance workshop, and nearly all have extended capabilities for manufacturing spares, sometimes including non-ferrous and iron casting. Some of the workshops (e.g. at Kakira Sugar Works, NYTIL, and African Textile Mills) would qualify for description as engineering workshops. The largest such workshop is the Ugma plant at Lugazi which originally served the Lugazi sugar plant as spares supplier. But the facility has been expanded to a much broader role, witnessed by the frequent reference to Ugma by other factories as the supplier of some of their more complicated spares. At the same time it was clear that Ugma's production capacity is inadequate to satisfy the demands and that its

prices are considered to be rather high. The Ugma management stated that it has had some trouble in controlling labour costs allocated against jobs in process.

5.26 Some plants have at least tentative plans for further expansion of their repair and spares making capacity. Two alternative expansion plans discussed at the Steel Corporation of East Africa in Jinja included installation of an induction furnace for steel casting. The more ambitious of the two plans proposed installation of a steel foundry and workshop to provide machine steel spares as a new product line. This workshop would presumably include heat treating capability. The African Textile Mill (ATM) at Mbale is hoping to take over a nearby foundry and machine shop to supplement its capability. Presently ATM is spreading its work among a number of suppliers including Busitema (heat treating,) the jute factory in Tororo (moulding), local woodworking shops ("picking sticks" of Mt Elgon teak), the Mt Elgon Technical School, local engineering shops and its own workshop. Their foundry pours twice a week but is limited to 100 kg. in each four-hour melt.

5.27 Executives of most factories when asked, stated that they could reduce foreign exchange needs for spares by a significant amount, say a quarter, if basic local spares capacity could be strengthened moderately. It seems that there are many duplicative machine shops, most of which are not quite adequate. Iron and steel casting and heat treating (such as for gears) are the areas identified most often as problems. Some firms indicated that they could not "catch up" to the point where they could think about preventive maintenance, e.g. a number of textile looms have been "cannibalised." On the other hand it is clear that the foreign exchange shortage, i.a., is forcing managements to seek innovative

means to reduce the need for imports. As mentioned above ATM has spread its spares procurements among many sources. The wire products factory is replacing gear teeth but the repairs don't last. The Kakira sugar mill is casting fire grates for its boilers but their life is short because the composition is not ideal. The same factory has replaced at least one steam turbine drive clutch with a homemade expedient. Chillington has built up a sector die for its forging presses from pieces of steel plate to replace the special imported heat-resistant "white metal" item. Busitema Agricultural Mechanisation School has found that welding rods can be made from ordinary wire, using sodium silicate as a binder for the flux coating. The cement plant at Tororo would like to have its grinding medium and fire grates cast locally and believes this could be feasible. The requirements of grindin medium for Tororo alone is 300 tons per year of 25 to 100 mm high chrome cast iron balls.

5.28 It may be noted that much of the original plant equipment including the very sizeable rotating crystallisers - for the Kinyala Sugar Mill, soon to be in operation at Masindi - was fabricated at the Ugma works. The designs in that case came from overseas, but the example of large scale engineering production should be kept in mind. Ugma also has a production line for hoes, pickaxes, and spades which produced a million shillings worth of output in 1974. In 1972 Ugma was in the midst of installing a steel foundry. The job was nearly complete except for delivery of the transformer, but the specifications had until recently not been re-established. Further, it is said that the plant's current production is only a fraction of its pre-1972 level. One example of the reasons for production losses is the failure to obtain foreign exchange to purchase supplies such as coke, ferromanganese, and firebricks. This has prevented the casting of the largest spares, such as 15-ton main roller shells for the Kakira sugar works. Some were sent to Ugma in 1974 for renewal but still have not been touched. Present employment at Ugma is 370 and the total foundry output recently has been only about five tons per month.

(vi) Possibilities for assistance to the metal produc's industry

5.29 The Uganda Steel Corporation has made estimates of the cost and foreign exchange component of rehabilitation and moderate expansion programmes for its group of companies. These estimates are summarized below :

Company	Spares and raw material for next 12 months (equivalent of million Uganda Shs.)	Planned (near term) expansion (equivalent of million Uganda Shs)
Steel Corporation of East Africa Ltd.	18	14 [flying shear wire galvanising, completion of wire drawing, induction furnace (steel foundry)]
Chillington Tools Co. Ltd.	2	6 [double capacity]
East African Steel Products Ltd.	12	4 [pipe galvanising plant]
Uganda Metal Industries Ltd.	3	
Uganda Steel Ltd.	9	
Uganda Baati Ltd.	15	
TUMPECO	12	
Imco Steel and Metal Corp. Ltd.	5	
Total	76	24

5.30 The total is 100 million shillings, but these values were estimated before the recent devaluation. The logic of providing foreign exchange for all or most of the items requested is very strong, because most of the use outputs are industrial intermediates which would otherwise need to be imported. One possible exception is the corrugated galvanized roofing which could possibly be substituted by a comparable asphalt impregnated panel made from excess bagasse currently being burned in the open at Kakira. It is understood that such infusions of capital are being discussed with various financing institutions.

5.31 Within the context of activities which would qualify as possible technical assistance projects, the following are recommended for consideration.

(a) Industrial repair and maintenance

5.32 A UNIDO mission is expected in January 1976 to define a large scale assistance project. The mission will consider such activities as :

(a) Assistance to Ugma to drastically increase its output and its service to various industries (production and costing systems, technical help to complete the steel foundry),

(b) Increased availability of emergency breakdown service,

(c) Assistance to a wide range of industries to identify spares and supply items which can be made locally rather than being imported,

(d) Assistance to industries to strengthen their own repair and spares manufacture/acquisition programmes,

(e) Assistance to industries to upgrade their maintenance systems and personnel,

(f) Fellowships and/or other training assistance,

(g) Assessment of overall spares production requirements and potentials; need for additional production unit(s).

5.33 The mission should also look into an earlier made proposal for the provision of two mobile repair units.

(b) Production and testing capabilities

5.34 The Government may wish to request assistance in carrying out feasibility studies and/or in appraising project proposals for additional production facilities such as the following :

(a) Steel pipe galvanizing
(b) Wire galvanizing
(c) Increased barbed wire production capacity
(d) Steel foundry capacity (pilot plant)
(e) Heat treating facility (pilot plant)
(f) Foundry testing laboratory.

5.35 There may be possibilities to finance (d) and (e) and (f) as parts of a technical assistance programme under voluntary contributions or through other means.

(c) Integrated iron and steel plant

5.36 It is accepted that the extent and properties of the Kigesi haematite deposit must be assessed before final plans for its exploitation can be approved. Since scrap supplies for the Jinja steel mill are running out, delay in obtaining at least pilot production from Kigezi for input to Jinja is going to cause severe foreign exchange drains. For this reason the following are suggested as urgent needs:

(a) committment of the physical survey at Kigesi,
(b) formal request for a brief planning mission to assist in determining a longer term development programme (terms of reference are understood to have been informally agreed on as suggested by UNIDO),
(c) appointment of a consulting firm to follow-up on (b),
(d) appointment of a full time project officer to co-ordinate the work of consultants and of the various Government ministries and organisations whose work will contribute towards early operation of the proposed iron and steel complex,
(e) Commissioning of a feasibility study for the industrial production of charcoal in quantities sufficient to support the iron and steel project without causing unacceptable environmental damage (see under wood industries below),
(f) since it will take 6 - 10 years before large scale pig iron production is likely, it would be advisable to evaluate small scale low-cost "intermediate technology" alternatives as an interim measure. Such might be installed quickly and provide for local needs during the planning and construction of a larger facility. Since the ore exists as a surface deposit there should be no difficulties in extracting it.

(d) Other major activities

5.37 It is suggested that the Government specify that the forthcoming UNIDO Industrial Survey cover this sector carefully and ensure that existing and potential metalworking capabilities in the outlying towns are studied. Inter alia, the potentials of co-operatives should be assessed. The contributions to agricultural inputs (e.g. implements and grain storage) and crop processing (e.g. ginning, tea processing, oil expelling and soap making) should be stressed.

5.38 Since for at least the next 5 - 10 years , most metal products will necessarily continue to have a high import content, means should be sought to make use of locally available substitute materials which may reduce the requirements for such products as structural steel and metal roofing. Examples of such materials are the bagasse based asphaltic corrugated roofing panels and the modular timber bridge and industrial/agricultural building systems. These are covered more fully in the section on wood industries below.

(e) Co-operation among developing countries

5.39 The industrial production of charcoal for use in a blast furnace has been achieved in Brazil and expert or fellowship assistance may be available.

5.40 Asphaltic corrugated roofing panels have been successfully produced in India and in South America. A study tour could probably be arranged for a prospective entrepreneur or manager.

5.41 It is recommended that the possibility of taking advantage of Chinese experience in the small scale production of pig iron be carefully explored. UNDP and UNIDO can assist in determining possible arrangements.

B. Building Materials Industries

(i) Integrated development of building materials industries

5.42 One of the primary long-term objectives of the Government is the achievement of a balanced development of both rural areas and population centres. The rural development in particular will aim at keeping the skilled people in rural areas so that both industrial and agricultural development can benefit from their presence. One important contribution to the development of rural areas is the development of the building and construction materials industry. The development of this industry depends on the one hand on the resources available, and on the other hand upon the long-term requirements for these materials.

5.43 Several of the industries producing building materials are covered in other chapters of this report - lime, cement, asbestos cement, metal bars, corrugated metal sheets, metal doors and windows, wood products (such as wooden building components) - while a corresponding brief assessment of other fields of activity e.g. manufacture of brick and heavy clay products, floor and wall tiles, prefabricated concrete blocks and elements, have, for reasons of time, not been possible for the mission. Also new product possibilities, such as blocks of laterite and boards (and other products) utilising agricultural wastes should be looked into in more detail. A sheet glass project is also in the pipeline.

5.44 It is recommended that, as a tool of guidance for the directly responsible Government authorities (Ministry of Planning, Ministry of Works and Housing, Ministry of Industry and Power) as well as the industries themselves, a comprehensive programme be formulated for the development of the building and construction materials industry in all regions of the country. It is suggested that as an immediate step the services of an expert for a period of 2 months would be provided to assist

the Government in evaluating existing resources for the development of the building materials industry within the framework of the country's long-term requirements for building materials and formulate a comprehensive programme for the development of that industry. One major input for the formulation of this programme would be provided through the findings of the SIS expert on industrial rocks and minerals whose services have been requested by the Geological Survey and Mines Department for a period of 3 months.

5.45 Further assistance, aiming at implementing specific activities within the programme, would thereafter be envisaged, comprising experts and fellowships as well as use of consulting companies and testing facilities. An important part of the assistance could be undertaken within the framework of the programme of Cooperation among Developing Countries (CDC).

(ii) The cement industry

5.46 The country's two cement plants at Tororo and Hima, both belonging to the Uganda Cement Corporation, are working under capacity. The Tororo plant's present output is about 200 tons/day; the capacity is 300-500 tons or 150,000 tons/annum. The Hima plant's capacity is 100,000 tons/annum; its present output is about 60 per cent of capacity. An expansion of the Hima factory to a total capacity of 600 tons/day or 300,000 tons/annum is under way, the equipment having been delivered and installed. It is expected that the expanded plant will be commissioned in the near future and brought into full operation.

5.47 It is expected that with the plants - Tororo, Hima I and Hima II - in full production, the needs of Uganda will be fully covered and some exports be possible. Markets of immediate interest are Rwanda, Eastern Zaire and Southern Sudan. Indeed, long-term plans for the development of the industry include the possible establishment of a cement factory in the northern part of the country (subject to identification of required raw material deposits) aiming to a large extent at the Southern Sudan market.

5.48 The main difficulties at the cement factories are:

(a) The limestone and clay used at Tororo are not of ideal quality; the presence of phosphates - up to 6% P_2O_5 - in the limestone and the low silica and higher iron oxides in the clay make it difficult to reach the right standard specifications. However, to make good use of the available raw materials some additives are added at the different stages of manufacturing. Thus flourspar (imported: 400 tons/year a 350 Sh./ton) is added during mixing and grinding of raw materials while calcium chloride is added to the clinker to improve the low early strength. From the above, it is clear that a thorough control of the quality of raw materials, and control of the additives are needed. (The chemical laboratory is well equipped and capable of doing all work needed).

(b) The quantity of the limestone in the Tororo area (about 3 kilometres from the plant) is now very limited *). Recently the Tororo factory has been getting some good quality limestone from the Hima factory across the country. The mission was given to understand that explorations are being undertaken at Bududa Hills in the Mbale area (about 60 Km. north of Tororo) and have shown positive results. That limestone would be blended with the Tororo one.

(c) The major imported item for the Tororo plant (as well as for the Hima plant) is gypsum. The total requirements of the plants are 10,000 - 15,000 tons/year at 300 Sh./ton. At present gypsum is imported from Kenya; however, it is understood that the supply of this may soon be running short. Search for gypsum within Uganda is underway and there are preliminary indications that suitable deposits may be found at locations close to Hima.

(d) The Tororo factory has two kilns. Only one is at present in operation. The other one is standing, due to lack of heat resistent polysius preheater grate plates, 3-5 of which are used per day. These plates have to be imported. (The possibility of local manufacture e.g. at Ugma , should be looked into).

---

*) The geological exploration in Tororo area was first carried out in 1952. It showed that suitable limestone could be sufficient for at least 20 years. Some further investigations have been made recently in the area. The Cement Technologist, presently under bi-lateral contract (from 1976 UNIDO expert), is assisting in these further investigations.

(e) The Tororo factory has rather old machinery which requires constant repairs. Some spare parts are made at their own workshop, at Ugma and at a nearby agriculture mechanization school (Busitema) with foundry facilities, while others are imported. Possibilities of more local spare parts manufacture may exist. Such possibilities may also exist, the mission was given to understand, at the Hima plant.

(f) The fuel for the kilns at Tororo used to be charcoal in respect of one of them and fuel oil in respect of the other. Both kilns could use either type of fuel; however it was preferred to use fuel oil in one of them as this enabled better quality of the cement produced. The charcoal used at Tororo was imported from Kenya (produced from de-barked wattle wood) about 17,000 tons/year. (In addition about 5,000 tons/year of charcoal of lower quality from local earthen kilns was used for burning limestone at the Tororo plant to produce lime). Since early this year, however, the exports of charcoal from Kenya has been banned in order to prevent further severe deforestation there. The one kiln presently in operation at Tororo is now using fuel oil as is the Hima plant. An investment of about 0.5 million shillings would be needed to convert all kilns to charcoal use. The feasibility of large-scale charcoal production (of interest also in connection with an integrated iron and steel industry, see paragraph 5.14 above) is recommended for further study.[1] Another possible source of fuel might be bagasse from the sugar factories in the Jinja area. The mission was given to understand that some very preliminary discussions had been held with Japanese contacts on this matter.

(g) There is a serious shortage of management and technical personnel at the plants. Under a bilateral agreement with Egypt, nine Egyptian experts - eight at Hima and one at Tororo - were working with the Corporation until April 1975. One, the Technical Manager/Industrial Chemist, Mr.S.Agaiby, is remaining, (as UNIDO-adviser from January 1976). UNIDO is also providing a Mechanical Engineer, Mr.T.M.Aggarwal, and an Electrical Engineer (under recruitment) for the Hima Plant. (Mr.Agaiby will be based at the Kampala headquarters of the Cement Corporation). Furthermore, the Tororo plant has hired a Chief Engineer, Mr.A.P.Francis from Sri Lanka, under direct contract. Mr.Aggarwal will, in an advisory capacity, be concentrating on the Chief Engineering functions at the Hima plant. A long term personnel development and training programme is planned by the Corporation on the basis of sponsorship of graduate and undergraduate students.[2]

---

[1] See the report by the E.C.A.Adviser Mr. Edmond Uhart, "Potential charcoal development in Uganda", June 1975

[2] Thus for 1976/77 the mission was informed that the Corporation intended to sponsor the 3-year undergraduate studies for 2 electrical engineers, 2 mechanical engineers, 2 instrumentation engineers and 2 cement chemists.

5.49 Adjacent to the Tororo Cement factory is the Asbestos Cement manufacturing plant. It produces asbestos cement sheets and pipes as well as plastic sheets and pipes.[1] Up to 1972 a sizeable export (4-5 million shillings) of asbestos products to Kenya was maintained; since then Kenya has had its own plant. The Tororo plant, at present idle, requires under full capacity a monthly import of asbestos at a cost today of about 800,000 Shs.[2] A thorough rehabilitation of the existing machinery is expected to be undertaken shortly by a team from the machinery supplier in Italy. The services of an adviser, an Asbestos Technologist, may thereafter be required for about one year. Counterpart personnel is available.

5.50 The following is recommended regarding the cement industry:

(a) The long-term development of the Ugandan cement industry should be planned within the context of

i) a long term programme for the development of the building materials industry as a whole to satisfy domestic demands, and

ii) export potential.

(b) A technical assistance (fellowships) programme should be developed in full concert with the long-term personnel development programme now being prepared by the Corporation.[3] The UNIDO experts should provide the required advice for the preparation of such a fellowship programme. Particular attention should be paid in this connexion to the possibilities under the C.D.C. programme.[4]

1/ Production of asbestos cement sheetings and pipes
1966: 8,385 tons (or 5.4 million shillings)
1969: 8,522 tons, thereof 6,963 tons sheets and 1,559 tons pipes
1970: 14,687 tons, thereof 13,770 tons sheets and 917 tons pipes.

2/ The highest recorded import figure for crude asbestos was 3.8 million shillings in 1970 (2.468 tons)

3/ It should be noted that four officers of the Cement Corporation have just been awarded UNIDO fellowships for 6-12 months training.

4/ Training facilities have been offered e.g. by the State Cement Corporation of Pakistan with 7 operating factories, and the Philippines Cement Authority.

(c) Consideration be given to possible extension of the services of the three UNIDO experts under the current assistance project.

(d) After the asbestos cement plant has been brought back into production, in view of the high imported raw material content and relatively low value added for the asbestos cement products manufacture, a study of the most suitable level of production at the plant should be made based on an assessment of the local demand for asbestos cement sheets and pipes (a demand not possible to satisfy through other locally produced products based on local raw materials) and export potential.

(e) The UNIDO Industrial Chemist is, among his other duties, expected to liaise with the Geological Department for the Bududa lime stone project as well as in further investigations to give more lime stone reserves for the Hima plant, the gypsum deposit prospecting and the search for lime stone and other raw material for the proposed third cement factory. Further technical assistance in this field may be required.

(f) At a later stage assistance may be required for the preparation of a feasibility study for the proposed third cement factory.

(g) The feasibility of large-scale charcoal production should be studied in the context of possible requirements also of an integrated iron and steel industry. The UNIDO Industrial Chemist may prepare terms of reference for such a study as far as the requirements of the cement industry are concerned. The alternative of using bagasse as fuel for the Tororo plant should also be investigated. Initial action should also in this case be taken by the UNIDO Industrial Chemist.

C. Wood, Paper, and Allied Products Industries

(i) Description of the industry

5.51 The Wood Industries Corporation (WIC) has recently been established as a parastatal (under the Ministry of Agriculture and Animal Husbandry) to take over the firms which were assigned to the Forest Department in 1972. WIC controls fifteen sawmills in various locations with an annual production of about 35-50 thousand cubic meters. There is a plywood factory (Kiiru) at Jinja which produces around a million square meters of plywood, mostly for tea chests used in packing the export crop. A particle board factory at Budongo has a capacity of 5,000 tons per

year but is not operating at full capacity. There are also a number of furniture production facilities, two of which are relatively large. There are also numerous small private wood products industries throughout the country. These include, i.a., furniture makers and truck body builders.

5.52 On the paper and packaging side, Papco Industries Ltd., Jinja, operates one paper making machine using imported pulp. Production is 11 tons per day of writing, printing and wrapping papers when pulp is available. Of course, this is a small fraction of total paper consumption in Uganda. There are several packaging firms in Jinja, ia. Associated Paper Industries Ltd. and Printpak Ltd., producing industrial packaging materials, including the substantial needs of the cigarette industry.

(ii) Development opportunities

5.53 WIC has several development projects already underway. Additional sawnmills are planned. A wood industries complex is planned to be established at Budongo Forest. This will include, besides the existing particle board facility, a second plywood plant and a parquet flooring installation. The plywood plant will provide mahogany veneer, ia., for facing some of the particle board output. A second parquet plant is to be commissioned at Jinja, and the machinery is already on hand.

5.54 Another major intention of WIC is to greatly increase the production of furniture. Additional joineries and furniture workshops are to be developed in connexion with the sawnmills. Although present WIC furniture production is of ordinary quality, it is to be noted that two small independent shops in Kampala are producing luxury quality furniture items from exotic woods. Some of the production is said to be for exports, often by air, to markets such as U.K. and Saudi Arabia. Since furniture im-

ports to Uganda have been sizeable in the past, there seems to be good scope for the local industry for import substitution. Eventual expansion to high quality exports is certainly a worthwhile objective.

5.55 Papco is completing installation of a second (second hand) paper making machine and expects to more than double its production. Since imported pulp is costly, there is a strong incentive to consider local manufacture. Negotiations are under way for a consulting firm to conduct a feasibility study under UNDP/UNIDO sponsorship. The consultants will consider various raw materials, including bagasse and papyrus as well as softwood.

5.56 Rough calculations indicate that the Lugazi and Kakira sugar mills might supply sufficient bagasse to feed a 50,000 ton per year pulp mill in the Jinja area. The calculations are based on a rule of thumb that 20 per cent of the bagasse produced by the mills should be available after the sugar mills boiler fuel needs are satisfied - although this condition is said to be fairly common elsewhere - it is far from certain that the Ugandan plants can be considered reliable suppliers on a long-term basis.

5.57 At present, however, because the Kakira bagasse is too wet to burn well in the boilers, tons of it are being disposed of by open burning covering a ten-acre plot near the factory. Although the pulp mill is a large project other ideas for making use of the currently excess bagasse have arisen. One is to make charcoal briquets from it, using specialized equipment which has been developed in at least two different overseas countries. Another is to manufacture corrugated roofing panels, making the panels from processed bagasse and then impregnating them with asphalt. There are said to be great foreign exchange benefits available from the latter proposal, and it has already been proven elsewhere.

5.58 The overall question of industrial production of charcoal deserves very high priority. Large amounts of foreign exchange may be saved by substituting charcoal for imported fuel oil and coke. An ECA/FAO adviser has reported in some detail on this subject.(see para. 5.14 above)

(iii) Technical assistance

5.60 There is a strong need for a project aimed at building up the WIC furniture manufacturing capacity in an orderly way and at expanding production of other products such as packing crates, doors and windows and truck bodies. A project formulation mission could be requested from UNIDO to help in defining detailed requirements.

5.61 There is certainly adquate justification to request an urgent feasibility study for industrial production of charcoal. It is suggested that two approaches be given immediate go-ahead. First would be a project to supply the Tororo cement plant, because the charcoal can be immediately used to replace fuel oil. The other major industrial applications can then be studied separately and successively. Second, the pyrolytic converter, which can process fluffy agricultural wastes such as bagasse, groundnut shells, coffee husks, sawdust, etc., should be fully evaluated for use in Uganda. The approach is economically attractive because it relies on raw materials which have already been collected in one place and which will otherwise be wasted. Thus, the expensive handling and transporting operations are minimised.

5.62 Another group of uses for local timber resources can greatly reduce foreign exchange requirements for imported steel construction materials. One involves the application of modular engineering

techniques to large span agricultural/industrial buildings (using both sawn timber and poles). Techniques have been successfully applied in other developing countries, and a project could be designed to make pilot installations in Uganda for field evaluation.

5.63 Well-tested prefabrication techniques for construction of houses, schools, and commercial structures are also available and could allow maximum use to be made of skilled workers while on-site construction can be done by less skilled people. A pilot production operation could be organized in Uganda under a technical assistance project.

5.64 A UNIDO project for the commercialization of prefabricated modular timber bridges has been very successful in another developing country. The results could be made available to Uganda very inexpensively. The local cost of such bridges is only a fraction of the cost of conventional construction and the foreign exchange cost is very small. A design handbook to accommodate varying timber species will soon be available, and demonstration units could be constructed on relatively short notice.

5.65 It is suggested that the initial charcoal feasibility study (for Tororo cement and lime) should emphasize the use of a relatively large installation, say 20,000 to 50,000 tons per year,[1/] so that the hydrocarbon distillate by-products can be collected and made available for other uses. The installation would probably replace trees used by creating a eucalyptus plantation, which would have a very high yield per acre per year (20-30 cubic metres).

1/ Manufacturers of suitable equipment in both Belgium and U.K. have already been identified and WIC has a proposal from one firm.

5.66 The distillates include phenol which has many uses, both direct and as an intermediate, and tars. The tars can certainly be used as a soil stabilizer for road construction and building materials. It may also be useful in making low cost roofing panels. It is proposed that a small scale charcoal/distillate unit be installed, probably at the Central Materials Laboratory to allow early testing of these charcoal by-products and their possible applications.

5.67 WIC has indicated strong interest in the furniture, timber structures, prefabrication and charcoal projects. Of course, co-ordination with the other interested bodies including the Utilization Section of the Forest Department, would be built into such activities. The Ministry of Works and Housing has expressed interest in exploring the timber bridges possibilities. The Central Materials Laboratory is interested in the charcoal distillates and asphaltic roofing programmes and also would be interested in conducting a low cost housing pilot scheme, probably using stabilized soils, and impregnated vegetable material roofing.

5.68 The pyrolytic converter method of charcoal production (for household use) could be tested uder the auspices of the Coffee Board since a plentiful supply of coffee husks isknown to exist.

D. Chemical and Chemical Products

5.69 The country's only fertilizer manufacturing factory, Tororo Industrial Chemicals and Fertilizers Ltd. (TICAF), is producing single super-phosphates (SSP) from phosphate deposits in the Sukulu hills near Tororo (100 million tons). At present it is recognized that the plant (capacity 25,000 tons/year) is too small to be economically viable in the long run. The equipment which was procured was second-hand and is becoming obsolete and more difficult to operate. Therefore, plans are being made for the expansion and modernization of the plant and technology. (At present 1,7000 tons/monthly of SSP is produced).

5.70 The factory is also producing sulphuric acid from imported sulphur (presently from Iraq). The current production is 10,000 tons/year. 60% of it is now being exported to Kenya for use in their textile and pulp and paper plants. This plant will gradually be phased out and replaced by an ore washing contact plant producing 30,000 tons per year of 98 per cent sulphric acid. The necessary pyrites are expected to be supplied from the Kilembe Copper Mines as by-product of its planned cobalt processing project.

5.71 The expansion of the SSP plant will mean a doubling of the present plant. Contacts have been made with Italian and German firms but no commitment has as yet been entered into. The long-term plan also include the production of triple super-phosphate. It is understood that a study has been undertaken by Hoechst (East Africa) Ltd.; owing to lack of funds the project is pending.

5.72 It might be noted that studies on the viability of an earlier project proposal for the manufacture of nitrogenous fertilizers (planned capacity: 100,000 tons/year) are being continued although the originally foreseen market arrangements with the East African Partner States have not been worked out.

5.73 Of interest in this context is also the salt project at Lake Katwe which is currently considered by the East African Development Bank and bilateral sources. It is envisaged that it will produce sodium chloride (common salt) initially 50,000 tons per year and potassium chloride initially 17,000 tons per year (for use as a fertilizer). Other by-products (like soda ash) will initially be discarded; their extraction may be viable at a later date.

5.74 One limiting factor for the development of the country's fertilizer industry, including the production of triple super phosphate and other fertilizers, is the small Uganda market. TICAF had up to 1973 an annual export of TSP to Kenya of a value of between 4 and 7 million shillings/year and to Tanzania in each of the years 1972 and 1973, about 1.4 million shillings. No export took place in 1974 as a TSP producing plant in Kenya came into operation in late 1973. Rwanda, eastern Zaire and southern Sudan are however potential new export markets. On the other hand, Uganda imported fertilizers in 1974 totalling Ug.Sh.10 million. In 1971 the imports were 13 million shillings (the highest recorded).

5.75 In the view of the mission there is a need at TICAF to strengthen the management/technical personnel through appropriate training programmes, particularly in view of the planned expansion. However, the most serious immediate problem is the state of the machinery (as noted above). In this connexion it is recommended that the possibilities of training and study visits within the framework of the C.D.C. programme be given full attention. For instance, facilities under this programme are offered by the Pakistan National Fertilizers Corporation and its factories.

5.76 TICAF has also been active in the pesticides production field; between 1961 and 1973 it produced DDT. Equipment originally supplied by Israeli firms for a new plant have not been put into operation. However, the mission understands that discussions are now underway with Italian interests with a view to manufacturing pesticides.

5.77 Pending the results of that investigation, it is proposed that investigations be carried out to assess the viability in the first instance of formulation and packaging of pesticides and insecticides. At a somewhat later stage further studies should be undertaken in respect of various possibilities of indigenous pesticides production (i.e. pyrethrum).

5.78 An initial study for the development of the pharmaceutical manufacturing industry in Uganda was carried out by the UNIDO adviser Dr. M.A. Awad in August/September 1973. In his report Dr. Awad made detailed recommendations for a programme for the rationalization and consolidation of the pharmaceutical sector and the establishment of a pharmaceutical industry. Assistance in this connexion is proposed for the following tasks:

(a) to consolidate simultaneously the control body (at the Ministry of Health) and the executing body (Uganda Pharmaceutical Ltd.), and to organize and plan their activities in the most efficient way on matters such as maximum utilization of available foreign exchange for importation of priority products and raw materials at the best market prices.

(b) to assess the best utilization of these materials and products by having fuller control of the distribution channels, stocks and prices;

(c) after the consolidation of these two lines of activities and the restoration and strengthening of the pharmaceutical sector, to initiate the development, on a solid basis, of a viable new pharmaceutical industry.

E. The Textile Industry

(i) Description of the industry

5.79 The National Textile Board (NTB) was established in 1974 to manage, rationalise and develop Uganda's well established textile industry. Total employment is about 10,000, divided among four integrated textile mills [1], a spinning mill [2], a blanket factory,

---

1/ Nyanza Textile Industries Ltd (Nytil) and Bamba Textiles Ltd., (formerly Mulco Textiles Ltd) at Jinja, African Textile Mill Ltd. (ATM) at Mbale, and Uganda Rayon Textile Manufactures Ltd. at Kawempe, Kampala.

2/ Uganda Spinning Mill Ltd. at Lira.

a gunny bag mill 1/, and two garment factories. (There are also numerous medium and small-size garment manufactures in various towns throughout the country).

5.80 The industry is currently based almost exclusively on Uganda cotton, processing about 30 - 40 per cent of the cotton crop, while the rest is exported raw. The spinning mill at Lira was established primarily to manufacture yarn for export, as a means of earning foreign exchange.

5.81 Total installed weaving capacity of the industry is about 60 million metres per year, but current production is well below that figure. The decline has resulted from various managerial and technical problems following nationalization of the industry in 1972.

5.82 The mission visited the Nytil, ATM, and Uganda Rayon Mills. Nytil is said to be producing at about two-thirds of its 36 million metre capacity. There are 860 "old" looms and 104 modern Sulzer looms. Between 5 and 10 per cent of the yarn being woven is supplied from the Lira spinning mill. Many difficulties are faced in keeping the old looms operating; spares are a particular problem and an appreciable fraction of the looms are out of service awaiting replacement parts. It was roughly estimated that production could be brought up to normal by spending two to three million shillings a year on spares. It was estimated that about 25 per cent of the needed spares could be made in Uganda if facilities could be improved. The factory has a maintenance workshop which can make screws and some small parts but has no foundry. A system of identifying maintenance requirements and producing the maximum

---

1/ Uganda Bags and Hessian Mills Ltd., Tororo. Main raw material; jute. Experimental growing of kenaf is being undertaken.

number of spares locally could be installed with assistance from outside.

5.83 A consulting firm was about to submit a detailed report on every aspect of Nytil's operation. It was expected to suggest an extensive spares workshop which would serve the whole textile industry. It was also considering a scheme of textile and/or high quality clothing exports to Germany which might include some offsetting of dyestuffs and chemical imports. The exportable products might include poplin shirts and summerwear, using existing Nytil products.

5.84 Interest was expressed in arrangements whereby research on use of local materials as substitutes for imported dyestuffs and chemicals could be carried out, possibly at Makerere University. Strong interest was expressed in the development of a capability to execute original Ugandan textile designs. It was felt that this could contribute to export growth. It was noted that part of the photographic process of preparing printing rollers is still carried out overseas; no doubt this "gap" in the local capability could also be "plugged."

5.85 At ATM, Mbale, the mission found that production was said to have come back to about 65 per cent of the 1971 rate. The looms were installed in 1968 but were built in 1926. Of 460 looms only about 270 were operating at the beginning of 1975. Through an intensive repair and maintenance programme nearly 100 have been brought back into operation during the year so that 360, or 75 per cent, are now operating. Weaving is clearly still the bottleneck operation, but about 22,000 metres per day are currently being produced.

5.86 ATM has a spares workshop including a small foundry 1/. In order to carry out its very ambitious rehabilitation programme

---

1/ Capacity is 100 kg. and moulding is done twice a week. There is a shortage of refractories.

it has organized a wide network of spares production units including :

- ATM workshop
- Gunny bag factory, Tororo (moulding)
- Ugma, Lugazi
- Busitema Agricultural Mechanization Centre
- Local artisans in Mbale

5.87 Planned maintenance is carried out each Sunday and a major overhaul will be done in December for three weeks. It is planned to expand the spares workshop and technical assistance would be welcome. Gears are a problem; in some cases mild steel casting and heat treating capability would be a great asset.

5.88 Uganda Rayon Textile Manufacturers, Kampala is likely to be back to pre-1972 production levels during the latter part of 1975. The plant is small (about 3 million metres per year), but manufactures a great variety of prints and yarn dyed fabrics as well as a large number of textured weaves. The factory features automatic screen printing of a vast number of khangas and other types of printed goods. Yarn dyed goods such as kikois, mattress ticking and tablecloths are also made in great variety and excellent quality. An innovative use of a cloth washing machine for hank drying yarn has reduceddye requirements by 75 per cent compared to the old tub system previously in use and has greatly increased productivity of the operation. Spares are manufactured in numerous shops around Kampala; the plant's maintenance workshop has no fabrication or moulding capability.

5.89 The National Textile Board (NTB) has a marketing service subsidiary which handles nearly all of the industry's output. NTB would like to provide other services on a central basis (such as spares production). Purchasing of spares and supplies from overseas is already centralized under an Imports Section. The Board is considering a crash training programme for the middle levels of staff i.e. between general management and the workers. The training needs include especially the whole range of technicians. Cost Accountants constitute or of the biggest weaknesses on the management side. The UNIDO/UNDP assisted accountancy team is working at ATM and Uganda Rayon

currently, and will move on to other textile plants in due course.

5.90 NTB is concerned with the working out of an overall plan for development of the industry. For example, there are thoughts that weaving plants could be set up at geographically dispersed locations such as Soroti and Arua to absorb more of the Lira output locally.

(ii) Technical assistance

5.91 There is clearly considerable scope for the UNIDO/UNDP project on industrial repair and maintenance to assist in the continuing rehabilitation of the existing factories. The proposed central foundry and heat treatment facility would also make a significant contribution.

5.92 It is recommended that an expert be requested as soon as possible to assist NTB in defining an overall industry development programme which would of course include garment manufacture as well as textiles themselves. This programming exercise could be followed by implementation as resources permit.

5.93 A comprehensive training programme is also recommended. This would be a more systematic follow up to the current fellowship programme under which twelve men are receiving training in Italy. Since the programme will necessarily be complex it may be useful to request specialized help by a UNIDO staff member in working out the details. This might be done in conjunction with the preparation of the overall industry development programme.

5.94 It is possible that a specific assistance project for the Lira spinning mill may have to be reinstated. This could be assessed by the overall textile industry planning mission when it comes to Uganda. Another aspect of possible assistance to Lira could be the development of sewing thread production. This would require further refinement of the twist balance control, plus installation of singeing and mercerising (caustic soda treatment) facilities.

F. The Agro-Based Industries sector

(i) The sugar industry

5.95 The Uganda sugar industry, once a thriving foreign exchange earner, today represents one of the more vulnerable sectors in the Government's economic war; present production is barely able to meet even the domestic demand, and the quality of refined sugar and related by-products has sharply deteriorated. The table in para. 2.07 provides production figures for the Uganda sugar industry for the period 1969-74.

5.96 All cane for the industry is grown on four estates, two of which have sugar processing factories (Kakira and Lugazi), a third at Kango Bay has had a factory commissioned by the Government, but production is not likely for some time to come; the fourth, the Kinyala sugar scheme, being established and operated through a bilateral agreement with the Government of India, will soon go into production.

5.97 The mission was able to visit the two estates at Kakira and Lugazi and at present these two represent the core of the sugar industry. These visits provided the mission with a very interesting and penetrating insight into the wide range of problems confronting the sugar industry as a whole.

5.98 Kakira Sugar Works Ltd. This project was started in 1918 with the establishment of a jaggery mill. White sugar has been manufactured since 1929, and present capacity was reached in 1953. Kakira is a self-contained industrial complex originally owned by the Madhvani Group of Companies. The theoretical capacity is 3,000 tons of cane per day which should produce approximately 90,000 tons of sugar per year. However, much of the equipment is very old; a notable exception being the Italian-made Farrell mill which was installed in 1967. The mill is powered by steam driven Worthington turbines, and some of the boilers date back to as far as 1910, and are powered by a combination of bagasse, wood and fuel oil. Because of problems in maintaining the equipment, the capacity is only about 30% used. Although the mill is operating on three shifts, there are very frequent unscheduled stoppages which often take several hours to repair. The resulting average running time is about 10-12 hours per day. The problems of the management are aggravated by the

delicate nature of cane. It matures within 18 months and must be cut and processed within 48 hours or else its juice content is rapidly reduced. Cut cane dries and gets spoiled on the carts due to factory breakdowns and the drier cane is causing damage to the rollers, etc. As a result the crushing is not as complete as is required and the bagasse that is produced is too moist to be used in the boilers. The factory has ten acres of canefield space where the bagasse is being stored and burnt! There are also problems in obtaining adequate sulphur and lime. The result is that the sugar coming from the mill is of a yellowish-brown colour, rather than the ordinary white. The Chairman and Director of Technical Services informed the mission that they have been able to improvise considerably the repair of broken parts and in manufacture of replacement parts. The machine shop is quite extensive and there is a foundry with the capacity to make castings weighing a maximum of 1½ tons. But the firebricks are worn out, and since they are not available locally, the furnace is out of operation. Thus only two small pit furnaces can presently be used to produce castings. Another serious limitation is that there are no heat treatment facilities, and as a result some of the parts manufactured locally must be replaced at uneconomically short intervals.

5.99 Uganda Sugar Factory Ltd. Lugazi. Like Kakira, Lugazi is a large self-contained industrial complex, and originally formed part of the Mehta Group of Companies in Uganda. The factory maintenance problems of Lugazi are similar if not identical to those of Kakira, viz. worn out rollers, shortage of certain key spare parts, lack of well trained technical and maintenance factory level technicians, and the resultant frequent breakdowns. Lugazi, however, operates a very successful foundry and mechanical workshop, Jema (see paras. 5.25 - 5.28 above) which is manufacturing much (although not all) of the factory's spare parts requirements. Lugazi's transport problems within the estates are chronic and have reached emergency proportions. Formerly it used railway wagons to transport the cane to the factory as well as British Leyland heavy duty trucks. These are virtually all out of order due to difficulties in replenishing spare parts. For two full days during the mission's stay in Uganda, the factory at Lugazi had not processed any sugar at all, because the cane simply could not be transported to the factory from the fields.

5.100 A very comprehensive report on the sugar industry in Uganda was prepared by the East African Development Bank in November 1974. This had been commissioned by the Government. It is understood that the main recommendations of the East African Development Bank's recommendations form the basis for the current bilateral negotiations between the Uganda Government and the Kuwaiti Fund. It can only be hoped that these negotiations will very soon materialize with a rehabilitation programme for immediate implementation.

5.101 The sugar industry has very urgent, and, in many cases, special problems. Sugar matures in the field within 18 months. Much of the cane in the fields has already passed the maturity period and is in fact totally written off. There are presently 1800 acres of full grown cane which is entirely beyond recovery (in respect of Lugazi alone). When the cutting season starts, cane cannot be kept standing for more than 48 hours; the frequent stoppages due to breakdowns, etc. force large amounts of cane waiting to be processed after cutting to greatly reduce their juice content. The drier cane is certainly causing damage to the cane rollers at the entrance to the processing machines, as well as to the crushers.

5.102 The mission believes that while the emergency conditions prevailing underline the need for urgent plant maintenance of machines, boilers, etc. it may be considered whether it would not, in the immediate and long term interests of the industry, be wiser to successively install at mills new plants and machines. The age of the plant machinery also certainly make this a viable proposition.

5.103 A joint mission of UNDP/UNIDO/FAO will be visiting Uganda in early 1976, to examine the vital food industries sector in Uganda, (see para. 5.124 below) and will doubtless critically examine the proposed programme of assistance for the rehabilitation of the sugar industry in light of the report and recommendations of the East African Development Bank.

5.104 With the exodus of non-citizens from Uganda, the sugar industries were particularly hard-hit, and the sugar industry therefore now has particularly chronic manpower problems at all levels, general management, technical, administrative, engineering and financial management. It is proposed that UNIDO go ahead with the preparations of a short term training programme as part of the overall rehabilitation programme for the sugar industry. Based on present and short-term training requirements, as submitted to the mission by the management of both the Kakira and Lugazi Sugar Factories, it is proposed to provide a short-term (two months) expert under the SIS programme to define a fellowships programme for the sugar industry. Immediate consideration is also to be given to the placement of several

technicians from both factories under CDC programmes at similar factories in countries such as Mauritius, Jamaica and Cuba.

5.105 The Kakira Sugar Factory management indicated to the mission that it can release personnel from the factory almost immediately, relying on a fairly steady outflow of technical graduates from Makerere University which would ease the placement of limited present personnel from the factory, and would like fellowships to be provided in the following areas: Accounting, including auditing and cost accounting; mill engineering, boiler engineering, electrical and sugar technology. Fellowships (3-6 months) in these fields should be arranged under CDC. In the area of experts to be attached to the factory, it was indicated that the Kakira Sugar Factory urgently requires a Chief Engineer for the factory who should be conversant in both mechanical and electrical engineering and having considerable experience in the sugar cane milling industry. The factory at Kakira also requires urgently a sugar technologist, and an agricultural engineer who should be fully conversant with both tractors, locomotives and farm implements repair. All three would be required to work full-time in their respective areas to provide technical resources for solving problems in different departments. They would naturally also be required to assist in the on-the-job training for the regular staff at the factory and on the estates.

5.106 With regard to the Lugazi Sugar Factory, its immediate training requirements have also been defined to the mission and they have the very pressing requirement of short-term training fellowships, as well as a re-orientation and reinforcement of the knowledge and skills of the incumbents of higher technical management (managerial) posts for the specific needs of the sugar industry. It is felt that the following main areas should be looked at with the possibility of placing technicians from the two factories in such fields as: Maintenance engineering, boiler engineering, electrical engineering, mill engineering, automobile engineering, production engineering, etc. In the area of chemistry, there is urgent and immediate requirements in the field of process laboratory chemists, distillery chemists and agricultural laboratory chemists.

(ii) The tea processing industry

5.107 The tea processing industry in Uganda, unlike the sugar industry, is not confronted with the same pressing problems requiring immediate rehabilitation. This is due to a combination of factors; firstly, the processing of tea is not as complicated as that required for sugar, and requires only a simple method of picking (by hand), cutting and drying; secondly, during Uganda's Second Development Plan, a Smallholder Tea Programme (a type of outgrower scheme) was initiated under the Uganda Tea Growers Corporation. Under this scheme the number of smallholders increased from 6,620 to 8,540 during 1971, and the total area of tea managed by the smallholders expanded from 6,330 to about 7,250 hectares. Thirdly and finally, the industry was not greatly affected by the exodus of non-citizens since the industry was run mainly by indigenous farmers.

5.108 By 1976, it is planned, that, with the expansion of the factory at Kigezi and the installation of four new factories, there will be a total of 36 tea factories.

5.109 In order to improve the maintenance and operating efficiency of the eight tea factories managed by the Agricultural Enterprises Ltd. (A E L) and to train Ugandan personnel in the necessary techniques and procedures, a technical assistance project has been approved for the provision of expert services and fellowship training. Under this project, UNIDO is to provide AEL with the services of one maintenance engineer in the field of mechanical engineering and one maintenance engineer in the field of electrical engineering for 12 months each. The project will be executed in full coordination with the repair and maintenance programme referred to in para. 5.32 above.

(iii) The coffee processing industry

5.110 Under the present Third Uganda Development Plan there are no plans to expand coffee processing capacity. Emphasis will be rather on an improvement in quality.

5.111 Within the overall assistance in the field of repair and maintenance, referred to in paragraph 5.32 above, it is proposed that technical services be provided to supplement the Uganda Coffee Board's plans to rehabilitate several of the existing coffee processing plants. The Uganda Development Bank (UDB) is expected to make available 5 million shillings to assist in the rehabilitation programme as well as in the building of new factories and new storage facilities.

5.112 Consideration is also being given to the production of instant coffee and some preparatory investigations have been undertaken in co-operation with the East African Development Bank. It is proposed that the forthcoming UNDP/UNIDO/FAO mission on the Food Industries Development Centre (see paragraph 5.124 below) might further examine the possibilities for instant coffee production. This could also give added impetus for the need to develop local tin can manufacture.

(iv) The cotton processing industry

5.113 Uganda cotton, due to a combination of factors, is among the best in the world to-day. The National Textile Board is currently having a long term rehabilitation programme drawn up for the textile industry (see paragraphs 5.92, 5.93 above) in which the utilisation of the local cotton plays a vital role.

5.114 The table in paragraph 2.17 indicates the production figure for raw cotton for the period 1969-74. It is understood that before the "economic war" there had been about 150 cotton ginneries in operation in Uganda. However, only around 90 ginneries were passed on to the Co-operatives. Of these 90 ginneries, many are now in full operation while several more are still in need of major rehabilitation. The African Development Bank has recently granted

a loan of U.Sch. 42 million for the establishment in 1976/77 of these new ginneries at Tororo, Kasese and in the Northern Region, and rehabilitation of ten old ones.

5.115 The ginneries are under the supervision and management of the co-operative unions. Both the Lint Marketing Board and the Department of Co-operatives come under the Ministry of Co-operatives.

5.116 All cotton in Ugandais of the roller gin variety. During the period 1976/77, it is planned that 10 new ginneries will have been built and added to the overall programme for the addition of new ginneries. It is also planned during the same period to increase the number of rollers from one to two thousand rollers.

5.117 There is a general problem at the ginneries with regard to spare parts, all of which come from either the United Kingdom or India. The shortages in this area relate mainly to bearings, crankshafts and gear wheels. Also there is no Central Workshop catering to the mechanical and maintenance problems of the cotton ginneries.

5.118 It is recommended that, due to the geographical dispersement of the ginneries all over Uganda, consideration be given to the provision of mobile workshops, under the IPF, to alleviate this pressing need. This matter should be further looked into by the repair and maintenance mission, referred to in paragraph 5.32 above, which will also cover repair and maintenance assistance for the cotton processing industry. This assistance to the ginneries should be co-ordinated through the Central Co-operative Union.

5.119 Recently, the Uganda Lint Marketing Board has been given authority to increase the crushing of cotton seed. The bulk of the cotton seed normally comes to Kampala from an area in the north of Uganda. The East African Development Bank (EADB) has already completed a feasibility study for an oil mill to be located in the north of Uganda. Recently, bilateral contracts have been made in respect of this project.

5.120 In discussions between the mission and officials of the Lint Marketing Board, it was explained that a large percentage of raw cotton in Uganda is being seriously affected, and deteriorates to an unusable state, because most of the cotton ginneries do not have adequate storage facilities; in addition, the storage spaces for the raw cotton at the railway junctions are totally inadequate, especially in the rainy season. It is clear that any programme for rehabilitation of the ginneries must be coupled with an improvement in storage facilities as well as the overall improvement in the transport sector.

(v) Fruit and vegetable canning industry

5.121 Although it appears that some valuable development work has already been undertaken in Uganda and research capability exists, the Research Department in the Ministry of Agriculture is short of the necessary funds to maintain a sustained programme of development research required for a competitive fruit and vegetable canning industry. [Uganda does no doubt already have now a good export potential for a wide variety of fresh fruits (bananas, pineapples, citrus etc.,) and vegetables.]

5.122 During the course of the second Five Year Plan a special investigation was carried out (with not wholly positive results) into the prospects for developing a vegetable canning industry, possibly to be located at Kigezi.

5.123 The mission is aware of the great socioligical transformations that have recentlyoccurred in Uganda, as a result of the mass exodus of urban non-citizens, resulting in changes in urban consumption patterns. However, given the excellent quality of Uganda's fresh fruit and vegetables, a canning industry, based on fruit and vegetables could be competitive on the world market.

5.124 The FAO/UNDP/UNIDO mission on the possible establishment of a Food Industries Development Centre, to be fielded early in 1976, will be expected to make a more detailed examination of the immediate possibilities for such an industry, inter alia in the context of a food complex of related industries.

5.125 Furthermore, it is proposed that the UDC Consultancy Group (see paragraph 4.37 above) under the Ministry of Industry and Power, undertake a long range feasibility study on local tin making. This work should be carried out within the overall objectives and programme of the Food Industries Development Centre. The Centre would also be required to provide the necessary industrial quality control required for fruit and vegetable processing for export.

(vi) Meat and meat products processing industry

5.126 In the context of Uganda's current foreign exchange shortage, and the very high demand for fresh beef also in some neighbouring countries such as Zaire and Sudan, the beef industry in Uganda merits priority attention. At present there is urgent need for improvement in such basic areas as disease control, pre-slaughter inspection, and processing of the slaughtered animals. The main lines of development in beef production in Uganda has been in the setting up of new ranches and pasture improvement. Under the present Country Programme $1.6 million is earmarked for a project, Development of Beef Cattle Industry, executed by FAO. The main objective of this project is to assist the Government in establishing a stratified beef industry with intensified beef production, along with the establishment of disease-free zones and feeding operations using sugar cane molasses and other improved animal feeds.

5.127 The Ministry of Industry and Power has also recently commissioned a viability study on the Uganda Meat Packers Ltd., by the UNIDO-assisted UDC Consultancy Group. It is recommended that a rehabilitation programme for Meat Packers Ltd., be started in early 1976, based on the recommendations of the UDC study. This rehabilitation programme is to be co-ordinated with the beef cattle industry project. Support from the Food Industries Development Centre, when established, would also be expected.

(vii) Tannery and leather industry

5.128 Proposals to assist the Uganda Development Corporation (UDC) to establish a leather tannery date back to 1969 when the UDC requested UNIDO assistance to review tentative plans and make specific recommendations. In January 1970 a UNIDO SIS expert completed a four-month assignment and submitted a very detailed and exhaustive report. The summary recommendations of the study were :

(a) the establishment of an industrial tannery in Uganda as a viable proposition and of great economic importance to the country;

(b) the industrial tannery should be geared to produce both finished leather for the domestic market and semi-finished leather (crust), and wet blue chrome for export;

(c) the initial capacity should be:

200 hides per day for finished leather
200 hides per day in crust form
2,000 skins per day in wet blue chrome state

(d) the related leather products industries must be given consideration for expansion or started.

5.129 On the basis of these recommendations discussions have been held with bilateral sources of finance - the Libyan Arab Bank and AFARSO in Kuwait - for the establishment of a tannery with likely location at Jinja. This industry would have excellent export potential.

5.130 At a later stage assistance should be continued in connexion with promotion of indigenous leather goods production and the establishment of leather research and testing facilities. It would seem that co-operation within the CDC programme might be of particular interest in this case.

(viii) Animal feeds

5.131 Special emphasis has been placed on the development of Uganda's livestock industry by the Government. It is acknowledged that a basic precondition for an efficient livestock development programme is the availability of mixed-feed and/or feedstuff concentrates. A variety of forage crops can be easily produced in Uganda and considerably more use could be made in Uganda of the by-

products from existing industries, such as oil cakes, bran varieties, molasses for the production of livestock feeds. The Ministries of both Industry and Planning indicated interest in utilizing UNIDO assistance to carry out techno-economic feasibility investigations for the establishment of a viable feedstuffs industry.

5.132 It is highly recommended that the proposed twelve months SIS project designed to establish pilot plants for the manufacture of low cost feeds for poultry be implemented in 1976. This will be co-ordinated with the FAO-executed poultry extension project.

5.133 Secondly, the mission supports for immediate implementation the proposed nine months SIS project to prepare a feasibility study for the industrial production of animal feedstuffs. This would be co-ordinated with the present FAO-executed beef cattle industry project.

5.134 Thirdly, it is felt that the projected fish meal plant could greatly supplement the shortage in animal feedstuffs. A project proposal for the establishment of a fish meal plant is with the East African Development Bank. Fish processing and canning studies have been undertaken during the Second Development Plan and a laboratory unit was constructed. It is envisaged that within the framework of the Food Industries Development Centre the work on the possibilities of processing the many varieties of fish found in Lake Victoria will continue. In addition, with the introduction of a deep water trawling industry in Lake Victoria fish meal production might become economic to supply an animal feeds factory.

(ix) Brewery industry

5.135 Reflecting a change in urban consumption patterns in Uganda, the consumption of beer has increased very substantially and production is unable to meet the increased demand.

5.136 Malt and hops are presently being imported for the two breweries at Port Bell and Jinja. Under the guidance of FAO experts, experiments are presently being conducted in Uganda to grow barley on a commercial scale as a means of reducing the large foreign exchange presently required for the breweries. Consideration is also being given to the use of millet and sorgum as alternatives to

barley, and it is to be noted that the East African Industrial Research Organization in Nairobi has done extensive research on this aspect.

5.137 It is proposed that a feasibility study be undertaken for the establishment of a malting plant in Uganda to serve both breweries. It is proposed that an expert be provided under the SIS programme for three months to conduct this study. Efforts to improve the brewery facilities might be considered in the context of the Food Industries Development Centre.

5.138 As a related activity it was also explained to the mission that another area that is causing difficulties with the regular supply of beer is the shortage of bottles. It is recommended that the earlier proposed assistance to the East African Glass Works Ltd., (UGA/74/013) be reactivated possibly under bilateral assistance.

(x) Cassava starch production

5.139 It is recommended that the UDC Consultancy Group be called upon to assist in the rehabilitation of the Lango Development Corporation, whose main production is cassava starch. The improvement of starch production will be of specific importance for the textile industry development programme.

ANNEX 1

List of persons contacted and institutions and industries visited

Ministry of Planning and Economic Development, Entebbe

Mr. J. Obua-Otua, Deputy Secretary
Mr. J.A.I.M. Nduru, Ag. Chief Economist
Mr. J. Bulinda, Principal Economist, Financial Sector (incl.tech. assistance co-ord.)
Mr. J. Okune, Principal Economist, Macro Econ. Sector
Mr. J. Kalibwani, Sr. Economist, Financial Sector
Mr. A.O. Etima, Senior Economist
Mr. G.K. Tebigwayo, Economist, Financial Sector

National Research Council, Kampala

Mr. Y. Ovon, Executive Secretary
Mrs. Muwanga, Secretary to the Scientific and Industrial Research Committee

Ministry of Industry and Power, Kampala

Mr. S. Rutega, Permanent Secretary
Mr. A. Katumba, Head of Planning Division
Mr. P. Wanjala, Statistician

Management Training and Advisory Centre (MTAC), Kampala

Mr. Kakema Ntambi, Director of Training and Ag. Director
Mr. John H. Kizito, Head, Small Enterprise Development Division
Mr. R. Alan Scott, ILO, Expert in Management Training (Ag. Project Manager)

Ministry of Commerce, Kampala

Mr. B.K. Sembatya, Permanent Secretary

Export Promotion Centre, Kampala

Mr. Moses Sebunya, Officer-in-Charge

Ministry of Works and Housing, Entebbe

Mr. G. Owaraga, Permanent Secretary

Central Materials Laboratory, Kampala

Dr. H.L. Uppal, Chief Materials Engineer (expert financed under World Bank Credit)

Provincial Government, Musoga Province, Jinja

Mr. Nyangbyaki, Governor
Mr. Kakugu, Executive Secretary to the Governor

Uganda Development Bank (UDB), Kampala

Mr. Z.K.S. Bukenya, Managing Director
Mr. Lamoto, Secretary

..... 2/

Uganda Development Corporation (UDC), Kampala

Mr. S. Lukwago, Assistant General Manager
Mr. P. Kinyatta, Ag. Director of Development
Mr. Luay R. Shawkat, UNIDO, Project Manager, UDC Consultancy Group Project
Mr. Wadie H. Nakhla, UNIDO, Project Manager, UDC Industrial Accounting System and Staff Development Project
Mr. A.A.S. Zaky, UNIDO, Cost Accounting Adviser, UDC Industrial Accounting System and Staff Development Project

Uganda Steel Corporation, Kampala

Mr. U.G.N. Ratagi Bakeine, Operations Manager (took also part in plant visits and discussions at Jinja)
Mr. C.O. Okui, Corporation Secretary

Steel Corporation of East Africa Ltd., Jinja

Mr. Samson M. Zikusoka, Production Executive
Mr. Luigi Biletta, Consultant and Chief Engineer
Mr. James Senkubuge, Assistant Director

Chillington Tool Co. Ltd., Jinja

Mr. Basil M. Dungu, Director
Mr. A.G. Crew-Gee, Production Manager

National Textile Board, Kampala

Mr. Magezi, General Manager

Nyanza Textile Industries Ltd. (Nytil), Jinja

Mr. A.B. Abulawana, General Manager
Mr. M.A. Pembo, Production Executive

African Textile Mills Ltd., Mbale

Mr. Otile, General Manager

Uganda Rayon Textile Manufacturers Ltd., Kampala

Mr. Hakim, Manager, Weaving Dept. (expert financed under Egypt bilateral agreement)
Mrs. Hakim, Manager, Processing Dept. (expert financed under Egypt bilateral agreement)

Uganda Cement Corporation, Kampala

Mr. J. Adrole, General Manager
Mr. Sobhy Agaiby, Industrial Chemist (at present under bilateral - Egypt - contract; to be UNIDO adviser from January 1976)
Mr. T.M. Aggarwal, UNIDO, Mechanical Engineer

Uganda Cement Industry Ltd., Tororo

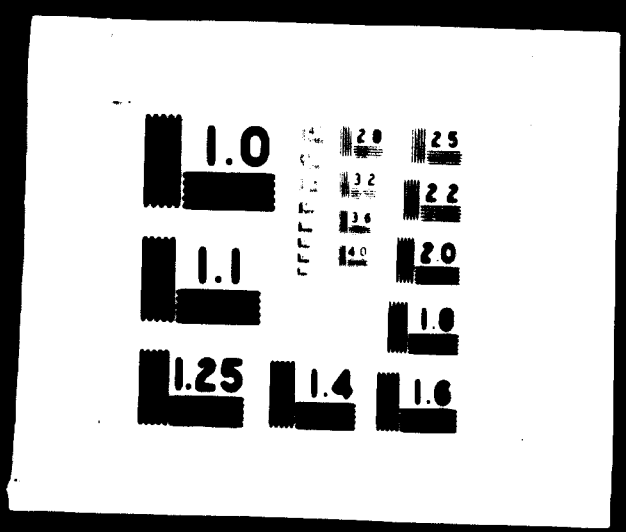
Mr. W.M. Bahigeire, General Manager
Mr. Anthony Pilai Francis, Chief Engineer
Mr. Dhaala, Chief Accountant

..... 1/

76.02.02

2 OF 2

OG844



Kakira Sugar Works Ltd., Kakira/Jinja

Mr. A.K. Osuban, Government Agent and Managing Director
Mr. Kaveyesa, General Manger
Mr. G. Mwanu, Government Agent

Uganda Sugar Factory Ltd., Lugazi

Mr. C.L. Onyut, Ag. Company Secretary
Mr. E. Katongole, Assistant Plantation Manager
Mr. George Pemba, Personnel Manager

Ugma Steel and Engineering Co. Lugazi

Mr. Wafula, Manager
Mr. Swaib Kigozi, Production Engineer

Tororo Industrial Chemicals and Fertilizers Ltd., Tororo

Mr. Odong, Factory Engineer

Papco Industries Ltd., Jinja

Mr. Freddie Rwakiseta - Tinaako, General Manager
Mr. C. Darascon Mindra, Production Engineer

New Steel Wire Industries, Mbale

Mr. Abdul Sabuni, Assistant Manager

Wood Industries Corporation, Kampala

Mr. Rukuba, General Manager
Mr. A.L.M. Biterakivate, Assistant General Manager

Macrae's (Uganda) Ltd, Kampala (furniture manuf.)

Mr. R. Julius Yogo, Technical Officer-in-Charge

Uganda Lint Marketing Board, Kampala

Mr. E.J.H. Kitaka-Gawera, Secretary to the Board
Mr. M.A. Okoth, Chief Ginning Inspector

East African Development Bank, Kampala

Dr. Oksal, UNIDO, Adviser, Research and Project Promotion Division

* * * * *

UNDP

Mr. Kwafo K. Apeadu, Resident Representative
Mr. Francisco Galter-Sala, Deputy Resident Representative
Mr. Basem E. Khader, Assistant Resident Representative (Programme)

World Bank Reconnaissance Mission

Mr. Lyle Hansen, Economist
Mr. D. Groenwall, Agricultural Consultant

IMF Visiting Mission

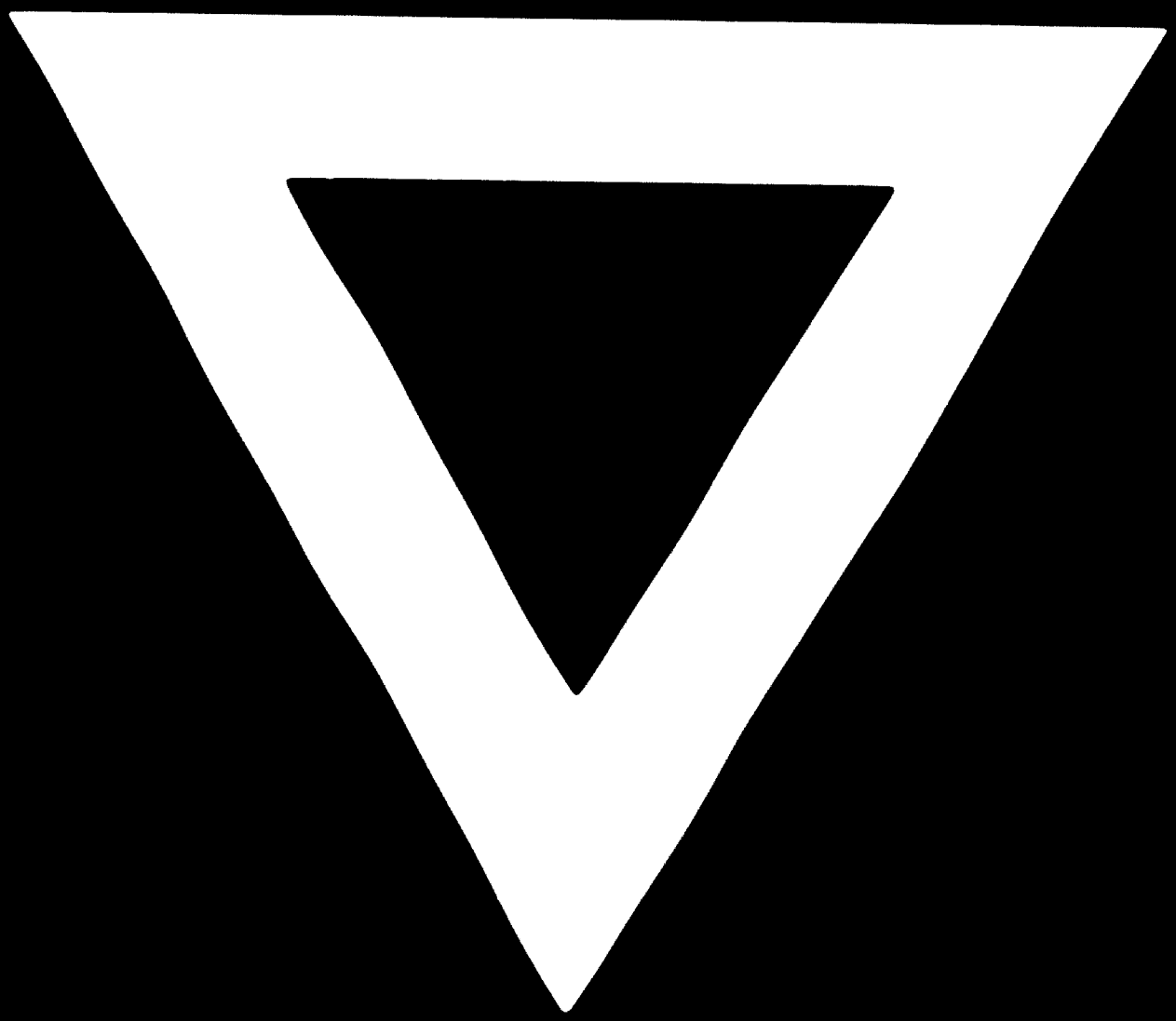
Mr. Kwame Kwateng

FAO

Mr. R. Fort, Team Leader, FAO Programming Mission
Mr. M. Sisto, Agronomist, FAO " "
Mr. Mattew Okei, FAO " "
Mr. P. Pierre, Senior Agricultural Adviser
Mr. John Turnbull, Programming Consultant
Mr. M.A. Afifi, Poultry Nutrition and Extension Expert

ILO

Dr. S. Ayoub, Manpower Development Consultant
Mr. I. Frank Hutchfield, In-plant training expert, National Industrial Training Scheme.



76.02.02